



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA  
DEPARTMENT OF  
PHILOSOPHY AND COMMUNICATION STUDIES

STS

Italia Conference

2023

*Interesting Worlds to Come*

*Science & Technology Studies facing  
more-than-human challenges*

**University of Bologna, Italy**  
**28 – 30 June 2023**

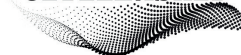
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ALMA MATER STUDIORUM  
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DEPARTMENT OF POLITICAL AND SOCIAL SCIENCES

**PROCESSING  
CITIZENSHIP**



**ITS** **TECNOSCIENZA**  
Italian Journal of Science & Technology Studies

## Conference theme

### **Interesting Worlds to come. Science & Technology Studies facing more-than-human challenges**

"May you live in interesting times," the (allegedly) traditional Chinese curse goes. It is apparently derived from the actual motto "Better to be a dog in times of tranquility than a human in times of chaos." Taken together, these sayings recall that the ambiguity implicit in something defined as "interesting" depends on the perspective of who/what is involved. The 9th STS Italia Conference invites scholars from Science & Technology Studies and cognate areas to unpack the ambiguous concept of "interest" as a necessary step to tackle the challenges faced by our planet and to design worlds to come from an inter-national, inter-species and inter-generational justice perspective.

As the last couple of years has taught us once more, current challenges interest heterogeneous networks of human and non-human beings in a long-term perspective. While marking the advent of a new viral form of life, the COVID-19 pandemic has affected a number of other species, including but not limited to humans. War in Ukraine has reminded us not only of the multiple ongoing wars in and outside the Global North, but also of the destructions they bring about for the future generations of living beings and their environments, and of the extractive deluge needed to conduct them. Draughts and floods in many areas of the world have revealed not only the interdependence of remote locales, but also the differentiated, situated outcomes of climate changes for diverse species, milieus and generations.

At the same time, STS pursue an understanding of "interest" that transcends mere affection and assumes agency, involvement and intervention. Given the more-than-human nature of those challenges, more-than-human alliances need to be interested to address them. Humans alone are failing to meet the IPCC goals, to curb ongoing wars and to prevent future pandemics. We have been told that we must either adapt or perish, but the truth is that we need help. We need help to set benchmarks, to measure, to model and even to forecast.

# Conference organization

## Scientific Committee

- Simone Arnaldi (University of Trieste)
- Attila Bruni (University of Trento)
- Claudio Coletta (University of Bologna)
- Stefano Crabu (University of Padua)
- Paolo Giardullo (University of Padua)
- Paolo Magaudda (University of Padua)
- Alvise Mattozzi (Politecnico di Torino)
- Federico Neresini (University of Padua)
- Annalisa Pelizza (Conference Chair, University of Bologna)
- Manuela Perrotta (Queen Mary University of London)
- Assunta Viteritti (Sapienza University of Rome)
- Paolo Volonté (Politecnico di Milano)

## Organizing Committee

- Simone Arnaldi (University of Trieste)
- Claudio Coletta (University of Bologna)
- Agnese Cretella (University of Bologna)
- Marco Giacomazzi (University of Bologna)
- Paolo Giardullo (University of Padua)
- Francesco Mazzucchelli (University of Bologna)
- Lorenzo Olivieri (University of Bologna)
- Annalisa Pelizza (University of Bologna)
- Barbara Saracino (University of Bologna)
- Wouter Van Rossem (University of Twente)

## Volunteers

- Marco Giacomazzi
- Ahsan Syed
- Giusy Grieco
- Beatrice Ferrigno
- Alice Fubini
- Giulian Melani
- Francesco Nasi
- Beatrice Superbi
- Dominik Tkalcic
- Michele Veneziano
- Chiara Vigolo

## Organized by

- **STS Italia – The Italian Society of Science and Technology Studies**

STS Italia was founded in 2005 to build up an Italian network of researchers oriented to study Science and Technology starting from the social dynamics which characterize and interweave science and technology themselves.

Nowadays the field of Science and Technology Studies (STS) represents a well established and prominent research field at the international level. As a field, it allows scholars and professionals from different disciplines to dialogue with each other. Furthermore, it mobilizes interests of both academic institutions and other social actors (e.g. not academic institutions, companies and so on).

The aim of STS Italia is to promote initiatives and events able to increase the visibility and diffusion of the STS approach, as well as to create chances for exchanging and sharing research experiences, projects and studies connected to social dimensions of technoscientific phenomena.

## In collaboration with

- **University of Bologna, Department of Philosophy and Communication Studies**
- **University of Bologna, Department of Political and Social Sciences**
- **Processing Citizenship**

*Processing Citizenship* is a European Research Council (ERC) funded research project (grant agreement No 714463, <https://processingcitizenship.eu/>) that studies the registration and identification of third-country nationals in Europe as co-production of Alterity and European order. The *Processing Citizenship* team (PI Annalisa Pelizza, Chiara Loschi, Lorenzo Olivieri, Wouter Van Rossem, Paul Trauttmansdorff) organizes panel 10 "Games, experiments and redesign – Testing STS multimodal approaches" and panel 42 "Revisiting identification and registration of humans and more-than-humans: long-term perspectives and implications". The project also organizes the round table in memoriam of Bruno Latour on June 28th. Latour's work has indeed been a source of deep and lasting inspiration for *Processing Citizenship*.

- **INFRATIME**

INFRATIME is a Marie Skłodowska Curie Global Fellowship funded project (grant agreement No 892522 - [www.infratime.eu](http://www.infratime.eu)) studying how the temporalities of urban transformations and networked urban infrastructures interfere with the new climatic regime. INFRATIME PI Claudio Coletta co-organizes panel 21 – "A caring interest for the planet: making archives and readers \*sensitive\* in times of the new climatic regime". The project also organizes the roundtable "Taking Time, Shaping Time. Pacing Urban Climate Transitions" which discusses the temporalities of urban climate transitions from the perspective of scholars, practitioners and decision makers engaged with actual cases of transition in European and global cities.

## Media partner

- **Tecnoscienza**

*Tecnoscienza* (<http://www.tecnoscienza.net/index.php/tsj>) is a scientific journal focussing on the relationships between science, technology and society

# Keynotes

## **28 June 2023 — Huub Dijkstra: Extreme infrastructures: transversal relationships between the technopolitics of climate change adaptation and international migration**

- Chair: Timothy Raeymaekers
- Discussant: Annalisa Pelizza
- Location: Aula A, Aula B & Aula Unione 1

*Huub Dijkstra is Professor of Philosophy of Science, Technology and Politics and Scientific Director of the Institute for Advanced Study of the University of Amsterdam. He is co-founder of the Platform for the Ethics and Politics of Technology and one of the initiators of the movement Science in Transition.*

In this lecture, Huub Dijkstra seeks to investigate parallels, contrasts, and possible transversal relationships between climate adaptation and migration policies. Policies on these issues are constantly navigating under the threat of introducing extreme infrastructures, which claim to solve the problems and make alternative paths impossible. Whereas climate adaptation policies increasingly emphasize the use of flexible instruments to make societies more resilient to climate change, fortification and weaponization have returned with a vengeance in migration policy. The lecture will elaborate on several traditions of STS-research to detect novel conceptual, empirical, and political questions to stimulate STS' technopolitical imagination. Working with the notions of social sorting and boundary infrastructures, the lecture will analyze the tensions between the underlying technics and politics of different categorizations of climate mobility and non-mobility, such as environmental migration, climate migration, disaster displacement, managed retreat, refugees, and victims. Using research on visualization and surveillance, parallels between the scientific-technological apparatus to monitor climate change and the development of databases and information systems that monitor migration and displacement will be drawn. Specific attention will be paid to the question of which kinds of knowledge and expertise and which kind of experts are involved in the analysis of environmental and climate migration and how this affects the nature of these analyses and monitoring systems, including the analysis of the mobility of nonhuman animals (e.g. bird migration and other wildlife circulation) as they shift their habitat ranges to track their ecological niches. How does this affect research approaches and the organization of knowledge, for instance when fields such as biodiversity and migration studies are turned into 'crisis disciplines'? Is redefining research areas useful to circumvent the introduction of extreme infrastructures in adapting to climate change and international migration in Europe?

## **29 June 2023 — Noortje Marres: On making science public in times of emergency: how did Independent Sage made a difference in the situations of Covid-19?**

- Chair: Manuela Perrotta
- Discussant: Chiara Bodini
- Location: Aula A, Aula B & Aula Unione 1

*Noortje Marres is Professor at the Centre for Interdisciplinary Methodologies, University of Warwick. Her work contributes to the interdisciplinary field of Science, Technology and Society (STS) and investigates issues at the intersection of innovation, publics, the environment and everyday life.*

What does it mean to conduct science in the public interest in times of a general emergency? Recent studies of expert advice during the Covid-19 pandemic in the UK have noted the exceptional circumstances in which science gained broad and practical public relevance, as Covid-19 affected the whole UK population (Green et al, 2022). They have also argued that institutionalised relations between science and politics contributed to the crisis in the UK, as secrecy and reliance on a narrow range of expertise allowed underexamined assumptions to gain disproportionate influence on government policy, especially in the early phase of the pandemic (Pearce, 2020; Ballo et al, 2022). In view of this, it becomes especially important to examine how scientists devised alternative strategies to intervene in the pandemic by making science public. To this end, I am currently conducting a social study of Independent Sage, the group of scientists that formed in May 2020 to provide independent scientific advice to the UK government and public on how to minimise deaths and support Britain's recovery from the COVID-19 Crisis." Using methods of situational analysis (Clarke, Friese et al, 2017), I investigate how Independent Sage sought to "make a difference" in the public situations (Barry, 2021; Marres, forthcoming) of the Covid-19 emergency by intervening in three topical areas: test and trace, covid-related inequalities, and science-informed governance in society (such as schools). In this talk, I will present a situational analysis of IndieSage's interventions in these areas based on expert interviews with members and societal partners of Independent Sage as well as document analysis. On this basis, I will formulate some practical, methodological and aspirational answers to the question with which this abstract begins.

## **30 June 2023 — Paul N. Edwards: Technology Eats History: Time and Techno-metabolism in the Anthropocene**

- Chair: Claudio Coletta
- Discussant: Luigi Pellizzoni
- Location: Aula A, Aula B & Aula Unione 1

*Paul N. Edwards is Director of the Program on Science, Technology & Society (STS) and a William J. Perry Fellow in International Security at the Center for International Security and Cooperation at Stanford. He also co-directs the Stanford Existential Risks Initiative with Prof. Steve Luby.*

What we call “technology” today involves intensely concentrated metabolic processes, ingesting and transforming energy and materials on a planetary scale. Techno-metabolism also concentrates and compresses time. Its temporalities include Earth's deep past (fossil fuels, minerals) and its present (biological net primary production). The Anthropocene epoch – with humanity as a geological force – now appears likely to consume, as well, the human future, potentially to the extinction of our species. Holding multiple temporal and spatial scales within our analytic frameworks has proven (unsurprisingly) difficult for STS and History of Technology. This talk offers ways of reconfiguring our conceptual and methodological tools to meet this urgent challenge.

## Round tables and special events

### **Roundtable in Memoriam of Bruno Latour: "Drawing Bruno Together"**

*June 28th, Aula A, Organised by Processing Citizenship*

*Participants: Madeleine Akrich, Huub Dijstelbloem, Paul Edwards, Noortje Marres, Alvis Mattozzi, Tommaso Venturini*

While many of us are still mourning Bruno Latour's passing away last October 2022, in this roundtable we will try to move a step forward in elaborating the loss of one of the most provocative thinkers in STS and beyond. Selected among long-term colleagues, friends and exegetes of his work, participants - all renowned STS scholars themselves - will elaborate on their scientific relationships with his work, single out his most approachable and inspiring writings, identify aspects of his thought that in their opinion should pass to the next generations.

### **Roundtable "Taking Time, Shaping Time. Pacing Urban Climate Transitions"**

*June 29th, Aula A, Organised by INFRATIME, chaired by Claudio. Coletta (University of Bologna)*

*Participants: Anna Lisa Boni (Comune di Bologna; Eurocities), Vando Borghi (University of Bologna; GRETA), Nannan Lundin (VINNOVA), Carl Mossfeldt (Climate Transition Office Gothenburg), Akito Murayama (The University of Tokyo, Urban Land Use and Planning Unit)*

In May 2021, the International Energy Agency Executive Director Fatih Birol stated that climate change is not a race between countries, but it is "a race against time".

Indeed, climate transitions to carbon-neutral futures take time: similarly to processes of innovation, they are featured by a future-oriented work, featuring both the adoption of mission-oriented approaches in policies and the use of modelling and simulations in climate science. As a result, long-term scenarios outline possible pathways for the next centuries while medium-term climate targets are set for next decades to pace viable transition pathways.

Climate transitions shape time, too. The long-term pathways interacts with the political cycles and the rhythms of everyday management, as well as with the temporalities silently running through infrastructural and institutional processes. Frictions between urgency and risks, hopes and delays, legacy and change turn transitions into fragile and contested timescapes, where future past and present merge, collide and are constantly reshuffled. This is increasingly evident in urban and local settings, with experimentations and initiatives bending time to make adaptation and mitigation



actions durable. In the European Union, the recently started 100 Climate-Neutral Cities program and the related adoption of the Climate City Contract marks a significant step towards the leading role of cities in addressing the climate crisis.

From a Science and Technology Studies (STS) perspective, the temporal interferences and interactions of technoscientific practices, infrastructures, and governance in urban climate transitions offer a challenging ground to understand and address what Bruno Latour defined “the new climate regime”: a regime where not only greenhouse gases emissions should significantly decrease, but where new relations with the world should be enacted. A time-based approach to the new climate regime looks at the heterogeneous, uncertain, material, and multiple existence of transitions as a starting point to produce a system change towards an habitable and just planet for humans and non humans.

The round table brings to the fore the temporalities of urban climate transitions from the perspective of scholars, practitioners and decision makers engaged with actual cases of transition in international cities. It will examine the political, scientific, social, technological aspects that compose transitions timescapes, focusing on their practical and experimental dimensions. The discussion intends to contribute to rethink multi-level approaches from a temporal perspective, reflecting upon the pacing and temporal infrastructuring of transition pathways, their missions and incremental character. It aims to strengthen a transdisciplinary dialogue between experiences from the ground and transnational policies, research and practice, science and policy.

## **"How to publish in an STS journal" early-career researchers meeting**

*June 30th, Sala Rossa, jointly organised by Science, Technology and Human Values and Tecnoscienza*

## **Conference program**

**Date: Wednesday, 28/June/2023**

**8:30am - 10:00am**

**Registration**

**9:30am - 10:00am**

**Welcome address**

Aula A

Location: **Aula A**

Rector of Alma Mater Studiorum – University of Bologna: Giovanni Molari

Director of Department of Philosophy and Communication: Giovanni Matteucci

Director of Department of Political and Social Sciences: Filippo Andreatta

Conference chair and vice-president of STS Italia: Annalisa Pelizza

**10:00am - 11:30am**

**Plenary Huub Dijstelbloem: Extreme infrastructures: transversal relationships between the technopolitics of climate change adaptation and international migration**

Session Chair: **Timothy Raeymaekers**

Discussant: Annalisa Pelizza

Location: Aula A, Aula B & Aula Unione 1

**11:30am - 12:00pm**

**Coffee break**

**12:00pm - 1:30pm**

**Panel 36: Diagnosis, prognosis, treatment - Towards fair and sustainable care provisions in health systems and pharmaceutical innovation**

Aula A

Location: **Aula A**

Session Chair: **Hadewych Honné**

Session Chair: **Conor Douglas**

**12:00pm - 1:30pm**

**Panel 13 Session 1: Artistic Intelligence? Making it together in the Multispecies World**

Aula B

Location: **Aula B**

Session Chair: **Silvia Casini**

Session Chair: **Gediminas Urbonas**

Session Chair: **Roberta Buiani**

Session Chair: **Philippe Sormani**

**12:00pm - 1:30pm**

**Panel 34: Earthly and otherworldly challenges. On the mutual shaping of imaginaries, practices and discourses about Earth and Outer space**

Aula C

Location: **Aula C**

Session Chair: **Valentina Marcheselli**

Session Chair: **Marco Serino**

Session Chair: **Chiara Vassillo**

**12:00pm - 1:30pm**

**Panel 41 - Session 1: More-than-human medicine? Unpacking the use of Artificial Intelligence (AI) technologies in healthcare settings**

Aula D

Location: **Aula D**

Session Chair: **Manuela Perrotta**

Session Chair: **Alina Geampana**

Session Chair: **Francesco Miele**

**12:00pm - 1:30pm**

**Panel 50 Session 1: Technologies of Discontinuation. Towards Transformative Innovation Policies**

Aula Unione 1

Location: **Aula Unione 1**

Session Chair: **Stefan Kuhlmann**

**12:00pm - 1:30pm**

**Panel 22 - Session 1: How are STS interested in robotics?**

Aula Unione 2

Location: **Aula Unione 2**

Session Chair: **Letizia Zampino**

Session Chair: **Ilenia Picardi**

Session Chair: **Assunta Viteritti**

**12:00pm - 1:30pm**

**Panel 27: Critical posthumanism: interrogating cyborg imaginaries, practices and politics**

Aula Unione 3

Location: **Aula Unione 3**

	<p>Session Chair: <b>Erika Cudworth</b>  Session Chair: <b>Delia Langstone</b></p>
<p><b>12:00pm - 1:30pm</b></p> <p>Sala Rossa</p>	<p><b>Panel 39: Resistance in action. Understanding countersurveillance practices, imaginaries, and activities in a digitally dense environment</b></p> <p>Location: <b>Sala Rossa</b>  Session Chair: <b>Veronica Moretti</b>  Session Chair: <b>Alessandro Caliendo</b>  Session Chair: <b>Barbara Morsello</b></p>
<p><b>1:30pm - 2:30pm</b></p>	<p><b>Lunch</b></p>
<p><b>2:30pm - 4:30pm</b></p> <p>Aula A</p>	<p><b>Round Table I: "Drawing Bruno Together"</b></p> <p>Location: <b>Aula A</b>  Session Chair: <b>Annalisa Pelizza</b>  Organised by Processing Citizenship</p>
<p><b>2:30pm - 4:30pm</b></p> <p>Aula B</p>	<p><b>Panel 13 Session 2: Artistic Intelligence? Making it together in the Multispecies World</b></p> <p>Location: <b>Aula B</b>  Session Chair: <b>Silvia Casini</b>  Session Chair: <b>Gediminas Urbonas</b>  Session Chair: <b>Roberta Buiani</b>  Session Chair: <b>Philippe Sormani</b></p>
<p><b>2:30pm - 4:30pm</b></p> <p>Aula C</p>	<p><b>Panel 16: Developing a robust food system applying a transdisciplinary approach beyond academia</b></p> <p>Location: <b>Aula C</b>  Session Chair: <b>Carl Walter Matthias Kaiser</b>  Session Chair: <b>Cordula Scherer</b>  Session Chair: <b>Agnese Cretella</b></p>
<p><b>2:30pm - 4:30pm</b></p> <p>Aula D</p>	<p><b>Panel 7 - Session 1: Where's the 'intelligence' in AI? Mattering, Placing and De-individuating AI</b></p> <p>Location: <b>Aula D</b>  Session Chair: <b>Ludovico Rella</b>  Session Chair: <b>Fabio Iapaolo</b></p>
<p><b>2:30pm - 4:30pm</b></p> <p>Aula Unione 1</p>	<p><b>Panel 50 Session 2: Technologies of Discontinuation. Towards Transformative Innovation Policies</b></p> <p>Location: <b>Aula Unione 1</b>  Session Chair: <b>Stefan Kuhlmann</b></p>
<p><b>2:30pm - 4:30pm</b></p> <p>Aula Unione 2</p>	<p><b>Panel 15 - Session 1: Boundary struggles: truth, interest and epistemic authority in a changing world</b></p> <p>Location: <b>Aula Unione 2</b>  Session Chair: <b>Luigi Pellizzoni</b>  Session Chair: <b>Giuseppe Tivaldo</b>  Session Chair: <b>Barbara Sena</b></p>
<p><b>2:30pm - 4:30pm</b></p> <p>Aula Unione 3</p>	<p><b>Panel 37 - Session 1: Interesting participatory processes in science, technology and innovation: conditions, challenges and prospects for bottom-up innovation</b></p> <p>Location: <b>Aula Unione 3</b>  Session Chair: <b>Simone Araldi</b>  Session Chair: <b>Stefano Crabu</b>  Session Chair: <b>Paolo Magaudda</b></p>
<p><b>2:30pm - 4:30pm</b></p> <p>Sala Rossa</p>	<p><b>Panel 28: The politicization of infrastructures. European transformations in the name of geopolitics, security, and crisis.</b></p> <p>Location: <b>Sala Rossa</b>  Session Chair: <b>Benedict Lang</b>  Session Chair: <b>Jan-Hendrik Passoth</b>  Session Chair: <b>Silvan Pollozek</b></p>

4:30pm - 5:00pm	<b>Coffee break</b>
5:00pm - 7:00pm	<p><b>Panel 20: Extracting Humanness, Exploiting Labour: The Inhumane Face of Artificial Intelligence</b></p> <p>Location: <b>Aula A</b></p> <p>Session Chair: <b>Fabio Morreale</b></p> <p>Session Chair: <b>Elham Bahmanteymouri</b></p> <p>Session Chair: <b>Brent Burmester</b></p> <p>Session Chair: <b>Matteo Pasquinelli</b></p>
5:00pm - 7:00pm	<p><b>Panel 13 Session 3: Artistic Intelligence? Making it together in the Multispecies World</b></p> <p>Location: <b>Aula B</b></p> <p>Session Chair: <b>Silvia Casini</b></p> <p>Session Chair: <b>Gediminas Urbonas</b></p> <p>Session Chair: <b>Roberta Buiani</b></p> <p>Session Chair: <b>Philippe Sormani</b></p>
5:00pm - 7:00pm	<p><b>Panel 21: A caring interest for the planet: making archives and readers *sensitive* in times of the new climatic regime</b></p> <p>Location: <b>Aula C</b></p> <p>Session Chair: <b>Claudio Coletta</b></p> <p>Session Chair: <b>Paolo Giardullo</b></p>
5:00pm - 7:00pm	<p><b>Panel 7 - Session 2: Where's the 'intelligence' in AI? Mattering, Placing and De-individuating AI</b></p> <p>Location: <b>Aula D</b></p> <p>Session Chair: <b>Ludovico Rella</b></p> <p>Session Chair: <b>Fabio Iapaolo</b></p>
5:00pm - 7:00pm	<p><b>Panel 25: Interesting failures to come: history, actors, and scenarios in unsuccessful digital technologies projects</b></p> <p>Location: <b>Aula Unione 1</b></p> <p>Session Chair: <b>Olga Usachova</b></p> <p>Session Chair: <b>Ginevra Sanvitale</b></p> <p>Session Chair: <b>Paul Edwards</b></p>
5:00pm - 7:00pm	<p><b>Panel 15 - Session 2: Boundary struggles: truth, interest and epistemic authority in a changing world</b></p> <p>Location: <b>Aula Unione 2</b></p> <p>Session Chair: <b>Luigi Pellizzoni</b></p> <p>Session Chair: <b>Giuseppe Tipaldo</b></p> <p>Session Chair: <b>Barbara Sena</b></p>
5:00pm - 7:00pm	<p><b>Panel 37 - Session 2: Interesting participatory processes in science, technology and innovation: conditions, challenges and prospects for bottom-up innovation</b></p> <p>Location: <b>Aula Unione 3</b></p> <p>Session Chair: <b>Simone Arnaldi</b></p> <p>Session Chair: <b>Stefano Crabu</b></p> <p>Session Chair: <b>Paolo Magaudda</b></p>
5:00pm - 7:00pm	<p><b>Panel 22 - Session 2: How are STS interested in robotics?</b></p> <p>Location: <b>Sala Rossa</b></p> <p>Session Chair: <b>Letizia Zampino</b></p> <p>Session Chair: <b>Ilenia Picardi</b></p> <p>Session Chair: <b>Assunta Viteritti</b></p>
7:00pm - 9:30pm	<p><b>Aperitivo convenors (by invitation) - San Giovanni in Monte</b></p> <p>Address: Cloister of San Giovanni in Monte, Piazza San Giovanni in Monte, 1/2</p>

**Date: Thursday, 29/June/2023**

**9:00am - 11:00am**

Aula A	<p><b>Panel 26: Interesting worlds as matters of caring and commoning</b></p> <p>Location: <b>Aula A</b></p> <p>Session Chair: <b>Mariacristina Sciannamblo</b></p> <p>Session Chair: <b>Maurizio Teli</b></p> <p>Session Chair: <b>Giacomo Poderi</b></p>
9:00am - 11:00am	<p><b>Panel 13 Session 4: Artistic Intelligence? Making it together in the Multispecies World</b></p> <p>Location: <b>Aula B</b></p> <p>Session Chair: <b>Silvia Casini</b></p> <p>Session Chair: <b>Gediminas Urbonas</b></p> <p>Session Chair: <b>Roberta Buiani</b></p> <p>Session Chair: <b>Philippe Sormani</b></p>
Aula B	
9:00am - 11:00am	<p><b>Panel 33: Technologies, devices and ways of engaging with citizen science in the context of research and innovation: co-producing knowledge, co-designing technologies and co-creating research to address sustainability challenges</b></p> <p>Location: <b>Aula C</b></p> <p>Session Chair: <b>Helena Solman</b></p> <p>Session Chair: <b>Julia Kirch Kirkegaard</b></p>
Aula C	
9:00am - 11:00am	<p><b>Panel 29: Materiality and research in museums of science, technology and medicine</b></p> <p>Location: <b>Aula D</b></p> <p>Session Chair: <b>Simona Casonato</b></p>
Aula D	
9:00am - 11:00am	<p><b>Panel 12 - Session 1: The interfaces that inform security knowledge and practice</b></p> <p>Location: <b>Aula Unione 1</b></p> <p>Session Chair: <b>Claudia Emilie Aanonsen</b></p> <p>Session Chair: <b>Rocco Bellanova</b></p> <p>Session Chair: <b>Georgios Glouftsiotis</b></p>
Aula Unione 1	
9:00am - 11:00am	<p><b>Panel 40: Publish or perish reloaded: The matrix of contemporary scientific publishing facing institutional research arrangements and the marketization of academic environments</b></p> <p>Location: <b>Aula Unione 2</b></p> <p>Session Chair: <b>Stefano Crabu</b></p> <p>Session Chair: <b>Federico Neresini</b></p>
Aula Unione 2	
9:00am - 11:00am	<p><b>Panel 49: More than human decentered design: which competences, which methods, which tools for interesting worlds to come?</b></p> <p>Location: <b>Aula Unione 3</b></p> <p>Session Chair: <b>Micol Rispoli</b></p> <p>Session Chair: <b>Gianluca Burgio</b></p> <p>Session Chair: <b>Alvise Mattozzi</b></p> <p>Session Chair: <b>Ramon Ernesto Rispoli</b></p>
Aula Unione 3	
9:00am - 11:00am	<p><b>STHV + TS: "How to publish in an STS journal" early-career researchers meeting</b></p> <p>Location: <b>Sala Rossa</b></p>
Sala Rossa	
11:00am - 11:30am	<p><b>Coffee break</b></p>
11:30am - 1:00pm	<p><b>Plenary Noortje Marres: On making science public in times of emergency: how did Independent Sage make a difference in the situations of Covid-19?</b></p> <p>Session Chair: <b>Manuela Perrotta</b></p> <p>Discussant: <b>Chiara Bodini</b></p> <p>Location: <b>Aula A, Aula B &amp; Aula Unione 1</b></p>
1:00pm - 2:00pm	<p><b>Lunch</b></p>
2:00pm - 4:00pm	

<p>Aula A</p> <p>2:00pm - 4:00pm</p>	<p><b>Round table II: Taking Time, Shaping Time. Pacing Urban Climate Transitions</b></p> <p>Location: <b>Aula A</b></p> <p>Session Chair: <b>Claudio Coletta</b></p> <p>Organised by <a href="http://infratime.eu">infratime.eu</a></p>
<p>Aula B</p> <p>2:00pm - 4:00pm</p>	<p><b>Panel 8: Where Sustainable Plastic-transitions are going? Historical, Political and Social Lives of plastic consumption and waste</b></p> <p>Location: <b>Aula B</b></p> <p>Session Chair: <b>François Dedieu</b></p> <p>Session Chair: <b>Stephanie Barral</b></p> <p>Session Chair: <b>Sebastien Dalgalarondo</b></p> <p>Session Chair: <b>Tristan Fournier</b></p> <p>Session Chair: <b>Baptiste Monsaingeon</b></p> <p>Session Chair: <b>Benjamin Raimbault</b></p>
<p>Aula C</p> <p>2:00pm - 4:00pm</p>	<p><b>Panel 51: Agency: A Key Concept for a Political STS</b></p> <p>Location: <b>Aula C</b></p> <p>Session Chair: <b>Fava Giovanni</b></p> <p>Session Chair: <b>Giulia Gandolfi</b></p> <p>Session Chair: <b>Pietro Daniel Omodeo</b></p> <p>Session Chair: <b>Francesca Putignano</b></p>
<p>Aula D</p> <p>2:00pm - 4:00pm</p>	<p><b>Panel 24: Questioning the material and infrastructural dimensions of social research: methods, tools and practices</b></p> <p>Location: <b>Aula D</b></p> <p>Session Chair: <b>Attila Bruni</b></p> <p>Session Chair: <b>Paolo Magaudda</b></p>
<p>Aula Unione 1</p> <p>2:00pm - 4:00pm</p>	<p><b>Panel 12 - Session 2: The interfaces that inform security knowledge and practice</b></p> <p>Location: <b>Aula Unione 1</b></p> <p>Session Chair: <b>Claudia Emilie Aanonsen</b></p> <p>Session Chair: <b>Rocco Bellanova</b></p> <p>Session Chair: <b>Georgios Glouftsios</b></p>
<p>Aula Unione 2</p> <p>2:00pm - 4:00pm</p>	<p><b>Panel 5: 'Outbreak': Science, governance, and responding otherwise to challenges to come</b></p> <p>Location: <b>Aula Unione 2</b></p> <p>Session Chair: <b>Kari Lancaster</b></p> <p>Session Chair: <b>Tim Rhodes</b></p>
<p>Aula Unione 3</p> <p>2:00pm - 4:00pm</p>	<p><b>Panel 23: Unpacking the entanglements of governance with technoscience: is it an 'interesting' challenge in addressing good governance?</b></p> <p>Location: <b>Aula Unione 3</b></p> <p>Session Chair: <b>Anwesha Chakraborty</b></p> <p>Session Chair: <b>Alice Fubini</b></p>
<p>Sala Rossa</p> <p>2:00pm - 4:00pm</p>	<p><b>Panel 31: Global Pathogens, Local Pathologies: Toward a more than human understanding of biosecurity</b></p> <p>Location: <b>Sala Rossa</b></p> <p>Session Chair: <b>Michele Bandiera</b></p> <p>Session Chair: <b>Christian Colella</b></p> <p>Session Chair: <b>Chiara Vacirca</b></p> <p>Session Chair: <b>Lucilla Barchetta</b></p> <p>Session Chair: <b>Enrico Milazzo</b></p> <p>Session Chair: <b>Jasmine Pisapia</b></p>
<p>4:00pm - 4:30pm</p>	<p><b>Coffee break</b></p>
<p>Aula A</p> <p>4:30pm - 7:00pm</p>	<p><b>Panel 2: The more-than-human politics of urban inequalities</b></p> <p>Location: <b>Aula A</b></p> <p>Session Chair: <b>Rivke Jaffe</b></p> <p>Session Chair: <b>Francesca Pilo</b></p>
<p>4:30pm - 7:00pm</p>	

Aula B	<b>Panel 43: Social Innovation: Forms, Evidence, and Perspectives</b> Location: <b>Aula B</b> Session Chair: <b>José Francisco Romero-Muñoz</b>
4:30pm - 7:00pm	<b>Panel 35: The obsession with techno-futures in education</b> Location: <b>Aula C</b> Session Chair: <b>Paolo Landri</b> Session Chair: <b>Leonardo Piomalli</b> Session Chair: <b>Assunta Viteritti</b>
Aula C	
4:30pm - 7:00pm	<b>Panel 41 - Session 2: More-than-human medicine? Unpacking the use of Artificial Intelligence (AI) technologies in healthcare settings</b> Location: <b>Aula D</b> Session Chair: <b>Manuela Perrotta</b> Session Chair: <b>Alina Geampana</b> Session Chair: <b>Francesco Miele</b>
Aula D	
4:30pm - 7:00pm	<b>Panel 32: Big politics of small things</b> Location: <b>Aula Unione 1</b> Session Chair: <b>Andrzej Wojciech Nowak</b> Session Chair: <b>Wiktoria Woźniak-Konieczka</b>
Aula Unione 1	
4:30pm - 7:00pm	<b>Panel 46: Looking at borders through an infrastructural lens</b> Location: <b>Aula Unione 2</b> Session Chair: <b>Timothy Raeymaekers</b> Session Chair: <b>Noemi Bergesio</b> Session Chair: <b>Annaclaudia Martini</b>
Aula Unione 2	
4:30pm - 7:00pm	<b>Panel 42: Revisiting identification and registration of humans and more-than-humans: long-term perspectives and implications</b> Location: <b>Aula Unione 3</b> Session Chair: <b>Chiara Loschi</b> Session Chair: <b>Annalisa Pelizza</b> Session Chair: <b>Paul Trauttmansdorff</b> Discussant: <b>Sally Wyatt</b>
Aula Unione 3	
4:30pm - 7:00pm	<b>Panel 45: Questioning institutional science and expertise supporting complementary, alternative, or refused knowledge</b> Location: <b>Sala Rossa</b> Session Chair: <b>Federico Neresini</b> Session Chair: <b>Maria Carmela Agodi</b> Session Chair: <b>Paolo Volonte</b>
Sala Rossa	
8:00pm	<b>Social dinner</b> Please bring your dinner ticket from your registration envelope to attend the social dinner. A valid ticket is needed for entry. Address: Cantina Bentivoglio — via Mascarella, 4/b, 40126 Bologna BO
<b>Date: Friday, 30/June/2023</b>	
9:00am - 10:30am	<b>Panel 3: Sociotechnical assemblages and practices of crisis planning and preparation: Imaginaries of infrastructure breakdown and its governance</b> Location: <b>Aula A</b> Session Chair: <b>Silvia Rief</b>
Aula A	
9:00am - 10:30am	<b>Panel 44: Exploring Promising Technologies in Neuroscience</b> Location: <b>Aula B</b> Session Chair: <b>Barbara Morsello</b>
Aula B	
9:00am - 10:30am	<b>Panel 6: The Sars-CoV-2 emergency narrative: A discursive-material approach</b> Location: <b>Aula C</b> Session Chair: <b>Barbara Saracino</b>
Aula C	
9:00am - 10:30am	



Aula D	<p><b>Panel 30: Algorithmic organizing and workers' well-being</b>  Location: <b>Aula D</b>  Session Chair: <b>Paolo Rossi</b>  Session Chair: <b>Lia Tirabeni</b></p>
9:00am - 10:30am	<p><b>Panel 47: Gender, sexuality, and digital media between challenges and reproduction of hegemony</b>  Location: <b>Aula Unione 1</b>  Session Chair: <b>Cosimo Marco Scarcelli</b>  Session Chair: <b>Manolo Farci</b></p>
Aula Unione 1	
9:00am - 10:30am	<p><b>Panel 19: Imaginary organisations for reinvented professions. Technological expectations and the construction of the world.</b>  Location: <b>Aula Unione 2</b>  Session Chair: <b>Enrico Maria Piras</b>  Session Chair: <b>Roberto Lusardi</b></p>
Aula Unione 2	
9:00am - 10:30am	<p><b>Panel 48: STS in Italy before STSItalia</b>  Location: <b>Aula Unione 3</b>  Session Chair: <b>Gerardo Ienna</b>  Session Chair: <b>Alvise Mattozzi</b>  Discussant: Ginevra Sanvitale</p>
Aula Unione 3	
9:00am - 10:30am	<p><b>Panel 10: Games, experiments and redesign – Testing STS multimodal approaches</b>  Location: <b>Sala Rossa</b>  Session Chair: <b>Lorenzo Olivieri</b>  Session Chair: <b>Annalisa Pelizza</b>  Session Chair: <b>Claudio Coletta</b></p>
Sala Rossa	
10:30am - 11:00am	<p><b>Coffee break</b></p>
11:00am - 12:30pm	<p><b>Plenary Paul N. Edwards: Technology Eats History: Time and Techno-metabolism in the Anthropocene</b>  Session Chair: <b>Claudio Coletta</b>  Discussant: Luigi Pellizzoni  Location: Aula A, Aula B &amp; Aula Unione 1</p>
12:30pm - 12:45pm	<p><b>Final address</b>  Location: <b>Aula A</b>  President of STS Italia: Simone Arnaldi</p>
Aula A	
2:00pm - 3:30pm	<p><b>STS Italia General Assembly: General Assembly of STS Italia Society Members</b>  Location: <b>Aula A</b></p>
Aula A	

## Presentations

### Panel 36: Diagnosis, prognosis, treatment - Towards fair and sustainable care provisions in health systems and pharmaceutical innovation

*Time:* Wednesday, 28/June/2023: 12:00pm - 1:30pm · *Location:* Aula A

*Session Chair:* Hadewych Honné

*Session Chair:* Conor Douglas

**Topics:** Health policies, governance and practices in a postpandemic era; Innovation imaginaries, practices and policies; Ethics, innovation and responsibility in technoscience; The value of science, technology, innovation and research practices; Heterogeneous assemblages in biomedical research

**Keywords:** Access to treatments, pharmaceutical innovation, commodification of health, healthcare sustainability

For years STS scholars have been critically engaging with medical hope and hype associated with advances in genetics and genomics (Hedgecoe & Martin 2008; Martin, Hopkins, Nightingale, & Kraft 2009). Associated promises of transformations in the pharmaceutical sector failed to deliver to the point in which the revolution in biotechnology was seen as a myth (Nightingale & Martin 2004; Hopkins, Martin, Nightingale, Kraft & Mahdi 2007). However, we are now witnessing real reorganization within the pharmaceutical industry from mass chemical production for the treatment of common illnesses towards research and development into ever more expansive screening, testing, and therapies for complex conditions with advanced cell and gene therapies (Dolgin 2010). Accompanying such advancements in medical care, however, is a number of challenges pertaining to the commodification of healthcare and treatment. It has become evident that market logics, geared towards returns on investment and profit maximisation in monetary terms, are insufficient for meeting unmet medical needs – particularly in rare diseases (Douglas, Aith, Boon et al. 2022). In order to start unpacking the multiplicity of interests at play in therapeutic development and healthcare, we need to appreciate first the co-production of social, scientific, and technological factors that shape this landscape. Policies, laws, institutional arrangements, and economic and ethical assessments shape the development and marketisation of advanced therapies while, vice versa, the latter simultaneously shape the former. In the panel, we want to promote reflections on what STS can contribute towards devising more fair and sustainable healthcare systems and pharmaceutical innovation processes. How can we formulate ‘diagnoses’ of the problems at stake in healthcare systems and pharmaceutical innovation today, what ‘treatment plans’ can we formulate for these issues, and what are our ‘prognoses’ for the future?

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### Disrupting dominant bio-pharma industrial approaches to rare disease treatments through “social pharmaceutical innovation”

#### Conor Douglas

York University, Canada

The current healthcare and biomedical system is resulting in significant unmet medical needs of millions of rare disease patients. The challenges within biomedical and healthcare systems are known: from diagnostic odysseys, to inefficient research and development systems, to the pharmaceutical and biotech industries that are not producing sufficient treatments; as well as slow and outdated regulatory review, HTA and coverage processes. While challenges are built into various systems in diverse ways, leading to different experiences across the Global North-South, East and West, similarities suggest systemic issues leading to significant vulnerability for rare disease patients worldwide.

This paper argues that forms of disruptive innovation are needed to respond to these challenges. Specifically it will be shown that scholarship and activism within social innovation (SI) can be an instructive model for what when states and markets fail to meet the needs of vulnerable populations. While SI has been used to disrupt instances of health and healthcare, here it

will be used as a foundation to elaborate the framework of “social pharmaceutical innovation” (or SPIN) for unmet, which is being developed by an international consortium including researchers from Brazil, Canada, France and the Netherlands. In doing so this paper will define SPIN, and provide a series of case studies that challenge and disrupts the dominant biomedical industrial model through which rare diseases are being addressed across the international consortium. These include novel forms of collaborations that bring patients and state actors into a research and development process traditionally dominated by industry; public sector manufacturing that work to make treatments more available; as well as HTA and coverage processes that improve accessibility to treatment. The overall goal of the consortium, and of the paper, is to raise awareness of SPIN and build transnational networks of like-minded stakeholders, as well as to critically evaluate and intervene into SPINs.

## **Educating patients about drug development: radical reflexivity and knowledge co-production**

**Claudia Egger, Olga Zvonareva**

Health, Ethics and Society, Maastricht University, The Netherlands

In recent years, patient engagement has re-energized hopes that the pharmaceutical sector will be transformed and that more effective and affordable drugs will be produced. Numerous tools and guides on how to ensure patient participation throughout the entire drug development cycle have been put forward and several initiatives to educate patients for such participatory activities have emerged. This is because education is expected to empower patients and to help redress the substantial power imbalances at the heart of the pharmaceutical sector. As we researched the patient education activities of the European Patients' Academy on Therapeutic Innovation (EUPATI), which is currently one of the main education providers in this area, we came to acutely experience another type of power imbalance, namely that between researchers and research participants. To help redress this imbalance, we built upon ideas and experiments on radical reflexivity put forward by various STS scholars (Mulkay, 1985; Woolgar, 1991, Mol, 2001, 2021). We engaged in knowledge co-production with a EUPATI trainer and a EUPATI trainee using as a starting point findings already developed using traditional qualitative research methods. In this presentation, we reflect upon this approach and upon the manuscript we co-authored, in which the descriptive and the dialogic, the explanatory and the reflexive, the form and the content, are innovatively combined. We argue that this collaboration allowed us to acquire a better understanding of how scientific, social and financial considerations shape how EUPATI provides patient education, and how some of the requirements and constraints it finds itself under have prompted it to steer away from politically sensitive topics. We also reflect on how the tensions that arose among the authors nuanced our approach to the multiplicity of identity and positions that we had originally identified among EUPATI trainers and trainees.

## **Organizing precision medicine: a case study of Memorial Sloan Kettering Cancer Center's engagement in/with genomics**

**Alberto Cambrosio<sup>1</sup>, Jonah D. Campbell<sup>1</sup>, Peter Keating<sup>2</sup>, Jessica B. Polk<sup>1</sup>**

<sup>1</sup>McGill University, Canada; <sup>2</sup>Université du Québec à Montréal

Recent decades have seen a dramatic rise of in the number of initiatives designed to promote precision oncology, a domain that has played a pioneering role in the implementation of post-genomic approaches and technologies such as innovative clinical trial designs and molecular profiling. In this paper, based on fieldwork carried out at the Memorial Sloan-Kettering Cancer Center from 2019 onwards, we analyze how a world-leading cancer center has adapted, responded, and contributed to the challenge of “doing” precision oncology by developing new programs and services, and building an infrastructure that has created the conditions for genomic practices. We do so by attending to the “organizing” side of precision oncology and to the nexus between these activities and epistemic issues. We situate the work that goes into making results actionable and accessing targeted drugs within the larger process of creating a precision medicine ecosystem that includes purpose-built institutional settings, thus simultaneously experimenting with bioclinical matters and, reflexively, with organizing practices. The constitution and articulation of innovative sociotechnical arrangements at MSK provides a unique case study of the production of a large and complex clinical research ecosystem designed to implement rapidly evolving therapeutic strategies embedded in a renewed and dynamic understanding of cancer biology.

## **Rare disease patient organisations' roles in the appraisal of orphan medicinal products**

**Hadewych Honné<sup>1,2</sup>**

<sup>1</sup>University of Edinburgh, UK; <sup>2</sup>KU Leuven, Belgium

Recent years have seen an increase in R&D for orphan medicinal products (OMPs) for the diagnosis, prevention, or treatment of rare diseases. As an increasing number of OMPs is projected to reach national European markets in the coming years, questions pertaining to their clinical and cost-effectiveness grow in significance. The appraisal of OMPs in Health Technology

Assessments (HTA), pricing, and reimbursement decisions, is generally characterised by limited evidence of their effectiveness against hefty price tags for their use. Particularly in rare diseases, the specific needs of patients are easily overlooked, so that the involvement of rare disease patient organisations (RDPOs) is widely recognised to benefit the evaluation of the potential impact of OMPs. In this way, the development of advanced therapies for rare diseases shape their pharmaco-economic appraisal. At the same time, through their early involvement in R&D processes, RDPOs can shape the particular kinds of evidence that are produced, for example through patient registries. This highlights the ambiguous position of RDPOs in HTA, pricing and reimbursement decision-making, which affects their perceived objectivity and independence from the pharmaceutical and biotechnology industry. In addition, patient organisations might struggle to balance their desire for the accessibility of OMPs to patients with the wish to promote the financial sustainability of healthcare systems, so that the influence of pricing is a complex issue. In my PhD research, through qualitative interviews with representatives of RDPOs and pharmaceutical and biotechnology companies, as well as with medical experts and regulators, I explore the role and, potentially, the responsibilities that RDPOs take on in the appraisal of orphan medicinal products. This issue is important in light of the increasing pressure on healthcare systems and their financial sustainability, as well as ongoing implementation of the EU Regulation on HTA, promoting the involvement of patient as experts in HTA processes.

### **Unfair working conditions: no innovation? Towards the impact of unfair working conditions of clinical workers – a German case study.**

**Barbara Hendriks**

Humboldt-Universität zu Berlin, Germany

This conference theme calls for imaginary future scenarios.

It is 2023.

Imagine a world without modern university medicine: no emergency room, no knee surgery, no heart transplant, no artificial respiration, no cancer treatment, no vaccination. Can you?

A world without modern university medicine – as one of the central parts of our health care system – seems unimaginable, especially in a time that is still affected by the global Covid-19 health crisis and which has barely recovered from it. I use this fictional scenario “a world without modern university medicine” as an opportunity to reflect about equity issues in the current health care system: During my recent empirical research at various university hospitals across Germany, I found that the “staffing crisis” is real. Not only in the form of poor working conditions and its consequences (e.g. intensive workload and emotional stress, unpaid working hours, etc.), but also on the innovation performance of the healthcare system (e.g. success of personal medicine). Against this backdrop, my presentation will explore the extent to which inadequate and unfair working conditions have a lasting negative impact on the health care system.

For this purpose, I draw on more than thirty expert interviews with clinical and translational doctors, clinic manager and political stakeholders I conducted from 2000 to 2022 in Germany. German university medicine presents an interesting case to illuminate the conditions for sustainable and innovative health care, because it has been striving to reorganize itself into “translational medicine”. This reorganization process has opened up various spaces for discussions about what an improved health care might look like. In my research I find that sustainable and innovative health care needs fair working conditions (e.g. time to conduct research, adequate funding, adequate financial and personnel resources, target positions, etc.) as well as an institutional environment that rewards and supports them.

## Panel 13 Session 1: Artistic Intelligence? Making it together in the Multispecies World

Time: Wednesday, 28/June/2023: 12:00pm - 1:30pm · Location: Aula B

Session Chair: Silvia Casini

Session Chair: Gediminas Urbonas

Session Chair: Roberta Buiani

Session Chair: Philippe Sormani

**Topics:** Ecological transitions and climate justice; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Methodological challenges in a more-than-human world; Technofeminism and interspecies solidarities; Embodied identities, genders and interests

**Keywords:** multispecies research; organism-oriented ontology, composability and cohabitation, sympoiesis, art as research

In recent years, academia has sought new approaches to tackle phenomena that couldn't be grasped through traditional discipline-specific research methods. Anna Tsing expresses the difficulties of examining and communicating the system known as the Anthropocene and calls for "new kinds of storytelling" that can "tell empirically grounded stories of particular times and places and positions and [that can] tell them with some much curiosity and wonder". In practice, this means to abandon the "god's view from nowhere" (Haraway), which leads to the prioritisation of anthropocentrism. Tsing proposes an embodied approach that takes in different positionalities, that is, she exhorts us to become-with the non-human and more-than-human, instead of just observing them from afar. To this end, the feminist and more-than-human curatorial work of Haraway and Tsing with her platform *Feral Atlas* (2021), the collaborative thought-exhibitions by Latour and Weibel at ZKM (*Iconoclash 2002*, *Making Things Public 2005*, *Reset Modernity! 2016*, and *Critical Zones 2020* all devoted to the crisis of representation in art, science, and politics), and the visual STS approach by Galison in his collaborative work all use curatorial and artistic practice as research. These forms of research embodied, situated, and materialised knowledge that matters (Turkle 2011: 7). Moreover, they foreground storytelling, invention, and fictionality as tools for 'getting real' and challenging anthropomorphism (Skiveren 2022). All these collaborative endeavours might offer the coordinates of new zones of friction and creative resistance, asking us to engage with indigenous perspectives and traditions, forging alliances with symbionts, imagining anew the social and material fabric of the world. Perhaps from these zones new ways of being can become thinkable along the lines of what Ingold suggests with the concept of a «mycelial person» (Ingold 2003).

With this panel, we encourage proposals coming from both academics and practitioners for creative/performative presentations (regarding curatorial practices and/or exhibitions and storytelling), interactive sessions (bearing on material objects), and/or traditional academic papers. In particular, we ask prospective contributors to reflect on how exhibitions understood as "more-than-human alliances" might contribute to STS research and methods, demonstrating the importance of cherishing the process rather than the results; the significance of relational thinking; and the importance of interrogating the epistemological contributions of exhibitions.

At a time when some of the prominent venues promoting collaborative work in art, science and technology studies have closed (Science Gallery Dublin) or are under threat (*SymbioticA*), we call for forms of engagement, critical zones and methods capable of nurturing a "slow art-science" practiced by amateurs and connoisseurs in the guise of what Isabelle Stengers (2017) suggests in her manifesto for a slow science. What are the coordinates of such zones? How can we draw a map to chart our ways through a changing world? How to be alive in the "regime of the human," characterised by the lure of progress and "techniques of alienation," and "still exceed it" (Tsing 2017: 19). How can artists and scientists use their observatory stations not as ivory towers but as scaffolding for "engagement all the way down" (Stengers: 2019, 19)?

### The Long Horizon, Relocated? Temporal Imaginaries in the More-than-Human Arts

**Christopher Salter<sup>1</sup>, Alexandre Saunier<sup>2</sup>, Philippe Sormani<sup>3</sup>**

<sup>1</sup>Zurich University of the Arts, ZHdK; <sup>2</sup>Concordia University, Montreal; <sup>3</sup>University of Lausanne, STS Lab

Has the *Technosphere* and the *Anthropocene* so thoroughly enmeshed themselves in our cultural mindset that we can bid farewell to human presence in the arts without shedding a tear? Does the contemporary need to create artworks that operate below and above our limited human time horizons demonstrate the belief that art with more-than-humans can salvage the less-than-human world that we seem bent on eradicating? Or, is perhaps the proliferation of new entities at these different temporal scales an opportunity to experience what anthropologist Eduardo Kohn (2013) calls a new "anthropology of life" which involves an "enchanted world" (Kohn, 2013:5)? This enchanted world is not a "meaningless one made meaningful by humans." Instead, such meanings will "emerge in a world of living thoughts beyond the human in ways that are not fully exhausted by our all-too-human attempts to define and control these" (2013: 5). It is in this sense that artists' harnessing of the micro, meso and macro times of entities and stuff in a world that is undeniably occupied by other than human persons might then provide us with new ways of sensing and experiencing that world that lies truly beyond ourselves. Taking its cue from the latter suggestion, this paper charts temporal imaginaries in the more-than-human arts,

while relocating selected artworks (by Salter and/or Saunier) against this multifaceted backdrop, its emerging genealogies and constitutive practices, if not all-too-human "ethnomethods" (as probed by Sormani).

## **Ecologies of Becoming with Machines**

### **Claire Isabel Webb**

Berggruen Institute / USC, United States of America

Anthropologists Stefan Helmreich and Eben Kirksey write that "becomings" are "new kinds of relations emerging from nonhierarchical alliances, symbiotic attachments, and the mingling of creative agents." If "being" is static, then becomings are perpetually dynamic. Philosopher Donna Haraway tells us that "becoming is always becoming *with*," in which creative entities collaborate over time.

While the past decades have explored the material and theoretical consequences of becoming with biological agents — companion species (Haraway), mushrooms (Tsing), and brittle stars (Barad) — scholars are increasingly interested in the creative capacities with machines. The Berggruen Institute commissioned three new major pieces of work for the *What Will Life Become?* Workshop in Los Angeles in 2022. Sougwen Chung performed *Ecologies of Becoming-With*, a meditative painterly creation with a dyadic robotic system linked to her brainwave data. Nancy Baker Cahill's towering five-story Augmented Reality (AR) sculpture *CORPUS* remixed the human form through an ecstatic mirepoix of microbial, fungal, and floral components. And Harry Yeff (a.k.a. REEPS100) transposed AI chess-teaching software to train his voice to beatbox at the human limit, along the way producing *Voice Gems*, digital representations of sonic "voice-prints" unique to individual humans, trees, and primates.

Witnessing the technologically mediated recursive feedback loop between Chung and her robot painters; the haunting immateriality of Cahill's corporeal sculpture; and the intimate portraits of human voice through Yeff's AI pipelines, suggested a creative gestalt that emerged between human and technological entities, athrow to biological becomings. The *embodied* qualities of each of these works makes them distinct from ChatGPT's language and DALL-E 2's image modeling that operated by supervised learning; they instead require material human input. The paper will analyze the concept of ecologies of becoming *with machines*, and the expansion of embodied knowledge through technological as well as biological agents.

## **Feminist speculations. Or how to create radically epistemic resilience by resisting the prevailing knowledge system?**

### **Kathrin Eitel**

University of Zurich, Germany

Knowledge is based on how and which stories we tell. As Haraway (1987:2) says: "(...) the boundary between science fiction and social reality is an optical illusion." Anthropocene debates often center on apocalyptic thinking that either relies on simplistic salvation through technological fixes or pushes conservative and/or right-wing policies of closure (Gramlich 2020: 20). What appears here so disconnected from multivarious ways of being is what Anna Tsing (2007) calls "ecologies of alienation." Bringing together these seemingly dispersed aspects enables a force that can diminish the epistemic inequalities that characterize the multispecies world.

In recent years, social science disciplines and the research field of STS have increasingly focused on hegemonic knowledge production by breaking up epistemological frameworks with the help of "new" collaborative and transdisciplinary formats. Feminist STS, however, calls for moving beyond the mere telling of alternative stories as well as the partly unreflective collaboration of transdisciplinary encounters. It takes seriously the reality-constituting efficacy and significance of fictions and narratives and claims them for itself by means of reconfiguration. Feminist speculation thus happens out of and with world(s). It is a personal and situated writing (in response to historical/discursive fixations by others). Feminist speculation focuses on the constitutive role of embedded observers/participants, their perspectives, and the rich agentiality and multisubjectivity of contexts.

This contribution attempts to both theoretically elaborate these different approaches of (queer) feminist speculation and other forms of storytelling, e.g., speculative realism, and to link them to own experiences, such as a student project on speculative writing, a (non-scientific) book project on climate change stories, and the planning of a graphic novel. How might these collaborative efforts lead to creative resistance and epistemic resilience in a tumultuous and crisis-led time? And how are these knowledge formats able to back-feed into academic ways of thinking and writing?

## Thinking Ethical Futures through Localized Artistic Engagements with Technology

Chelanie Beaudin-Quintin, Joëlle Dubé

Concordia University, Canada

Given that we live in technonaturecultures worlds, it is crucial to critically reflect on how technologies participate in these entanglements. Moving beyond uncritical excitement at the sight of new technological devices, we have the responsibility to care for the futures (ethical or not) they open up (Bellacasa 2017). One way to do that is through localized artistic engagement with technology (Hui 2020). We argue that contemporary artworks *Senimikwaldamw8gan* (2021) and *Typhoon Coming On* (2018)—respectively created by W8banaki artist Mélanie O'Bomsawin and African-american artist Sondra Perry—adopt a critical posthumanist engagement with technology, one that reveals the tension between human-measured time and deep time (Wood 2019), at once backward and forward looking.

*Senimikwaldamw8gan*, *Mémoire de pierre* (2021) is a collection of artworks. Disposed on the floor, 215 stones commemorate the unmarked graves of Indigenous children buried on residential school' sites. O'Bomsawin scans and 3D prints the stones, revisiting the legacy of settler violence. The artist also presents two satchels, each adorned with a chip. Thought of as 'digital bundles' (Wemigwans 2018), they are gifts of W8banaki knowledge, showcasing technology as a tool for Indigenous knowledge safekeeping (Lewis 2021). Perry's video installation *Typhoon Coming On* (2018) is direct reference to William Turner's painting *Slavers Throwing Overboard the Dead and Dying, Typhoon Coming On* (1840). The artwork samples Turner's sea and, through Blender's tool 'Ocean generator,' creates a 3D rendered sea riddled with glitches. Perry embraces those glitches to evoke loss, absence, especially that of laboring bodies for the digital world. While technology is presented in O'Bomsawin's functions as a tool for Indigenous self-determination, Perry's artwork points to its routine invisibilization of digital workers. Still, both artworks make apparent technology's role in transmitting painful localized histories of settler-colonial violence, while locating those histories in a deep time here incarnated by stones and water.



## Panel 34: Earthly and otherworldly challenges. On the mutual shaping of imaginaries, practices and discourses about Earth and Outer space

*Time:* Wednesday, 28/June/2023: 12:00pm - 1:30pm · *Location:* Aula C

*Session Chair:* Valentina Marcheselli

*Session Chair:* Marco Serino

*Session Chair:* Chiara Vassillo

**Topics:** Ecological transitions and climate justice; Technoscientific promises, imaginaries and expectations; Methodological challenges in a more-than-human world; Innovation imaginaries, practices and policies; The value of science, technology, innovation and research practices

**Keywords:** Outer space, futures, earthly challenges, extreme environments, analogues

The present age is one in which the challenges about the present and future of human and more-than-human life are proliferating and becoming more and more urgent. What is questioned is, ultimately, the idea and perception of the world we live in and the related implications (Latour, 2017). While climate crisis, pandemics, and war are currently threatening life forms and forms of life (Helmreich, 2012), a renewed tension to move beyond our “terrestrial” horizon is springing from international and inter-institutional partnerships. Recent space exploration programs at once address and are shaped by new and competing technoscientific challenges. In particular, research on outer space prospects future scenarios at a global and (inter)planetary levels. In this context, technoscience builds new worlds and reshapes old ones, with projects that improve the feasibility of space missions while attempting to use or reconvert space technologies for terrestrial needs (e.g., communication, travel, weather forecasts, harvesting – often in extreme climates). What is at stake is also the way technoscience provides means to familiarize ourselves with what is other (the “alien” *par excellence*), to produce new kinds of knowledge and to reframe our view of the planet we live on.

The proposed panel thus aims to address the different trajectories by which technoscience meets outer space, with an eye to how these perspectives situate themselves at the interface between “our world” and “other/outer worlds”. The clash or the harmonization between these two horizons is a matter of scientific endeavors that translate into societal challenges and cultural views at the same time. For instance, critical geographers of outer space (e.g., MacDonald, 2007) have reflected on how outer space - and especially the Earth’s orbit - is already inhabited by humans and technologies which are part and parcel of our everyday life. How do advances in space technoscience as well as the increasing popularization of everyday lives on the ISS create a sense of familiarity? What does it mean to rethink our ideas about our world with reference to outer/other worlds and to consider “alternative topologies of environmental relations” (Olson and Messeri, 2015)?

Moreover, sociological inquiries into current ways of “placing outer space” (Messeri, 2016) call for a reflection on how research in different subjects - physics, engineering, agricultural science, medicine, architecture, astrophysics and astrobiology - contribute to reframe humans’ perceptions and activities on both terrestrial and extraterrestrial environments. Central to this panel are also the discussion and problematization of notions like those of “analogues” and outer/extreme environments (e.g., Helmreich, 2012; Marcheselli, 2022), and the challenges that humans and non-humans have to face in this planetary and inter-planetary perspective.

Hence, the panel aims to address questions like (but not limited to) the following:

- How is the distinction between Earth and Outer Space negotiated understood?
- How do natural sciences frame and reframe the study of Earthly and non-Earthly life?
- How is space economy impacting terrestrial economies?
- How is non-Earthly life studied through analogues and simulations on Earth?
- What kind of narratives about Earth and Outer Space are used by scientists, engineers, politicians, entrepreneurs?
- How is Outer Space represented in science and sci-fi?
- How does space research address the current environmental crisis?
- What role do humans and non-humans play in non-Earthly futures?
- How are promises of repairing and caring for our wounded planet mirrored in discourses of outer space?

### Analogue Sites in Astrobiology as Challenging Objects. How Planetary Researchers Reinvent the Sciences for the Anthropocene

**Istvan Praet**

Durham University, United Kingdom

Astrobiology is more than just rocket science in the classic sense. What has remained under the radar so far is that it is also a conceptual hotspot, where what it means to do science well is being redefined in surprising ways. To really grasp the import



of what is going on in astrobiology at present, it is imperative to look beyond its ostentatious goal of finding life elsewhere. The scientific search for extraterrestrial life is not in the first place about the exploration of outer space but about resetting longstanding habits of thought that, from a historical perspective, have remained remarkably stable since the days of early modern scholars such as Descartes and Galileo, and about attuning the sciences, including the social sciences, to the unprecedented planetary circumstances of the Anthropocene. This is demonstrated by focussing on so-called analogue sites, particular locations here on Earth which scientists use as proxies for extraterrestrial locations they cannot study in-situ. More specifically, the paper zooms in on the volcanic island of Lanzarote, which serves as an ESA open-air Mars simulation laboratory. We are not interested in the considerable scientific advances engendered by such sites per se. Rather, we seek to understand analogue sites from a social scientific angle, as what historians of science call 'challenging objects'. The paper ventures that they are eminently comparable to the pendulums and the balls rolling from inclined planes in the 17th century, instruments that were as controversial as they were epoch-defining; such sites are not merely physical experiments but also metaphysical laboratories of great consequence. Analogue sites in astrobiology — provided that one takes their underestimated function as conceptual incubators into account — are indicators of choice to comprehend the broader, tectonic changes in what counts as objective and reliable knowledge in the Anthropocene.

### **Simulating Spacesuits for Mars**

**Veronika Nowak**

University of Vienna, Austria

After an apparent, decade-long hiatus, actors like NASA are currently openly working on sending humans into outer space – first to the Moon, then to Mars. The development of the technologies necessary for such endeavours has, however, never ceased and has also been advanced by smaller, non-governmental organisations. One such organisation is the Austrian Space Forum which builds spacesuit simulators for extra-vehicular activities on Mars. To test those simulators, they select and train so-called "analog (sic!) astronauts" and organise "simulated Mars missions" (i.e., field tests) in Martian terrestrial analogues, often deserts.

I'm investigating, through interviews and document analysis, how simulations are designed and used to produce knowledge for future human missions to Mars. Thereby, I'm particularly interested in the technoscientific and sociotechnical imaginaries which unfold around the spacesuit (simulator) and "missions". I will complement my interview- and document data with selected Science Fiction (SF) novels in which spacesuits and/or humans on Mars play a crucial role. Since the spacesuit is not only a technical but also a cultural artefact, I want to understand how SF is co-producing technoscientific or even sociotechnical imaginaries of spacesuits for Mars.

This paper builds on STS scholarship on Mars exploration, especially where it concerns matters of terrestrial analogues and simulation (e.g., Messeri 2016). Organisations like the Austrian Space Forum contribute to sociotechnical imaginaries of human missions to Mars, in this case through their work on and with spacesuit simulators; Science Fiction, on the other hand, is an established cultural venue of 'space imagination', even simulation. By connecting data from such diverse fields as technoscience and fiction, I hope to gain insights into the co-production of technoscientific/sociotechnical imaginaries and narratives about humans on Mars – and their spacesuits.

Messeri, L. (2016). *Placing outer space: An Earthly ethnography of other worlds*. Duke University Press.

### **Space food and Future Images: multi-planetary narratives of change**

**Monica Truninger**

Instituto de Ciências Sociais, University of Lisbon, Portugal

Space food is often associated with foods developed for life support of crews in missions off-Earth. The plans for interplanetary travel by several space agencies and New Space industries are increasingly engaged in the development of innovative space food technologies and products to face the challenges of long-duration missions to the Moon, Mars and beyond. Science-fiction imaginaries are becoming ever more tangible with space agencies' plans, among other actors, working towards the building of permanent bases and habitable worlds off Earth (e.g. Artemis Base Camp, China Moon Base). In these imaginaries of constructing a multi-planetary civilization, food and agriculture feature prominently either as a sociotechnical challenge to provide and produce food in microgravity environments or as a beneficial contribution to tackle climate change and food security problems on Earth, through product development and technology transfer. Drawing from the five future images by Inayatullah (2008) and adapting them to the context of space food ('evolution and progress' of potential space food technologies; 'collapse' or space food dystopia; 'gaia' or building an inclusive planet-garden; 'globalism' and multi-planetary foods, and 'back to the future' and a call for a return to simple food with familiar terrestrial flavours), I will analyse key official documents from international fora (e.g. UNOOSA), space agencies, key entrepreneurs of New Space companies, ISS space crews official communication on food (e.g. interviews, social media, diaries) that offer images and discourses around space food and its desirable futures. The objective is to identify the main 'narratives of change' (Wittmayer

et.al, 2019), that is, the ‘sets of ideas, concepts, metaphors, discourses, or story-lines’ on food transformation in multi-planetary spaces that align with some, all, or other alternative future images. This work will disclose how these narratives suggest and inform actions, strategies, and interventions for food system transformation, on Earth and beyond.

### **Staging Wilderness in Outer Space: Critiquing the Promise of More of the Same**

**Joseph Popper**

FHNW Academy of Art and Design, Switzerland

This paper explores how imagining wilderness can consolidate and contest a powerful Euro-American imaginary of Outer Space settlement. It studies particular aesthetic and rhetorical gestures in contemporary NewSpace media and historical off-world proposals, including double exposures of futures positive and negative. By juxtaposing a fragile and finite Earth with an open and plentiful Outer Space in “fantasies of control” (Ormrod 2016), leading space industry actors create imaginary tensions in framing a multiplanetary human civilisation as both an inherently natural and urgently necessary cause. This promise of Outer Space is arguably founded upon its staging as a wilderness—alien terrains empty of life yet rich in material resources ready for human exploration and exploitation. Here, Outer Space becomes the frontier in the image of the American West—a place for replaying “the adventures of white men of the last 500 years” (Tutton 2018)—and tying Space settlement firmly to settler-colonial ideologies. More importantly, shaped by enduring anthropocentric perceptions, this Outer Space frontier promises its would-be pioneers not only an “escape from history” (Cronon 1995) but an escape from change. Any cosmic extension of historical, extractive practices poses implications for earthly and other natures, as described by director Werner Herzog in the science fiction films *Lessons of Darkness* (1992) and *The Wild Blue Yonder* (2005). Narrating Earth as another planet, they depict different “wounded landscapes” (Timberlake 2018) used up by desperate alien civilisations. Herzog helps disrupt settler myths by imagining Outer Space settlement in varying degrees of absurdity, failure, and madness: contemplating off-planet expansion as a futile and ultimately degenerative project. By studying his films, the paper focus shifts to consider staging wilderness in artistic responses which counter the problematics of an influential Space imaginary—exposing its master narratives as troublingly dated and distorted.

### **The interest of the distant future: how speculative technology enables extrapolation of the timeframes of modernity into eternity**

**Nanna Lilletvedt Sæten**

University of Cambridge, United Kingdom

The recent branch of effective altruism called strong ‘longtermism’ argues for the primacy of the interests of the distant future in moral considerations today (MacAskill 2022). The moral obligations proposed in strong longtermism do not merely account for the interest and well-being of future humans, but impose a duty to bring these potential humans into existence. This obligation stems from the utilitarian commitment to maximizing value in the world, and in strong longtermism this is pursued through speculative technological ventures such as mind-uploading and eventually a completely virtual human existence. In other words, strong longtermism is a philosophical and political movement which stretches the boundaries of the horizon of the technological future; for strong longtermism, technology is not just integral but constitutive of life in the really longterm future. I argue that the temporal moves of strong longtermism may be politically conservative. Moreover, the construction of these timeframes are aided and reinforced through philosophical discourse on speculative technology. By relying on speculative technologies that are seemingly not constrained by either the future inhabitability of the earth, or the constraints of the body, strong longtermism permits extrapolation of the timeframes of modernity into eternity: eternal progress, eternal growth, eternal development driven by superintelligence. Interestingly, strong longtermism therefore facilitates a temporal shift from the eschatological timeframe of the emergence of superintelligence as a revelatory event, to an unconstrained vision of subsequent expansion into the universe: a new utopia. My contention is that these timeframes disclose the political projects of strong longtermism, primarily a commitment to enlightenment progress regardless of any environmental and technological limits. In today’s political environment, such a political project may easily be employed to justify maintained domination of global elites. Therefore, strong longtermism harbours a deeply conservative political project, despite futuristic and revolutionary technological discourse framed as “progressive”.

## Panel 41 - Session 1: More-than-human medicine? Unpacking the use of Artificial Intelligence (AI) technologies in healthcare settings

Time: Wednesday, 28/June/2023: 12:00pm - 1:30pm · Location: Aula D

Session Chair: Manuela Perrotta

Session Chair: Alina Geampana

Session Chair: Francesco Miele

**Topics:** Health policies, governance and practices in a postpandemic era; Technoscientific promises, imaginaries and expectations; Algorithmic knowledge, media ecologies and artificial intelligence; Innovation imaginaries, practices and policies

**Keywords:** medicine, Artificial intelligence, algorithms, biomedical research, healthcare

During the past few years, the (potential) use of Artificial intelligence (AI) technologies in different medical fields has been at the forefront of public debates and conversations. The dominant narrative is imbued of over-optimistic expectations that see algorithmic technologies as able to resolve uncertainties surrounding medical diagnosis and treatment. Central to these narratives is an emphasis on the large amount of data such technologies can process and analyse. However, heightened expectations may often lead to disappointment. The purportedly value-neutral nature of algorithmic technologies has been sharply criticised by the STS literature emphasising their opacity and inscrutability. In addition, studies exploring the use of AI in medical practice have shown that complex dynamics are involved in the delegation of decision-making to algorithms and the reconfigurations needed for new technologies to become embedded in medical work.

Drawing on these premises, this panel aims to explore the multiple and interconnected ways in which AI and algorithmic technologies are contributing to transformations in healthcare and medical expertise. Therefore, we invite (empirical, theoretical, and/or methodological) contributions looking to unpack the use of AI technologies in healthcare practice. Contributions exploring the following topics are especially welcome:

- The integration of AI to support diagnosis and treatment
- The relationship between AI and biomedical research and innovation
- The regulation and governance of AI in biomedical research and innovation
- The tensions between the introduction of AI in medicine and evidence-based medicine
- Ethical issues arising from the introduction of AI in medical practice
- The role of AI in shaping expectations about the future of medicine
- Implications and consequences of popular narratives of AI systems as outperforming human expertise
- Engagement of patient groups in the development and use of AI in medicine
- Digital health technologies, data generation, and transparency of algorithms

### Algorithmic Bias in Healthcare: Socio-Ethical Mapping of its Hidden Scope

**Elisa Leila Elhadj**

KU Leuven, Belgium

Techno-optimist visions tend to describe artificial intelligence (AI) as being able to improve the accuracy of diagnoses and treatments, taking pressure off the healthcare workforce by automating administrative tasks and make various health services more efficient, which our weakened health systems are desperately in need of. However, it has been argued that the increasing use of AI in health and medical research brings many open challenges that require urgent attention, one of them being **algorithmic bias**. Existing literature presents numerous examples of race, gender, and other biases being embedded in AI systems deployed in healthcare settings. It is said, that one of the main challenges with AI is that it discriminates in unprecedented, invisible, and automatic manners, which can lead to furthering existing inequalities and create new types of discrimination and social exclusion.

What has been missing from the 'hypes and fears debates' is an extensive mapping within social sciences discourses of how algorithmic bias in healthcare is defined, discussed, and connected to its wider socio-ethical context. Therefore, this paper critically reviews the literature stemming from different fields such as science and technology studies, critical data studies and sociology of algorithms to map current discussions of algorithmic bias in healthcare, and proposed approaches to minimize bias. In the interest of visualizing the findings on algorithmic bias in healthcare and understand it holistically, this paper presents a *wheel of bias* that runs parallel to the entire AI lifecycle. The contextual specificities of more-than-human bias in health care systems and what role power asymmetries play in these are also discussed due to their interconnectedness. These discussions aim at shedding light on the deeply engrained socio-ethical contexts in which AI operates, and how AI systems in healthcare can lead to newly emerging forms of discrimination and social exclusion.

## **Suspended Responsibility. How machine learning increases the responsibility vacuum in healthcare technology development.**

**Theresa Willem**

TUM, School of Social Sciences and Technology, Germany

*Patient outcome* is what is considered the success or failure of an applied therapy. It combines patients' lived experiences that are affected by – among others, like e.g., a doctor's skills – the tools, which doctors use to diagnose or treat a patient. In the development of such new tools, often concrete medical products are promised as research outputs. In this paper we trace the patient outcome's role in ML healthcare applications research by investigating an interdisciplinary consortium of computer scientists and clinicians who research and develop ML applications for the medical imaging disciplines radiology and dermatology. Applying a grounded theory approach, we (A) analyze the goals associated with this case study as expressed by its principal investigators (PIs), and captured in the consortium agreement. Our analysis shows how the actions and evaluative practices of the PIs, especially in hype-driven domains, such as ML research, frame the actions of younger researchers and influence their understanding of their roles. We then (B) turn to the understandings of the PhD candidates' own roles and unpack them, in order to determine how scientists using ML assume responsibility due to their understanding of their role in the project. Building on our analyses in sections A and B, we will then, in section C, show how the *responsibility vacuum*, a debated gap between responsibility for research and application of research results, is increasing. We show that engineers and clinicians pass on responsibility for patient outcomes to treating physicians, which proves to be inappropriate due to the intensifying opacity of complex technologies, such as diagnostic decision support tools. We call for further research on how to mitigate the problems associated with this growing responsibility vacuum in this environment so that the benefits of machine learning can be fruitfully explored without losing sight of patient outcomes.

## **AI in fertility care: evidence-based medicine in the age of big data**

**Manuela Perrotta<sup>1</sup>, Alina Geampana<sup>2</sup>**

<sup>1</sup>Queen Mary University of London, United Kingdom; <sup>2</sup>Durham University, United Kingdom

Similar to developments in other areas of medicine, fertility care has been swept up during the last decade by the promise of artificial intelligence (AI) technologies. Such technologies are being introduced in the context of infertility diagnosis uncertainty and relatively low success rates in IVF treatment: 20-30% per embryo transfer, but even lower for patients who are 35 or older. Although AI cannot solve the biological issues associated with the increasingly advanced age of potential parents, its promise lies with the possibilities large data sets can afford in improving implantation prediction tools used in clinical practice.

A key AI technology in fertility care is the new generation of incubators known as Time-lapse monitoring systems (TLMS) which allow embryologists to collect a vast number of embryo images. IVF labs worldwide are now collecting visual embryo data alongside detailed patient data and clinic staff input on the quality of embryos observed. With the help of specialised software, these data are then used to create powerful embryo selection algorithms.

However, the introduction of TLMSs in fertility labs is still mired in doubts about the value of new IVF treatments that do not have robust evidence of safety and efficacy – something we have documented in previous work. Drawing on ethnographic research data and our previous analyses of evidence-based-medicine (EBM) in fertility care, we here argue that AI and big data imperatives in healthcare further complicate the achievement of EBM ideals in fertility care. We suggest that tensions arise in several areas of practice and regulation. Specifically, we draw attention to the reconfiguration of care practices, the practical challenges of delegating decision-making to algorithms, and the broader implications of introducing AI tools in the absence of efficiency and safety evidence called for by regulatory bodies.

## **Integrating Artificial Intelligence into Artificial Reproduction: A taxonomy of both promises and concerns**

**Kornilia Papanastasiou**

National and Kapodistrian University of Athens (NKUA), Greece

My presentation will refer to the integration of Artificial Intelligence (AI) into Artificial Reproduction (Assisted Reproduction Technologies -- ART) based on the study of a large body of articles published in biomedical/medical publications (especially gynecological) and influential science news journals (*Science*, *Nature*, *Scientific American*). This integration is exemplified by the configurations of AI technologies for embryo evaluation, embryo livability prediction, and artificial womb development. As scholars from Gender Studies and Science and Technology Studies have shown, from the late 1970s through the present, ART has been one of the most challenging fields of medicine, both technically and socially (Ryan, 2009; Inhorn, 2006; Thompson, 2005). Scholars from Science and Technology Studies have also stressed that AI comes with all sort of biases,

which are concealed through black-boxing (Broussard, 2020; Katz, 2020; O'Neil, 2016). The present version of AI, inseparable as it is from the collection and use of big data and their appropriation into the construction of algorithms and machine learning, invisibly privileges certain social presuppositions, perspectives, roles and dynamics. I will argue that physicians and other protagonists (e.g., biomedical engineers) accounts are certainly full of promises and overall positive expectations about the integration of AI into ART. Yet, as I will further argue, from these accounts we can also retrieve noticeable concerns, especially through their symptomatic reading. The aim of this presentation is to provide a first taxonomy of these concerns, including ones connected to gender and other social inequalities.

## **How the different diagnostic AI get embedded into healthcare**

**Xiao Yang**<sup>1,2</sup>

<sup>1</sup>Institute for the Study of Science, Technology and Innovation, Social and Political School, University of Edinburgh; <sup>2</sup>UKRI Centre for Doctoral Training in Biomedical AI, School of Informatics, University of Edinburgh

AI<sup>1</sup> is making inroads into medical diagnostics with its powerful computational and learning capabilities. However, the implementation of different tools varies greatly due to their characteristics, such as disease pathologies, data forms, patient privacy, and ad hoc ethics. This project looks at six specific cases and seeks to identify the different opportunities and challenges that arise when the respective tools are embedded in healthcare. I analyse them through preliminary semi-structured interviews and ethnographic studies. In particular, these cases compare why some AI tools, such as those for retinal imaging, lung-nodule CT and mammography, are well on their way to deployment, while others, such as ECG, are still far from expert level. In each case, I ask how the scanner manufacturers, PACS companies and other stakeholders interact, how they expect and are concerned about policy decisions, whether the dataset can be updated and curated, what the organisational structures of the companies involved are, what the attitudes of clinicians are, how to gain the trust of patients and represent them as customers in the healthcare market. These preliminary case studies will primarily serve to raise questions and further explore more optimal solutions for localisation and generalisation in subsequent promising future clinical AI practices. Furthermore, especially at a time when most AI diagnostic tool companies are moving towards platforms, I will discuss whether an integrated or decentralised platform is a potential solution to provide a protocol for clinical decision support systems.

<sup>1</sup> AI in this paper refers mainly to the engineering system based on machine learning algorithms.

## Panel 50 Session 1: Technologies of Discontinuation. Towards Transformative Innovation Policies

*Time:* Wednesday, 28/June/2023: 12:00pm - 1:30pm · *Location:* Aula Unione 1

*Session Chair:* Stefan Kuhlmann

**Topics:** Ecological transitions and climate justice; Technoscientific promises, imaginaries and expectations; Sociotechnologies of (in)secure worlds to come; Innovation imaginaries, practices and policies

**Keywords:** discontinuation, socio-technical systems, governance, ecological transitions

This open special session/track is organised on the occasion of the launch of a book entitled “Technologies of Discontinuation - Towards Transformative Innovation Policies” (Spring 2023, Edward Elgar Publ.). The main authors will present key outputs of their research. Other authors working on related themes are invited to present their research, too.

Getting rid of incumbent socio-technical systems has become a pressing issue for governments as well as economic and societal actors, certainly since the 2020s. Climate change and accelerating global environmental devastation ask for fast abolition of unsustainable ways of energy production and consumption, of agriculture and food production, or of transportation (IPCC 2022). On top of this, since the last turn of century, the global economic and security architecture is dramatically changing in a way that suggests national governments to reduce dependence on international provision with natural resources (such as fossil fuels) and foreign technologies: countries feel the need to abandon vulnerable technological infrastructures and replace them by innovative, more sustainable “local” alternatives (e.g., Edler et al. 2021). So radical change is required. But how to do this?

In science, technology and innovation studies (STIS) little was known about how incumbent socio-technical regimes cease to exist when there are governance efforts to discontinue them in active ways. For a few years now, however, there has been an increase in research and publications that address this question or at least deal with general questions of the destabilisation of sociotechnical regimes (Turnheim 2012; Turnheim and Geels 2012, 2013; Stegmaier et. al. 2014; Koretsky et al. 2023; Goulet and Vinck 2023).

After a series of case studies carried out by the session organisers and by a growing international group of researchers, it is possible to sketch basic patterns and concrete case examples of actively governing the discontinuation of sociotechnical regimes in different countries and on different (organisational, state and supra-state) levels. Cases include the ban on the insecticide DDT in France, UK, and the USA, the phase-out of the incandescent light bulb in the EU, and the exit from nuclear energy in Germany compared with its almost-phase-out in UK.

There is evidence that the discontinuation of a sociotechnical regime and its governance becomes possible when a misalignment of problem, policy, and political streams opens up a ‘window of opportunity’. Various discontinuation pathways can be identified, including an Ending Pathway (‘phase-out’ and ‘ban’, incremental and abrupt misalignment and ultimately discontinuation of a trajectory), a Weakening Pathway (control, restriction, reduction), a Life-cycle Pathway (what is discontinued, gets replaced or disappears), and a Continuity Pathway (when discontinuation governance fails).

### Deep-sea mining, (dis)continuation, and the goods of oceanography

#### CWTS de Rijcke

Leiden University, Netherlands, The

The deep ocean contains huge quantities of potato-shaped, mineral-laden nodules. Mining these is seen by some as a solution in the transition from oil and gas to green energy (e.g. the nickel and cobalt in these nodules are in high demand for manufacturing batteries) and by others as extremely problematic extractive capitalism. The environmental impact of mining the ocean floor - a complex technological challenge - is both unknown and highly contested. For the past ten years or so, the European Commission and other public funders and private organizations have financed consortia to explore the potential for mining manganese nodules, develop deep-sea mining technology, and do research on potential environmental harm. These public-private partnerships that include ocean scientists, national governments, and the shipping and mining industry, raise complex questions about scientific quality and integrity, sustainable R&D, and environmental justice. Powerful and smaller nation states are currently proposing to ban (France), place a moratorium on (Palau, Fiji, Federated States of Micronesia, Samoa) or precautionary pause (Germany, Costa Rica, Chile, Spain, Panama, Ecuador) deep-sea mining. My paper analyses how (dis)continuation of deep-sea mining is being addressed oceanographically by marine researchers working at the interface of science and science policy. The paper is based on preliminary findings from interviews with representatives of the *Joint Programming Initiative Healthy and Productive Seas and Oceans* (JPI Oceans), as well as participant observation with the *European Marine Board* (EMB), including with their new *Expert Working Group on Deep Sea & Ocean Health*. This working group is producing a Future Science policy brief outlining the current policy- and research funding status and future recommendations in relation to the deep sea.



## **Discontinuation and the struggle over substitutes: lessons from the chlorine bleaching phase out**

**Nicolas Baya-Laffite**

University of Geneva, Switzerland

For the pulp and paper industry, the end of the twentieth century was marked by major upheavals in production conditions. This is particularly true of the progressive discontinuation of elemental chlorine as a chemical agent for bleaching kraft pulp since the mid 1980's. The challenge of finding a substitute entailed finding a way to respond to new effluent quality objectives while still being able to meet market product quality standards set by chlorine in terms of whiteness and fibre strength. Over the 1990s, elemental chlorine-free (ECF) bleaching, a set of techniques first developed in Sweden, became the preferred alternative process, coming to dominate the pulp market. However, ECF was not the only replacement option. So-called totally chlorine-free (TCF) bleaching, also developed in Sweden and championed worldwide by Greenpeace and other environmental groups, promised a cleaner pathway towards a global chlorine phase-out. But TCF pulp never became anything more than a relatively major, but nevertheless niche green product, produced and commercialised mainly in Europe. Today, while they have not disappeared, TCF solutions coexist with ECF techniques and old elementary chlorine processes in a restricted 'technological pluralism'. In this presentation I examine this innovation process to better understand the resulting market agencement in northern Europe, North America, and beyond. To do so I revisit the trajectory of discontinuation and replacement in the main pulp producing countries between 1980 and 2010. Looking at a series of struggles in different arenas where ECF and TCF came to be associated with larger, persistent socio-political antagonisms about environmental protection and precaution, I draw a series of lessons aimed at reflecting on the relationship between conflict, discontinuation and technological pluralism.

## **Discontinuation inception: a theoretical view**

**Beniamino Callegari<sup>1</sup>, Stefania Sardo<sup>2</sup>**

<sup>1</sup>Kristiania University College, Norway; <sup>2</sup>Karlsruhe Institute of Technology, Germany

Discontinuation has recently emerged as a crucial issue in the analysis of sociotechnical transitions, signaled by an increasing amount of empirical studies on the subject. An overarching theoretical framework, however, appears to be missing. This article contributes to laying the foundations of a theory of discontinuation, by contrasting and comparing discontinuation and innovation concepts, mechanisms and processes. Using Schumpeterian theory as our starting point, we argue that innovation and discontinuation are essentially different. While the former is essentially economic, the latter is essentially political, due to the impossibility to operate the discontinuation with purely economic means and the necessary involvement of the State. We describe the key discontinuation actor as the advocacy coalition, underlying its political and collective nature. While discontinuation is a long and complex process, in this article we provide a theorization of its inception phase. Here, the aim of the advocacy coalition is to introduce the desired discontinuation within the policy agenda through a resisted process of accumulation of political influence. The realization of this objective concludes the inception phase of the discontinuation process. Our proposed framework provides an instrument to meaningfully aggregate the empirical knowledge generated so far and opens up a research agenda for further theoretical expansion and empirical exploration.

## **Discontinuing the non-digital state apparatus: the technopolitical practices of "Public Transformation Agents"**

**Julia Valeska Schröder**

Humboldt University Berlin, Germany

Unlike specific technologies such as nuclear power or fuel combustion car engines, state administration is neither commonly considered as sociotechnical system, nor associated with technologies demanded to be discontinued. However, buzzwords such as "public innovation" and "administrational digitalization" are prevalent, indicating the transformation of the state's infrastructural base. Yet, the techno-deterministic assumption of digital technologies' ability to innovate the state apparatus "automatically" did not hold. Even laws concerning the discontinuation of the highly established governmental infrastructures of paper (online-access law, e-Government law) expired without success.

This contribution delves into the politics of discontinuation of non-digital administrative infrastructures enacted by so-called "transformation agents" in Berlin and aims to capture modes of fostering termination beyond classical governance and policy instruments. Berlin's so-called "public innovation lab", CityLAB, builds its strategy around the assumption that technological change is not driven solely by technology, but also not merely realized by law. To confront the endurance of the Weberian bureaucratic infrastructural regime, the CityLAB engages in a different discontinuation practice: their "transformation agents" target the administrators as participants and practitioners of the administrative system through experimental, situated and incremental interventions.

Illuminating these practices in this contribution will allow firstly, to emphasize the cultural, socio-psychological dimension of the politics of discontinuation in addition to techno-political challenges (the CityLAB acknowledges infrastructures being linked with the conventions of a community of practice), and secondly, to decenter the focus on withdrawal, replacement and substitution in favor of practices of twisting, adapting and tinkering (the CityLAB recognizes that infrastructures are embedded into and inside other structures and strategically invests *how* new infrastructures wrestle with and inherit already installed bases (Star, 1999)).



## Panel 22 - Session 1: How are STS interested in robotics?

Time: Wednesday, 28/June/2023: 12:00pm - 1:30pm · Location: Aula Unione 2

Session Chair: Letizia Zampino

Session Chair: Ilenia Picardi

Session Chair: Assunta Viteritti

**Topics:** Technoscientific promises, imaginaries and expectations; Algorithmic knowledge, media ecologies and artificial intelligence; Innovation imaginaries, practices and policies; Sociomaterial learning processes and/in digital worlds

**Keywords:** Robots, digitalization, humanoid robots

In the first half of the last century, robotics penetrated the human imagination with stories of Karel Čapek's *Rossum's Universal Robots* of the 1920s, but also with Isaac Asimov's science fiction novels *I, Robot*. It then crosses over to the cinema with HAL 9000 from *A Space Odyssey*, the supercomputer on board the spaceship Discovery that rebels against the human, until the TV series *Westworld*, which features humanoid robots populating a strange amusement park.

All these imaginaries have fuelled an idea of the humanoid corporatisation of robots, technical objects that 'come to life', black boxes that relate, collaborate and sometimes oppose humans. On the other hand, scholars and robot designers believe that robotics - particularly in its interactions with other technologies, such as Artificial Intelligence, 5G, the Metaverse - will bring about profound social transformations that will affect every aspect of human life. STS studies over the past 30 years have promoted perspectives on analysing technology as networks and as interconnection processes, opening up the various black boxes. How have STSs studied and are studying robots and robotics? This is the basic question this track aims to answer. Robots and robotics are now interconnected in many spheres of social worlds, constructing complex technoscientific processes that promise future worlds capable of supporting, enhancing and expanding the skills of humans by replacing them in the most strenuous jobs or empowering them in the most advanced spheres (from the study of cognition, to space technology, to nanorobots to liquid robotics). Which epistemic communities are involved in the design and production of robots and robotics? How do the fields of robotics shift or connect the worlds of designers to those of users? How do STS take an interest in robotics and the study of robots as they take forms and specialisations in the various fields? What categories, concepts, theoretical frames are translated into the study of this broad field? Which theories and concepts from the STS tradition are enlisted in the social study of robots and robotics?

Empirical, theoretical and methodological contributions from different STS fields of study and application in robotics are welcome, and may include (but are not limited to):

- design, uses and applications
- arts and everyday life
- gamification for adults and children
- healthcare and medicine
- education and learning
- ecological transition and climate change
- space exploration
- security and arms
- work and industry,
- automatisisation and computing
- digital transition
- agriculture robotics
- liquid robotics

We do not know whether the more than human alliances that robots and robotics foster will lead us to interesting times, but we will certainly experience times that will be interesting to study, and STS perspectives can help us in this.

**“There is a moment when you must remove the robot to ‘see’ the patient”. Autonomy and the selective rejection of technology in the work processes of medical rehabilitation.**

**Angelo Gasparre<sup>1</sup>, Lia Tirabeni<sup>2</sup>**

<sup>1</sup>University of Genoa, Italy; <sup>2</sup>University of Milan-Bicocca, Italy

Although technology non-use is mostly seen as an issue in management and organization studies, STS have shown how it can be a powerful source of transformation of work and organizing. From this perspective, the non-use of technology has been portrayed as a form of human resistance enacted against technology; as a practice of rejection, when technology is abandoned after having used it; or even as a form of social exclusion, when individuals are excluded from the use of certain

technologies (Kline, 2002; 2003; Wyatt, Thomas, and Terranova, 2002). Although this research enlarges the view of not using technology as a managerial problem to be solved, many studies still suffer from a polarization between acceptance/rejection seen as a binary process, which does not take account of the processual nature of work. Moreover, the constructive nature of the non-use of technology seems theoretically underdeveloped, as it is mainly pictured as an antagonistic behavior, which is enacted against the organization or against the workers. By means of a qualitative study in the field of human-robotic medical rehabilitation, we seek to extend this literature by introducing the notion of 'selective rejection' of technology as an exercise of autonomy enacted by workers to secure the effectiveness of their work actions. Our framework originally combines a processual view of Pickering's 'dance of agency' (Gasparre and Tirabeni, forthcoming) and a notion of autonomy as the workers' ability to produce their own rules of action (Maggi, 2003/2016). From this perspective, the non-use of technology is understood as the culturally supported ability of workers to understand when material agency becomes an obstacle to work actions and must be removed. Instead of 'managing resistance', organizations should support selective rejection as a mean to secure the quality of work processes in human-robotic workplaces.

## **Bodies and imaginaries in robotics research practices**

**Ilania Picardi, Maria Carmela Agodi**

Università di Napoli Federico II, Italy

Robotics is an emblematic sector in which to analyze the practices, imaginaries and materials of interfacing bodies with technoscience. STS literature reconstructs imaginaries and genealogies (Haraway 1989; 1991; 1997; Castaneda and Suchman 2014) of new forms of relationality and shared agency of humans and non-humans, showing how the design of robots as humanoids is inscribed in the reduction of physicality in in-corporation (Suchman 2011). The robot, in this type of imagery, is quasi-human and/or post-human: a model for the study but also and for the "redesign" of the human and its philosophic and onto-genetic genealogies.

This paper presents the results of laboratory studies conducted in the PRISMA Lab (Industrial and Service Robotics, Mechatronics and Automation Projects) of the University of Naples Federico II, where an internationally recognized team leads the strategic research program in Robotics and Robotic Surgery.

The objective of the research is to analyze the scientific practice involved in the research projects on the robotic body can become "a reflective body practice", or rather a social practice in which the robot body is the object (of design) and subject (of reflective learning) at the same time.

The focus of STS research on robot design as socio-material assembly processes of hybrids helps to detect how cultural models and imaginaries embedded in robots affect the evolution of expressive practices of the relational and cultural self - including that of gender - of the subjects who interact with them (Robertson 2010; Suchman 2011).

In continuity with the STS program, the paper proposes a dynamic and procedural reconstruction of geographies and ontologies in which the forms of relationship - gender, power, subjectivation and objectification, etc. - and the processes of differentiation (object/subject, female/male, nature/culture, science/society, human/non-human, etc.) are brought back to the focus of research on production and stabilization of technoscience.

## **Do You Want to Make a Robot?: Showing up as method for crafting technologies of Black abundance**

**Casey Anderson<sup>3</sup>, Ben Caldwell<sup>2</sup>, Elizabeth Chin<sup>1</sup>**

<sup>1</sup>American Anthropological Association; <sup>2</sup>Kaos Network; <sup>3</sup>A Wave Press

In this workshop we will make toothbrush robots, a key activity in our strategy of "showing up." For nearly two years, we have been showing up weekly in Leimert Park, a historically Black neighborhood in Los Angeles. Collaborating with Ben Caldwell, who has run Kaos Network there for 38 years, our focus is on presence, building trust, and responding to possibilities as they present themselves. Recognizing that technology is too often used to surveil and incarcerate Black and Brown people, this work aims to invest instead in technologies of Black abundance. When we call out "Hey, do you want to make a robot?" Our invitation is for passers-by and community members to explore their own ability to meaningfully craft technology that supports their own flourishing in the face of gentrification, the carceral state, and white supremacy.

Our approach to "showing up" draws from and is responsible to Black and Indigenous method and theory, radical Black feminism, Afrofuturism. Showing up, for us, is a strategy of community involvement that is sustained, long-term, and non-extractive, and deeply relational. It makes no promises of problem solving or making change. Proceeding slowly, taking our cues from those who choose to sit with us, and from Ben, we have built bridges to the Los Angeles Public Library Octavia Lab; installed interactive afrofuturist spaces in conjunction with the Pan African Film Festival; joined in community organizing and performance events.

## **Why Mars, with Mobots, Again? Relocating Machine Ecologies in and as Pedagogical Practices of Science Fiction**

**Philippe Sormani**

University of Lausanne, Switzerland

This paper reports on a video ethnography of a "Mars mission" in a primary school setting, a multi-team effort conducted with small "mobile robots" (mobots) for the purpose of practicing basic programming, problem-solving, and collaboration skills. How was this pedagogical scenario made to work? When and why did its purpose(s) become a topic for participants, be it students or instructors? And, as part of the observed effort, how did ecological concerns figure in the observed pedagogical practices, respectively had to be left out for collaborative programming to proceed?

Taking its cue from the perennial tensions between "machine and ecology" (Hui 2020), the paper addresses the raised questions in the light of the interaction encountered *in situ*, while specifying how this multifaceted interaction required "human/machine interfacing" (Lipp & Dickel 2022) and explicating contrasting "machine ecologies" of pedagogical practice(s) *in vivo*. The paper thus charts why and how the "Mars mission," in and as its lively course in the classroom, required mobot programming, while opening up and/or closing down ecological reflection, as part and parcel of different kinds of "science fiction," extrapolative or otherworldly (Meillassoux 2015).

Drawing upon multi-camera video recordings, the ethnography homes in on the interactive accomplishment of mobot programming by students, while analyzing the encountered tensions between machine, ecology, and pedagogy. In so doing, the paper reflects on the video ethnography of the pedagogical scenario at work, while probing the interdisciplinary politics of "educational robotics" (e.g., Malinverni et al. 2021; Michalec et al. 2021) in terms of its ecological horizons.

## Panel 27: Critical posthumanism: interrogating cyborg imaginaries, practices and politics

*Time:* Wednesday, 28/June/2023: 12:00pm - 1:30pm · *Location:* Aula Unione 3

*Session Chair:* Erika Cudworth

*Session Chair:* Delia Langstone

**Topics:** Ecological transitions and climate justice; Technoscientific promises, imaginaries and expectations; Sociotechnologies of (in)secure worlds to come; Technofeminism and interspecies solidarities

**Keywords:** cyborg, interspecies, posthumanism, technoscience

There are many posthumanisms. Posthumanism is an elastic term that has varied understandings, meanings and deployments. It can be considered as a form of critical enquiry. While critical thought has been concerned with questions of exclusion of various kinds, it has tended to concentrate on human interactions. Critical posthumanist thought however, seeks to extend the area of social enquiry to all that lives. Posthumanism provides a challenge to our perceptions of what it means to be human on a planet containing a multitude of other forms of life. 'This shift in the social and individual perception of the human', Francesca Ferrando (2016, 168) argues, 'is one of the most important challenges we are facing as a species, as individuals, as moral, ethical and social beings'. While not wanting to reject all of the potentially progressive elements of humanism, critical posthumanists reject this central separation of the human species from other species and the rest of nature. This is often described as human exceptionalism, succinctly defined by Donna Haraway (2008, 11) as 'the premise that humanity alone is not a spatial and temporal web of interspecies dependencies'. Hence a prime feature of posthumanist work has been to de-centre the human by asserting that how we act cannot be abstracted from the ecology in which we exist.

Posthumanist influenced work is a new but rapidly growing area across disciplines, and has engaged with a variety of issues. This panel is open to the consideration of a range of posthuman imaginaries. It is concerned with the nature of technoscientific futures and their ethical and political critiques. It seeks to examine critical posthumanist perspectives on the multiple crises the planet and its pluriverse of species and their ways of being, confront. The panel considers the ways posthumanist theory and empirical research might illuminate our understanding of and possible responses to exclusions, extractions and expulsions; to various kinds of existential threat. The panel considers the practices and politics of technonaturecultures, and their embedding in intraspecies assemblages, spaces and relationalities. In addition, the panel seeks positive intervention for most sustainable futures and liveable worlds in terms of posthumanist allyship, solidarities and communities.

Posthumanist influenced work is a new but rapidly growing area across disciplines, and has engaged with a variety of issues. This panel invites abstract proposals including, but not limited to:

- Posthuman imaginaries
- Critiques of technoscientific futures
- Critical posthumanism and existential threat
- The practices and politics of technonaturecultures
- Intraspecies assemblages, spaces, relationalities
- Posthumanist approaches to exclusions, expulsions and extractions
- Posthumanist allyship, solidarities and communities

### **A Precautionary meta-ethical framework as a counterpoint to techno-Utopian visions.**

#### **Alexander Thomas**

University of East London, United Kingdom

This paper will draw on critical posthumanist thought to argue for a meta-ethical framework that can function as a counterpoint to transhumanist and other techno-Utopian, proactionary accounts of technological progress. The framework builds on critical posthumanist discourse by emphasising two aspects in particular: a relational ontology with its call for relational compassion as a foundational ethic, and our interconnectedness with future and past states (the virtual). The virtual fosters post-anthropocentric thinking by foregrounding the fleeting nature of humanity's existence and bringing to mind the universe before our existence and the time when we have long since disappeared. The virtual-relational ethic is thus a call for a situated, evolving attitude, but with a commitment to relational compassion as its guiding conception. It is less about projecting a hubristic, controlling and domineering sense of epistemological certainty into the future: the proclamation of fantastical possibilities as a justification for systemic violence; and more about an ongoing ethical engagement with the shifting sands of complex webs of intra-relation. Adorno's minimalist or negativistic ethics supplements

the theory ultimately advocating a precautionary stance to technogenesis as a recognition of the capacity for inhuman acts to be undertaken in the name of enhancement and progress.

### **Cyberzoa: is a cyborg world for nonhuman animals possible?**

**Federica Timeto**

Ca' Foscari University, Italy

The cyborg world that Donna Haraway (1991), and feminist technoscience with her, imagines is one in which “people are not afraid of their joint kinship with animals and machines” (p. 154). Can we imagine a world in which nonhuman animals are not afraid of their joint kinship with humans and machines? Is a cyborg world *for* nonhuman animals possible?

The first cyborg was born after a series of experiments on a rat-osmotic pump configuration; afterwards, only human (only a certain kind of human) animals seem to have benefited from the “boundary breakdowns” among human, nonhuman animals and machines. Whereas human-machine assemblages, either for domination or for liberation, have empowered (some) human beings, when it comes to the nonhuman animal-machine hybridization, things appear to be very different. Today, nonhuman animals “meet” new technologies in many fields, from the health sector to the agricultural, from the military to the entertainment industry. Genetic technologies and digital technologies are variously used *on*, *with* or *as* animals, mediating human-nonhuman technosocial relations in unprecedented ways.

In my presentation, I start from a critique of both feminist refusal of technologies and feminist enthusiastic – but ultimately still anthropocentric – confidence in their emancipatory possibilities. Then, I propose the first outlines of a cyborg theory for the animals that, combining the approaches of Feminist Technoscience Studies and Critical Animal Studies, imagines a multispecies eco-technical scenario in which all the animals enjoy the promises of the cyborg in *cyberzoa*, rather than being machinized even further. I call *cyberzoa* the heterogenous assemblages involving (all) animals and machines, in which nonhuman animals can be technosocial actors in and *for* themselves rather than mere usable and replaceable “components”.

### **Cyborgs, companions, kin: thinking posthumanist intimacies with Haraway**

**Erika Cudworth**

De Montfort University, UK, United Kingdom

This paper engages with Haraway's shifts across her three ‘manifestos’ in the use of the cyborg, companion species and making kin as feminist motifs for envisioning ‘what was possible, where to move, how to move in this conjuncture’, as she puts it in *Manifestly Haraway*. Each manifesto is a product of its time and place, while also characterised by the common threads of working out how to be in the world ‘now’, how to engage with interrelatedness beyond the human in ways that are critical and attentive to power and difference, and how to think about other worlds and their knowledges. In her work on companion species, Haraway explores the forms of connectivity, intimacy and relationality which have emerged historically and constitute current practices. More recently, her emphasis is on who we choose as kin, to be partners, collaborators and allies. Making kin is both transgressive and an ethical path for better species interrelating, where the strangeness of other species is accepted and some of our closest kin are not human. Haraway also suggests that reinventing kin-making is key to responding to ecological crisis.

The paper draws on data from an ethnographic project on the situated, embodied experiences in everyday practice in human-dog households and considers how intra-species intimacies are shaped by affection, passion, power and boundary trouble. The paper asks how far a Harawayian conception of kin and kin-making might be productive in understanding affective ties and relations within multi-species homes, while also raising technological and ethical questions for the scaling up of kin-making in the ways Haraway suggests.

### **Super furry surveillance: more than human surveillance in the surveillant assemblage**

**Delia Langstone**

University of East London (London), United Kingdom

Surveillance is now more than human; and can be referred to as posthuman in the sense of being both multi-species, implicated in power inequalities, and bound up with technology in combining human/animal/technology. By examining surveillance techniques such as the collection of animal DNA, data from pet monitoring technologies, the use of hybrid living organisms, and robotic devices this paper examines posthuman boundaries of techno-animal-human social relations. It demonstrates how nonhuman animals, in conjunction with technology, extend the reach of surveillance. It discusses how animal surveillance has the potential for considerable function creep, often going outside its original objectives and acting as a gateway for more problematic surveillance of humans. This draws on a wider study of animal surveillance that uses empirical case studies that examine the implications, for animals and nonhuman animals, of some of the latest surveillance

technologies that are an emerging dynamic in the surveillant assemblage. This results in the social sorting of people which can lead to discrimination, exploitation, and interference in the privacy of both humans and animals. It opens people up to intrusive targeting by third parties such as advertisers and law enforcement agencies. Our attraction and attachment to animal companions can be exploited as a means for surveillance, such as with animals on social media, soft, huggable robots with animal morphologies to encourage pro-social behaviour, and the anthropomorphic/zoomorphic design of household robots intended for surveillance but disarmingly designed to be 'cute' companions.

### **The Limits of Home: Posthuman Bodies & Habitable Space**

**Debra Benita Shaw**

University of East London, United Kingdom

Planet Earth is understood to be home for humans. Why, then, are those that consider themselves exemplary humans trying to leave it? This paper critically examines the spaces that are understood as home for humans in order to establish how the idea of home defines what we think of as human and how this has produced the idea of who or what is less-than-human. On a journey from outer space to the kitchen table, via techniques of cartographic modelling, urban planning and house design Debra Benita Shaw examines the possibility of posthuman space and the techniques of thought that can destabilise the relationship between species ontologies and the idea of home.

## Panel 39: Resistance in action. Understanding countersurveillance practices, imaginaries, and activities in a digitally dense environment

*Time:* Wednesday, 28/June/2023: 12:00pm - 1:30pm · *Location:* Sala Rossa

*Session Chair:* Veronica Moretti

*Session Chair:* Alessandro Caliandro

*Session Chair:* Barbara Morsello

**Topics:** Algorithmic knowledge, media ecologies and artificial intelligence; Innovation imaginaries, practices and policies; Extractivist powers, imaginaries and asymmetries

**Keywords:** countersurveillance, resistance, alternative imaginaries, social and personal activism, digital environment

The panel aims to promote reflection on how people avoid surveillance measure and policy thus realizing countersurveillance practices in a digitally dense environments. Despite being central to the dynamics of surveillance, the concept of resistance remains underdeveloped within the surveillance studies.

Counter-surveillance is the task of making surveillance difficult or to avoid it. Resistance subverts various components of the surveillance process (Wood & Thompson, 2018) in many fields. Countersurveillance can be employed by individuals and communities to protect privacy, civil rights, and against abuses regarding personal information and sensitive data in public spaces, online and offline. Additionally, counterveillance it may be engaged to make pressure to the public and private surveillance systems by identifying potential vulnerabilities and errors.

Moreover, resistance, activism, and counteraction to institutionalized surveillance system implies to avoid the action of many actors involved in the process of surveillance such as: algorithms, cookies, traced payments, terms of services, informed consent, tracking health apps, populations screenings, just to name few.

There are multiple examples of countersurveillance activities. Consider, for instance, how citizens using media and participatory journalism converge to expose and sabotage governmental systems of surveillance (Ataman & Çoban 2018; Velkova & Kaun, 2021). Counterveillance practices and imaginaries within the healthcare system show how people can resist algorithms by interacting with them. This was especially visible across the international contact tracing and risk assessment system, where some of the prominent cases (including the Italian one) failed because of massive and explicit resistance to institutionalized surveillance (Moretti and Caliandro forthcoming). In addition, with the emergence of platform capitalism, countersurveillance practices are getting traction in the domain of consumption as well. Consider for example those consumers installing Ad blockers and/or VPNs to escape targeting advertising (Ruckenstein & Granroth, 2020). Finally, as pointed out by Monohan (2006) counter-surveillance operates within and in reaction to ongoing global transformations of public spaces naturalizing forms of social control and exclusion of economically or culturally marginalized groups through architecture or infrastructure. Digitally dense environments also shape dystopian imaginaries and technological surveillance narratives that have given rise to the counterculture as cyberpunk and/or forms of digital and data activism.

Through this panel we propose to frame countersurveillance as an ensemble of individuals, technologies, data flows, practices, knowledge that work together to counteract surveillance measures.

Contributions may cover, but are not limited to, the following topics:

- Algorithmic surveillance resistance
- Dataveillance resistance
- Internet-facilitated countersurveillance activities (through social media)
- Cyberpunk culture, practices and imaginaries
- Resistance to the biomedical surveillance and health policy
- Emerging practices of counterveillance during Covid-19 pandemic
- Environmental counter-action from below
- Resistance to surveillance capitalism (e.g., targeting advertising, algorithmic monitoring of consumers' behaviors (on/offline), vocal assistants, shopping surveillance, etc.)
- How counter-surveillance imaginaries and practices changes across different social segments (communities, classes, ethnic groups, age groups, etc.)
- Making surveillance visible through data visualization (and other visual aids)
- Innovative methods to frame countersurveillance practices

### Exploring Secure Messaging Practices and Perceptions among Protesters: A Meta-Ethnographic Review

**Mikaela Brough**

Department of Information Security, Royal Holloway, University of London, United Kingdom



Recent years have seen an increased attention to encrypted messaging, both in mainstream discourse and as a counter-surveillance tool within activist circles (Hellegren 2017). Scholars (Halpin et al. 2018) claim that there is a discrepancy between what secure messaging application developers design for and the security needs of higher-risk populations. In thinking about how to bridge this gap, it is essential to understand how affected communities conceive of secure messaging and operationalise it in their day to day lives to shape relations and practices. Protester circles are well-suited for this goal, since they often face the potential of adversarial surveillance by either the state, counter protesters, and other hostile groups (Ermoshina and Musiani 2022). This meta-ethnographic review investigates the secure messaging practices of protester groups from different contexts. I have performed an analysis of the existing literature, and analysed these sources through thematic coding. This analysis suggests that secure messaging practices are shaped by specific protester group relations with individual states and levels of social repression. In addition, this analysis shows that protesters prioritise security against physical device seizure, small group chat confidentiality, and inconspicuous download activity over insecure networks. This evidence synthesis contributes insights for developers and STS scholars into the strategies, experiences, and counter-surveillance perspectives of high-risk protesters, who experience technology in socially contingent ways.

Ermoshina, K., & Musiani, F. (2022). *Concealing for Freedom The Making of Encryption, Secure Messaging and Digital Liberties*. Mattering Press. *The Guild Practitioner*, 53(4), 167. Halpin, H., Ermoshina, K., & Musiani, F. (2018). Co-ordinating Developers and High-Risk Users of Privacy-Enhanced Secure Messaging Protocols. *Lecture Notes in Computer Science*, 11322, 56–75. Hellegren, Z. I. (2017). A history of crypto-discourse: Encryption as a site of struggles to define internet freedom. *Internet Histories* (2017), 1(4), 285–311.

## **Toward an age of affordances-based countersurveillance?**

**Alessandro Caliendo<sup>1</sup>, Ilir Rama<sup>2</sup>**

<sup>1</sup>Università degli Studi di Pavia, Italy; <sup>2</sup>Università degli Studi di Milano

The covid-19 emergency has been framed as the new plague, since it brought about brand new systems of digital surveillance, inaugurating a new era of surveillance. Covid-19 played a similar role to that played by the plague in the XVII century for the emergence of the modern surveillance State. The metaphor is not totally fitting. In fact, the tools of surveillance that the State deployed after the covid-19 emergency are (mostly) contact tracing apps: interactive devices that are delivered and available with interactive digital environments, wherein users can freely and easily search for information, provide opinions and debate about them. Therefore, these monitoring measures do not impose on people from above, but are also prone to processes of manipulation, collective criticism, sabotaging, hacking, and resistance from below. Therefore, we contend that with the advent of covid-19, and probably due to the very immission of contact tracing apps in society, we are facing a new era of digital countersurveillance - along with a new one of digital surveillance. We also deem that, differently from other forms of countersurveillance we witnessed in the past - which were mostly acted by organized social groups and activists, contemporary countersurveillance tends to be more distributed across the whole society as well as everyday practices of ordinary people, and thus more capillary and 'always on'. To test this 'hypothesis' we've developed a digital analysis on 270,656 tweets + 23,469 user reviews. Preliminary results lead us to speculate that we are now witnessing an emerging kind of affordances-based countersurveillance; in which countersurveillance is not organized and structured by norms and practices encoded in communities, crowds, or political movements but rather, since it is dispersed and capillary, it is structured and kept together by technical features of digital media and participatory cultures thriving on digital media

## **: Is the vacuum cleaner watching me? Awareness and resistance to data sharing from IoT devices**

**Ana Delicado<sup>1</sup>, Jussara Rowland<sup>1</sup>, Monica Truninger<sup>1</sup>, Carolina Mourão<sup>1</sup>, Ana Viseu<sup>2</sup>**

<sup>1</sup>Institute of Social Sciences, University of Lisbon, Portugal; <sup>2</sup>ICNOVA - Communications Institute of Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa

In December 2022 the MIT Review published an article on how video stills taken by robotic vacuum cleaners, some of intimate domestic scenes, ended up shared on the internet. Even though the manufacturing company explained that these were special products, for testing purposes, not meant to be sold to consumers and that the users were fully aware of the recording features of the machines, this is just one more episode in a long list of data breaches associated with Internet of Things products: voice assistants that record private conversations that are then heard by company employees, cars that send to insurance companies data on driving behaviour just before accidents, personal information of users of children's toys, together with photos and voice recordings, leaked online.

According to Eurostat data, the use of domestic IoT products in Europe is growing, albeit it is mostly restricted to affluent and highly educated users (many with an ICT background, in fact). But up to what point are individuals and families aware of the data about them that is monitored, collected and sent out to the manufacturer company and others? How informed is their consent to use it? How concerned are they with IoT's potential for surveillance and misuse? What representations and imaginaries do they mobilise when discussing these issues? And what strategies do they put in practice to protect their data



and countervail such surveillance? And how are these practices of resistance developed, enacted, tinkered with, fine-tuned, and shared with other users?

This presentation will try to address these questions through an analysis of in-depth interviews with families that own IoT products and discussions in online forums. It is part of the exploratory research project Engage IoT, funded by the Portuguese Foundation for Science and Technology.

## **The emerging call for secure messaging and its sociomaterial construction: the case of Threema**

**Samuele Fratini**

University of Padua, Italy

In the light of the turn to infrastructure in Internet Governance, the power struggle among social forces is deemed to be visible in the sociomaterial construction of the digital artefacts. Conversely, several historical turning points, exogeneous to the technical environment, e.g., the Snowden revelations, provoked shared discontent against the perceived corporate and governmental digital surveillance, conducting toward a techno-pessimist zeitgeist. A significant result of these factors is the formation of a generation of digital companies aimed at equipping users with some degree of data protection, in conjunction with the issuing of new attentive regulatory frameworks by policy-makers. In the realm of Mobile Instant Messaging (MIM), this led to the “de facto standardization of the end-to-end encryption”. Among others, the rise of Threema, a Swiss messaging application established in 2012, counting on 11 million users, represents a fruitful and overlooked case study. Its alterity can be understood under two main fields: technical features and sociotechnical imaginary. On the first hand, Threema adopts an end-to-end encrypted protocol called Ibox, providing users with a randomly generated unique ID key, thus not asking for their phone number and allowing message repudiability. On the other hand, Threema has adopted a communication style which is mainly based on its opposition to US hegemonic applications and on its self-presentation as a “genuinely Swiss company”: its two datacenters are located in the Zurich area, escaping any non-Swiss legislation and ensuring that “no work is outsourced”, while mocking on its US competitors on Twitter. Drawing on a document analysis of both materials produced by the companies, e.g., advertising and whitepapers, and related news pieces, governmental documents and existing literature, the present analysis aims to understand how Threema enacts and embodies a collective call for countersurveillance, thus connecting its sociotechnical features with the latest environmental changes.

## **“Why should I care?”: algorithm literacy among teenagers**

**Luca Giuffrè**<sup>1,2</sup>

<sup>1</sup>University of Milan, Italy; <sup>2</sup>University of Turin, Italy

Nowadays, teenagers are increasingly interacting with a plethora of social media wherein they manage identities and social relationships. Such digital environments rely on algorithms which curate digital experiences on the basis of data produced by users’ interactions, macro-level trends, and according to cultural dispositions embedded by software developers. Algorithms systems could therefore be seen as actors able to reinforce or transform social structures within sociotechnical contexts. For example, TikTok recommended videos could reproduce gender normativity via stereotypical contents.

Teens are nonetheless almost completely not aware on how the data they exchange might affect their everyday life, despite the high level of media and Internet literacy.

Accordingly, the current research project is intended to employ the concept of algorithm literacy as a practical tool to explore teenagers interactions with recommendation systems and to investigate which aspects affect them in building said literacy.

To assess this, the methodology envisages a mix-method approach designed so as to highlight bottom-up spontaneous discourses and top-down education initiative among upper-secondary students. First, a digital ethnography is carried out to catch the perception of algorithms through interviews, walkthrough, go-along, and scroll back sessions. Topic and co-occurrence text analyses are used to draw conclusions. Second, algorithm literacy initiatives among high schools are proposed as a field study. The purpose is to measure before-and-after effects of the activity on practical and theoretical knowledge through surveys, fundamental in controlling for individual and contextual variables. Preliminary results have already been collected in the context of ALGOCOUNT project.

Outcomes are expected to enlarge the current as well as lacking understanding of algorithms on teenagers’ digital consumption. Moreover, the school initiative is intended to actively lead to new research horizons on the role of education in facing the expansion of data surveillance towards the unaware population.

## Panel 13 Session 2: Artistic Intelligence? Making it together in the Multispecies World

*Time:* Wednesday, 28/June/2023: 2:30pm - 4:30pm · *Location:* Aula B

*Session Chair:* Silvia Casini

*Session Chair:* Gediminas Urbonas

*Session Chair:* Roberta Buiani

*Session Chair:* Philippe Sormani

**Topics:** Ecological transitions and climate justice; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Methodological challenges in a more-than-human world; Technofeminism and interspecies solidarities; Embodied identities, genders and interests

**Keywords:** multispecies research; organism-oriented ontology, composability and cohabitation, sympoiesis, art as research

In recent years, academia has sought new approaches to tackle phenomena that couldn't be grasped through traditional discipline-specific research methods. Anna Tsing expresses the difficulties of examining and communicating the system known as the Anthropocene and calls for "new kinds of storytelling" that can "tell empirically grounded stories of particular times and places and positions and [that can] tell them with some much curiosity and wonder". In practice, this means to abandon the "god's view from nowhere" (Haraway), which leads to the prioritisation of anthropocentrism. Tsing proposes an embodied approach that takes in different positionalities, that is, she exhorts us to become-with the non-human and more-than-human, instead of just observing them from afar. To this end, the feminist and more-than-human curatorial work of Haraway and Tsing with her platform *Feral Atlas* (2021), the collaborative thought-exhibitions by Latour and Weibel at ZKM (*Iconoclash 2002*, *Making Things Public 2005*, *Reset Modernity! 2016*, and *Critical Zones 2020* all devoted to the crisis of representation in art, science, and politics), and the visual STS approach by Galison in his collaborative work all use curatorial and artistic practice as research. These forms of research embodied, situated, and materialised knowledge that matters (Turkle 2011: 7). Moreover, they foreground storytelling, invention, and fictionality as tools for 'getting real' and challenging anthropomorphism (Skiveren 2022). All these collaborative endeavours might offer the coordinates of new zones of friction and creative resistance, asking us to engage with indigenous perspectives and traditions, forging alliances with symbionts, imagining anew the social and material fabric of the world. Perhaps from these zones new ways of being can become thinkable along the lines of what Ingold suggests with the concept of a «mycelial person» (Ingold 2003).

With this panel, we encourage proposals coming from both academics and practitioners for creative/performative presentations (regarding curatorial practices and/or exhibitions and storytelling), interactive sessions (bearing on material objects), and/or traditional academic papers. In particular, we ask prospective contributors to reflect on how exhibitions understood as "more-than-human alliances" might contribute to STS research and methods, demonstrating the importance of cherishing the process rather than the results; the significance of relational thinking; and the importance of interrogating the epistemological contributions of exhibitions.

At a time when some of the prominent venues promoting collaborative work in art, science and technology studies have closed (Science Gallery Dublin) or are under threat (SymbioticA), we call for forms of engagement, critical zones and methods capable of nurturing a "slow art-science" practiced by amateurs and connoisseurs in the guise of what Isabelle Stengers (2017) suggests in her manifesto for a slow science. What are the coordinates of such zones? How can we draw a map to chart our ways through a changing world? How to be alive in the "regime of the human," characterised by the lure of progress and "techniques of alienation," and "still exceed it" (Tsing 2017: 19). How can artists and scientists use their observatory stations not as ivory towers but as scaffolding for 'engagement all the way down" (Stengers: 2019, 19)?

### **Symbiotic Relations at Ca' Inua: Farming, Exhibitions, and the Art Collective Panem Et Circenses.**

**Margherita d'Ayala Valva, Silvia Bottinelli**

Tufts University, United States of America

Our contribution discusses the practice of Panem Et Circenses (Alessandra Ivul and Ludovico Pensato), an art collective whose work revolves around food and agriculture. After founding Panem Et Circenses in Berlin, Ivul and Pensato opened an artist-run exhibition space devoted to food-based practices in Bologna. Since 2016, they have lived at Ca' Inua, a farm in Marzabotto, on the Bologna Apennines. Ivul and Pensato see their experimentation with regenerative and sustainable farming as a form of performance art, an embodiment of their deep engagement with philosophy and theory. Their work participates in discourses—with a range of variations that build on Indigenous sciences/knowledges, posthumanist and new materialist philosophies, and environmental arts and humanities—that recenter symbiosis, relationality, and human/more-than-human entanglements.

Our paper looks at the ways that Panem Et Circenses translates theoretical frameworks into everyday interactions, hands-on activities, community-building, and long-term planning for the specific ecology of Ca' Inua. Also, we describe the artists'

challenges as they adapt existing policies, economic models, and cultural hegemonies to their aspiration to symbiotic paradigms of human/non-human relations. Finally, we consider Panem Et Circenses' involvement with site-specific exhibitions in rural areas in the Veneto region. Here, the collective's ephemeral performances symbolically connect built environments with the surrounding nature through process-based and place-based works that heavily reduce the carbon footprint often attached to art displays.

Our methodological approach relies on critical, art historical, and visual studies tools, and is informed by ethnographic observations on site as well as interviews with the artists. Our contribution begins to address the specificity of Panem Et Circenses' relationship with the lands that they care for and aims to locate their experience in the larger landscape of Art Farming practices.

## **Serra Madre: a place to imagine the unimaginable to reclaim the future**

### **nicoletta tranquillo**

kilowatt, Italy

Le Serre can be considered a "*critical zone for transition*". It is a formerly abandoned public space, which has gone through a process of resignification (and regeneration) that from a forgotten space turned it into a community hub ("*a place where I go when I want to feel good or to talk intimately with a person*" we read in one of the interviews made to a sample of the 150k people that annually cross this space). Also it's a model of a cultural-based regeneration process, that has generated a social impact business (Kilowatt) that currently provides jobs to more than 30 people. And finally, it's a space where a delicate balance exists between management (by the organization) and the freedom (of people and plants) to use the space, grow and blossom.

This equilibrium is part of a wider desire to overcome the current economic exploitative model, which was firstly directed internally (our business and organizational model), and has then become a radical need for a more systemic change.

**Resilienz Festival** was our first answer: an annual festival where artistic practices and creative languages were used to shed light on the climate crisis and its complex and hidden relationships. In fact we tried to talk to the whole individual, not only to its rational part (data, notions) but also to its sentimental and relational components.

7 years of research, curatorial work and a continuous dialogue with artists, led us to imagine and create **Serra Madre**: a space where art and science engage with businesses, public administrations and citizens, to tackle the ongoing climate crisis. A place where collective imagination can turn into action. We don't propose a pre-packaged method, but a process, a philosophy and an epistemology, where questions are more important than solutions, where observation is central and the connection between art and science is pivotal.

## **Reimagining Compossibility**

### **Kristupas Sabolius**

Vilnius University, Lithuania

The concept of compossibility is best known for its importance in Leibniz's philosophy. By considering the problem of an actual world being one of the many possible worlds, Leibniz was obliged to propose a new term that enables to think simultaneously an actual existence and a mere possibility. So instead of using a standard term of possibility, he introduces the idea of *compossibilitas*. Otherwise put, compossibility could be conceived as 'the possibility of togetherness'. In the universe of Leibniz's metaphysics, these are the specific possibilities that cannot negate one another, they are found in the network of relationships.

In the light of the discussions on cohabitation, sympoiesis (Dempster, Haraway) and cosmopolitics (Stengers), the concept of compossibility discloses a new potential reconsideration. In fact, its important but not sufficiently analysed role can be found in Gilbert Simondon's thought. In *Imagination and Invention*, the idea of compossibility points to the regime of imagination that describes the disposition of a living being to include otherness and open up for a co-creation of shared milieus. In my talk, I will provide both an analysis of the concept of compossibility and its re-elaboration in the context of the more-than-human project.

## **The Formation of an Earthly Commons through the Action of Artists**

### **Anne Elizabeth Douglas<sup>1</sup>, Simone Stewart<sup>2</sup>, António Teixeira Guimarães Ferreira<sup>3</sup>, Mariana Dias Coutinho<sup>4</sup>**

<sup>1</sup>Robert Gordon University, United Kingdom; <sup>2</sup>The Barn Arts, United Kingdom; <sup>3</sup>MARIE ANTOINETTE, Portugal; <sup>4</sup>CLARA, Portugal

*Riffing the Archive: Building a Relation* (2020-22) is a collaborative response to COVID-19, an experience of the Anthropocene, led by the artist duo from rural Portugal, MARIE ANTOINETTE (MA), and the Barn, an ecologically focused arts organisation in

rural Scotland. The artists have challenged the Barn to put at risk the organisation's habitual practices as a venue/receiving house that brokers the arts as product in relation to audiences. They have created an aspiration to work experimentally, beyond superficial guidelines and tokenism by underpinning activity in a careful consideration of values and ethics. MA (artists Mariana Dias Coutinho and António Guimarães Ferreira) have worked closely with the poetics of the writer and thinker, Édouard Glissant (1997), whose deep insights into the complexity and contradiction of multiple local circumstances and histories in the Caribbean, often related to deep suffering, produce a vision of the world undergoing transformation. Douglas and Stewart, through the Barn's programme *Becoming Earthly*, are curating spaces of discussion and experimental artwork that addresses the predicament we find ourselves in: the world of unlimited resources that we have so long lived *from* is now irrupting within the world we live *in*, creating panic among humans and between species (Latour 2021).

The paper is a playful, performative but nonetheless analytical conversation between the four protagonists (the artists MA and the Barn curator/researchers Douglas and Stewart), a new reflective 'riff' in our partnership and objectives to 'become earthly'. The conversation will foreground artistic ways of knowing as practices in the world that decentre and subvert human self-interest within a radical form of relational poetics. Our shared experiences hold particular relevance as a case study of artistic research, addressing the arts and arts and science organisations concerned with emancipatory, critical forms of working together and collective care for ecological and social commons.

## **Harmonizing art and science in the governance of human-biosphere relationship: the power of systemic dualities**

**Houda Amale Khayame**

The Open University, United Kingdom

In 1970, Hasan Ozbekhan, a cybernetics and systems practitioners, was solicited by the Executive Committee of the Club of Rome to suggest ways to address multiple crises on a planetary level. Ozbekhan titled his report *The predicament of mankind* (1970) and demonstrated the dynamic complexity of "continuous critical problems" affecting humans and the biosphere. This perspective could be seen as an initial framing of what Earth System Scientists later named 'the Anthropocene' (Crutzen and Stoermer, 2000). With other systems practitioners, Ozbekhan insists that such situation is immune to the very positivist science and technologies that have enabled us, humans, to do the harm we have done and continue to do to the biosphere as well as, I argue, to other humans and to our own being human. However, despite a growing recognition of an obsolete technical-rational paradigm in mainstream governance of social-ecological issues, the dominant trajectory of institutionalized positivistic business-as-usual appears to pursue its course largely uninterrupted.

Systemic institutions such as artistic intelligence in governing, if pursued, may offer humanity more choices for effective action? However, these approaches seem to have limited purchase among practitioners of mainstream social-ecological governance who seem trapped in the lobster pot (Vickers, 1965) of positivist understandings of science and technology. Stemming from the traditions of 'systemic inquiry' (Ison, 2017), 'Anthropocene' (Crutzen and Stoermer, 2000) and 'Problématique' (Ozbekhan, 1970), I use an 'integrative literature review approach' (Torraco, 2005) to explore how the concept of 'systemic duality' (Ison and Straw, 2020), by contrast to 'dualism', may help 'artistic scientists/scientific artists' to cross conceptual and practical boundaries between art and science for conversations to emerge. In this paper, we argue for the transformational power of enabling systemic dualities to support shifts towards a social purpose of healing relationships between humans and the biosphere that has become more needed by the day

## Panel 16: Developing a robust food system applying a transdisciplinary approach beyond academia

*Time:* Wednesday, 28/June/2023: 2:30pm - 4:30pm · *Location:* Aula C

*Session Chair:* Carl Walter Matthias Kaiser

*Session Chair:* Cordula Scherer

*Session Chair:* Agnese Cretella

**Topics:** Ecological transitions and climate justice; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Food networks and governance in postpandemic times; Building alliances in public participation and engagement

**Keywords:** Just and sustainable food systems; Transdisciplinary research; Food governance; Food futures

The current food system needs restructuring and innovation, locally, regionally, nationally, and globally. While knowledge is required to transform peoples' food-ways to sustainable production and consumption, the traditional role of the sciences as instigator and premiss-supplier of transformative social processes cannot be maintained. As STS research has convincingly shown (Jasanoff et al 1995, 2004, 2011, 2016), in the age of post-modernity we need to turn to a co-creation of actionable knowledge by utilizing citizen science (Irwin 1995) and devise transdisciplinary proposals (ref. post-normal science; mode 2 science) for social change. Innovations come from Living Labs (Westerlund & Leminen 2011) and change is bottom-up, based on participatory action research, and often aiming at identifying local value-based food-identities. This panel is based on the insight that no robust shifts of our food provisioning system will happen unless they start in the minds of the people first, respecting food justice and food sovereignty. To this end, we invite empirical and theoretical contributions exploring innovations to inform on food futures while embracing food heritage including diversity of local value landscapes, which may include (but are not restricted to) the following themes:

- (i) Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation
- (ii) New governance forms targeting ordinary citizens, food networks and governance in post-pandemic times
- (iii) Integration of humanistic research into food studies strengthening local identities and values
- (iv) Initiatives channeling local diversity in nutritional and dietary needs while tack-ling the challenge of 'reconciling the economy with our planet'.
- (v) Ready-made solution to urban food production and closing biological food cycles

### The concept of "Nature Contribution to People" as a new paradigm to co-create transdisciplinary knowledge on socio-ecological issues

**Valentina Capocéfalo<sup>1</sup>, Rita Giuffredí<sup>2</sup>, Alba L'Astorina<sup>2</sup>, Francesco Nigro<sup>3</sup>, Luigi Conte<sup>4</sup>**

<sup>1</sup>University of Milan, Italy; <sup>2</sup>CNR-IREA, Italy; <sup>3</sup>School of Advanced Studies Sant'Anna, Italy; <sup>4</sup>Ca' Foscari University of Venice, Italy

Ecosystem Services (ES) represent an established paradigm in scientific debate (Costanza et al. 2017) applied to environmental governance at different geographical scales, through the use of tools such as InVest and Payments for Ecosystem Services (PES) schemes. The ES analytical framework has recently been strongly criticised by scholars for various reasons (e.g. Norgaard 2010), such as: i) its controversial application; ii) the so-called "financialisation of nature"; iii) the poor attention given to local knowledge and socio-political dynamics.

A new paradigm, called Nature Contribution to People (NCP), emerged in the context of the Intergovernmental Platform on Biodiversity and Ecosystem Service (Díaz et al. 2015, Díaz et al. 2018), providing a deeper understanding of the human-ecosystem relation. The new approach allows to go beyond the top-down and instrumental attitude of the ES analytical framework, without renouncing to a solid scientific basis, but opening spaces to incorporate visions of the human-nature interplay based on relational value systems. The NCP appears poorly distributed in Italy and rarely debated, if not criticised, also in international fora of science-policy. On the contrary, the ES analytical framework often guides the choices of territorial planning practices, food systems management and urban agriculture experiences, finally shaping decisions as well the conceptual framing of the issues at stake.

NCP analytical framework allows to include in food governance strategies elements and values hardly recognised by the ES paradigm. Moreover, by acknowledging that analytical frameworks are themselves social processes of value articulation (Ernstson e Sörlin 2013), scholars state ES paradigm has to renounce to its universal claim. This contribution – drawing from the experience of the BRIDGES project, aimed at experimenting new paths of transdisciplinary research inspired by the Post-Normal-Science approach – explores the enriching potential of NCP in investigating UA experiences and to empower relations between institutions, researchers and local communities.

## **Agrifood system crisis and the experimentalist governance as a new solution**

**Sara Chinaglia**

University of Bologna, Italy

The agrifood system is now living into what can be defined the “3C” crisis: Covid-19, conflict and climate change. The agrifood system crisis is a déjà-vu situation in the public debate and literature areas, as both are historically dense of contributions that discuss about this topic. Nevertheless, this new era of socio-economic transformation and geopolitical tension adds new problems and a renewed complexity to the sector, bringing up, once again, the criticalities and unsustainability of the actual agrifood system. As new problems call for new solutions, the European Environment Agency recently released a briefing acknowledging the crucial role of social innovation and experimentation in the transition toward a sustainable agrifood system. However, as several scholars agreed, this topic has not been studied enough yet. This paper aims to focus on governance experimentation particularly reflecting on the role of experimentalist governance, theorised by Charles Sabel, as a promising framework for dealing with complex and uncertain contexts. The European Union is not new to this framework, as it has been adopted in several areas (e.g., the Water Framework Directive). This contribution will discuss further, through a literature review, the characteristics of experimentalist governance and its potential role in the agrifood sector, underlining, at the end, the reasons why further research on the application of this approach at micro-scale level is urgent and necessary.

## **From the soil up. A transdisciplinary participatory experiment on urban soils to explore the relationships between society, science and ecosystems**

**Laura Criscuolo<sup>1</sup>, Sara Di Lonardo<sup>2</sup>, Valentina Capocefalo<sup>3</sup>, Rita Giuffredi<sup>4</sup>, Alba L'Astorina<sup>4</sup>**

<sup>1</sup>CNR-IGG, Italy; <sup>2</sup>CNR-IRET, Italy; <sup>3</sup>Università di Milano, Italy; <sup>4</sup>CNR-IREA, Italy

Urban agriculture (UA) is characterised by deeply different features around Europe (Bell et al. 2016). In the Milan context (Lombardy region, Italy) UA initiatives differ on the basis of the public entities and private actors involved, the institutional sub-local context, their location as well as the type of agricultural practices applied (Cucchi et al. 2020). UA experiences originate from a variety of motivations, which often go beyond producing good quality food: e.g. recovering abandoned and/or degraded urban areas, searching a renewed relationship with the ecosystems, building and/or strengthening local communities (di Fiore et al. 2021). Whatever the case, UA always deals with a basic environmental but neglected matrix and its quality: soil.

Soil health is related not only to food production, but also to complex socio-environmental and economic issues, thus involving a broad range of social actors, different underlying visions of development, as well as a diversity of epistemic sources.

Soil is at the core of the BRIDGES (Building Reflexivity and response-ability Involving Different narratives of knowledGe and Science) project, aimed at developing innovative transdisciplinary ways of thinking and practising research. In particular, part of the BRIDGES' work is oriented to create an alliance between research and local urban agriculture experiences in investigating and trying to define soil quality trans-disciplinary indices. The research includes the use of techno-scientific analyses together with aesthetical and experiential approaches, enabling the co-production of knowledge starting from the competences embedded in the practice of care of the urban communities. Thus, the reflection on soil is conceived as a starting point for approaching complex socio-ecological issues in a post-normal and highly trans-disciplinary key towards the building of extended research communities as civic agents.

## **Practicing sustainable eating: zooming in a Civic Food Network**

**Francesca Forno, Michela Giovannini, Natalia Magnani**

University of Trento, Italy

In the last two decades, a growing body of literature has documented the upsurge of community-driven processes of consumer-producer cooperation, which partly stand as an alternative to the dominant food system. These organizational arrangements have been defined and conceptualized in different ways, such as alternative food networks, short food-supply chains, civic food networks, local food networks, witnessing the growing importance of local communities in generating place-based solutions to the demand for organic, local, and sustainable food. Food provisioning becomes then a field of engagement to start changing the meanings of food in a cultural, environmental, social and sometimes political sense, against commodification and unsustainable food production.

We choose the term “civic food networks (CFN)” to highlight the relevance of civil society initiatives in a wider local food policy perspective and because this concept stresses the linkages to other initiatives characterized by a transformative potential, such as solidarity economy, transition towns, de-growth. Relying on a practice theory approach, we focus on «NaturalMente in Trentino», a community-supported agriculture (CSA), in order to address two main research questions: i) Why and how certain people join CFNs and what does the participation in such type of organizations mean in terms of type of food that



enters the household? ii) How being part of a CFN influences people's everyday food practices, devoting particular attention to diet diversification in terms of "sustainable eating"?

The CSA "NaturalMente in Trentino" was established in 2020 in Trento (North-East of Italy) and it involves at present 11 producers and 36 households. This study employs a mixed methodology, based on both qualitative and quantitative techniques, including participant observation, an online survey, in-depth interviews and two focus groups.

### **Tackling urban food inequalities: an interdisciplinary action-research project based in Bologna**

**Francesca Girardi<sup>1</sup>, Valerio D'Avanzo<sup>2</sup>, Sara Gerotto<sup>2</sup>, Silvia Giaimo<sup>1</sup>**

<sup>1</sup>Center of International and Intercultural Health (CSI) - APS; <sup>2</sup>Center for Studies and Research in International and Intercultural Health, University of Bologna

Growing inequalities in health across different societies have led to a better understanding of the remarkable sensitivity of health to the social environment. Socioeconomic conditions result in a social gradient in diet quality that contributes to health inequalities, and the availability and cost of healthy, nutritious food has become an important public health issue.

As the relationship between our food choices and the environment in which we make them becomes more widely acknowledged, the concept of foodscape is a useful analytical tool to address the spatial and the relational dimensions of the food system in a situated place for a certain community.

This paper aims to present an action-research project initiated in 2021 in Bologna (Italy), which analyses the foodscapes of a marginalised area of the city through an equity-oriented approach centred on the perspective of the social determinants of health and on a food justice paradigm.

Based on the data collected in a previous action-research project aimed at mapping and tackling health inequalities (2017-2022), nutrition is one of the most significant health determinants in the selected area. The research team, in collaboration with the municipal community work service, has co-designed a social and community intervention with an action-research approach.

A multiprofessional and transdisciplinary team is currently involved in deepening the knowledge on the local foodscapes through qualitative research tools and the engagement of local actors (including residents, social and healthcare workers, members of third sector organisations). This knowledge constitutes the starting point for organising workshops and events compliant with residents' needs and desires that allow the different actors to meet, acknowledge local gaps and formal and informal resources, and generate a healthier nutrition context. Taking place in a specific neighbourhood, this approach to social intervention seeks to enact change in the local urban environment towards greater health and equity.

### **Positioning law in technoscientific futures: the case of synthetic biology**

**Elsa Tsioumani**

University of Trento, Italy

Synthetic biology is a scientific field that focuses on developing new biological parts, devices, and systems, by applying engineering principles to biology. An accelerated version of modern biotechnology, it promises to "transform how we grow food, what we eat, and where we source materials and medicines" (Voigt, 2020). Stephen Hilgartner (2015) describes it as an "emerging sociotechnical imaginary," following the definition of sociotechnical imaginaries by Sheila Jasanoff and Sang-Hyun Kim (2015) as "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order, attainable through and supportive of advances in science and technology." The field is characterized by promises for rapid developments in several areas, including agriculture, energy, and medicine, and is already marked by a Nobel prize for a genome editing tool called CRISPR. It is fueled by diverse and often contradictory institutions and communities, including R&D policy and related funding, academia, startups, and venture capital, as well as groups of DIY biologists acting in the name of open science.

Starting from Jasanoff's and Kim's definition, this contribution explores synthetic biology imaginaries as "collectively held" visions of "desirable" futures. It starts from the fluidity of the definition of synthetic biology and discusses the diversity of communities involved in synthetic biology research. It distinguishes between socioeconomic and environmental risk, and discusses understandings of risks and benefits, using as case studies the policies of Brazil and the EU and their stance in global arenas. Based on these case studies, it addresses the role of law and judicial institutions in technology governance in an increasingly neoliberal world, where benefits tend to be private while risks public. Part of an ongoing Marie Curie post-doctoral project, the analysis is based on a literature review, online data collection, and general principles of law.

## Panel 7 - Session 1: Where's the 'intelligence' in AI? Mattering, Placing and De-individuating AI

*Time:* Wednesday, 28/June/2023: 2:30pm - 4:30pm · *Location:* Aula D

*Session Chair:* Ludovico Rella

*Session Chair:* Fabio Iapaolo

**Topics:** Technoscientific promises, imaginaries and expectations; Technofeminism and interspecies solidarities; Algorithmic knowledge, media ecologies and artificial intelligence; Ethics, innovation and responsibility in technoscience

**Keywords:** AI, Materiality, Hardware, Distributed Cognition, Individuality

This panel seeks to interrogate the multiple – and sometimes contradictory – world visions, political imaginaries, and social expectations underlying conceptualizations of the human and, by extension, AI. From Pygmalion to Ex Machina, one source of our perennial fascination with the thinking machine originates in the prospect it evokes that attributes deemed uniquely human – e.g., consciousness, intelligence, autonomous action – might be replicated in mediums other than the human body. In its historical attempt “to reproduce the quintessence of our humanity, our faculty for reason” (McCorduck, 2004, 4), AI research often and perhaps inevitably has incurred anthropocentric and anthropomorphic fallacies. This is particularly manifest in the scientific and cultural imagination of AI as discrete technologies operating in ways different from, yet fundamentally similar to, the sovereign human subject – as the repeated insistence on notions like autonomy, rationality, control, and decision-making attests to. With its tendency to abstract away embodiment from intelligence (Hayles, 1999), XX-century cybernetics paradoxically reinforced this imaginary, often by association with the liberal autonomous subject, whose sense of agency lies in Enlightened self-interest. This panel, conversely, aims to bring together novel perspectives precisely on the materiality and de-individuality of AI, to complicate and destabilize intuitions about how to understand our technologies and ourselves. Following Beatrice Fazi (2019, 821), if we are to “recast the metaphysical question of the nature of thought”, we need to move past the simulative paradigm where AI merely imitates human thought.

For that to happen, a re-apprehension of the specific corporeal and technological materialities of intelligence is necessary. While even for human intelligence the mind-body connection is fundamental to cognition, Machine Learning and AI systems are predicated upon a very different form of materiality and embodiment. Resembling more a kind of “infrastructural intelligence” (Bruder, 2017) comprising multimodal sensing capabilities, ground truth data, training datasets, Edge AI hardware, graphic card-powered datacentres, and emerging neuromorphic microchips, the materiality of AI is key to the problematization of individuality that this panel wishes to explore. Rather than insisting on the individual – whether human or machinic – as the sole locus of intelligence and the base unit of ethico-political concern, we embrace the provocation that intelligence is “distributed across human and technical agencies” (Amoore, 2019, 4), including the broader socio-computational spaces where their embodied interactions occur. As human and machine interpretative decisions become ever more closely intertwined, the crucial question arises of how to envision adequate ethico-political responses beyond the terms (and terminology) dictated by liberal individualism.

Conceived as an experimental venue for interdisciplinary encounters, this panel seeks contributions exploring themes including, but not limited to:

- Imaginaries of AI personhood and their hidden ideologies
- Affordances and limitations of machine intelligence
- Space and computation
- Law and AI
- Genealogies of ‘artificiality’, ‘agency’, and ‘subjectivity’
- Algorithmic knowledge production and (re-)conceptualizations of intelligence
- Embodiment in posthuman, post-colonial, feminist science, queer, and critical race studies
- New perspectives on human subjectivity and technical agency vis-à-vis advances in AI
- Sociotechnical assemblages and automated decision-making
- AI hardware accelerators, neuromorphic microchips, sensors, and Edge AI
- The materiality of algorithms and robotics

### De-individuation of the Autonomous Subject: On Agency, Technology, and Ethics.

**Fabio Iapaolo**

Oxford Brookes University, United Kingdom

Recent developments in AI, data science, and machine learning have made it standard practice to refer to technologies not simply as smart or intelligent but as autonomous. From self-driving cars to high-frequency trading algorithms, it seems that



autonomy no longer refers only to humans – as in moral and political philosophy – but has expanded to encompass the operations of technical objects and systems. However, with the term rapidly migrating between the social sciences and engineering, some crucial ambiguities remain unresolved, revealing that autonomy is a contested concept and a profoundly political problem.

Whether inadvertently or otherwise, mainstream and more critical responses to AI almost unanimously invoke liberal principles and values. Despite earlier critiques of liberal autonomy raised, among others, by posthumanist, feminist, queer, environmentalist, and post-colonial scholars, the figure of the sovereign individual exercising free will through deliberate choices is still hegemonic in contemporary ethical theory. This is reflected in oft-lamented concerns about AI lessening or supplanting human agency and autonomy, as well as in the atomist conception of AI as autonomous technologies to which decisional authority is partly or fully delegated.

Conversely, this paper argues that the distinguishing aspect of AI is not the displacement of human decision-making but rather the ever-tightening inseparability between human and machine interpretative choices. Engaging with the work of Gilbert Simondon alongside insights from the neurosciences and feminist science studies, this paper proposes the notion of “de-individuation” to indicate a situation where decision-making is decoupled from the human subject of liberal humanism and dispersed, spatially and temporally, through human and technical agencies. In this context, acknowledging the extent to which automated decisions can rarely, if ever, be attributed to an individuated source of authorship – whether human or machinic – provides grounds for a redefinition of AI ethics as a relational endeavor.

### **Intelligence and the Limits of Intelligibility: Toward relational epistemologies of AI**

**Casey Ryan Lynch**

University of Twente, Netherlands, The

Critical perspectives on artificial intelligence have variously questioned the meaning of “intelligence,” the capabilities and attributes of emerging AI systems, and their relationship to the figures of the Human. Much of this work has been oriented by an ontological preoccupation to trace and classify evolving forms of technological cognition and the new assemblages they form, leading to innovations in logistics and management, social interaction, creativity and design, and an array of other areas. Yet, others have opted for epistemological approaches, suspending debates about the nature of AI and instead highlighting the ways AI systems are used, experienced, and known in distinct spaces and times. Natale (2021) has highlighted perceptions of intelligence and the role of “banal deception” in the history of socially-interactive AI. Elsewhere, I have explore the ways “glitches” create openings for complicating narratives of human-AI interactions through a focus on perceptions, encounters, and subjectivities (Lynch, 2022). Building on these previous epistemological interventions, this paper argues for a shift in discourses of AI from discussions of intelligence to thinking through questions of *intelligibility* and its limits within situated encounters with AI systems. The focus on intelligibility is meant to shift analysis from the supposed attributes of purportedly discrete AI systems toward the contingent socio-technical relations through which more-or-less intelligible actions, behaviours, decisions, or communications are produced. A focus on the limits of intelligibility is meant not just to call attention to ways AI systems are differentially made opaque in practice, but also (and more importantly) to recognize the significant amount of meaning within an encounter that remains beyond AI capabilities or otherwise might be lost in the process of being made intelligible to AI. The paper develops the notion of intelligibility through an engagement with Barad’s “agential separability” and a critique of recent discussions around “explainable AI.”

### **De-individuating AI through individuation theory?**

**Susana A. Gomes**

King's College London, United Kingdom

AI is at the core of contemporary societies: it guides governmental action, provides life-changing diagnostics, and we rely on it to plan our everyday commute. Populating our social imaginary as powerful and uncanny, AI algorithms and their workings of data do not cease to demonstrate their materialities, which tend to be more evident through technical glitches and discriminatory outputs. However, the materiality of AI is more generally inscribed in the making of our existence as a result of its proliferation and subtle integration in everyday life, thus calling for new methods for thinking this perhaps unprecedented techno-human conflation.

Part of my ongoing research project, this paper puts forward individuation as a valuable approach to reflect on contemporary information technologies. Grounded on the work of the French philosopher of technology Gilbert Simondon, I will demonstrate how his individuation theory 1) sheds light on the technical operation of AI algorithms and 2) fosters a reflection on our existence across and together with AI systems. Concretely, I propose to apply such theoretical approach to the study of deep neural networks (DNNs) – a type of data-driven algorithmic models which are at the core of major breakthroughs in the field of AI – to demonstrate how it aids in deconstructing their technical operation.

As such, individuation might in fact de-individuate AI, in the sense of disassembling the already-there, the constituted, and unveiling the processes at the basis of the emergence of these algorithmic models and at work in their functioning, i.e., the co-modulation between DNNs and data. With algorithmic functioning gaining new contours and recognising the nature of data, not only as substrate of the technical operation but also as crystallised lived experience, individuation paves the way for questioning the potentialities for data and their algorithmic relationality to articulate the unfolding of everyday life.

## **Situating AI in Practice – Machine Learning as Cooperative Problem Calibration**

### **Richard Groß**

TU Dresden, Germany

In my talk, I will develop a post-individualist conception of machine learning (ML) by proposing *the situation* as an analytic lens for theorizing AI. I will draw upon John Dewey's pragmatist understanding of situations to present ML as a material practice that emerges, develops, is sustained – and often fails – through challenging episodes. To elaborate on this problem-centric conception of situations, I will introduce a comparative ethnographic case study of ML-related practices in media art and biological research that I conducted.

Instead of focusing on individual agential capacities of actors or actants, my analysis will draw attention to problems concerning the practical requirements of successful cooperation in ML. Through this analytical perspective, I will explore issues in pattern recognition as related to the comprehensibility of visualizations in the observed practices. Specifically, I will argue that ML features latency problems in the coordination of heterogeneous human as well as non-human “machine learners” (Mackenzie 2017) that speak to underlying issues of contingency (Esposito 2022), alienness (Parisi 2019), and (in-)visibility (Amoore 2020). Finally, I will suggest that machine learning practices feature strategies of problem calibration that allow them to respond to these issues.

My contribution suggests a pragmatist understanding of ML in terms of the situated efforts that shape it as a material practice through problematic episodes. This view presents a post-anthropocentric approach to the theorization of ML on the microlevels of the social that identifies ‘intelligence’ in the successful cooperative transformation of situations.

### **Literature**

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## **A design framework to depower agential AI and the “mighty cognitive agent” myth**

### **Federico Cabitza**

Università di Milano-Bicocca, Italy

We advocate for an approach to the design and evaluation of human interaction with artificial intelligence systems (HAI) that proposes to move features usually associated with intelligence and agency from individual agents to the human collective, in line with the tenets of distributed cognition and extended intelligence. Our approach also conceives of AI as a distributed set of functions within an ecosystem of knowledge supporting tools, which is designed to support a “Ba,” that is what Ikujiro Nonaka conceives as a collective of competent decision makers. In so doing, we highlight the cooperative nature of any work and decision making, and aim to redistribute responsibility in critical tasks, depower the computational alibi that is implicit in the agential paradigm, deflate the moral crumple zone, and align the HAI research agenda to the needs of increasingly wide and heterogeneous teams facing complex problems. Within this framework, the inclusion of the textual and visual output by Transformers and Large Language Models (such as ChatGPT) is not marginal, as it can lead to de-individuation and de-substantiation of the text (semiotically meant) around which human action is usually built and its sense made. By these expressions, we mean the erosion of authorial protagonism: breaking up the narcissistic mirror that is currently characteristic of text production in creative and scholarly contexts could bring out the collective nature of text production and circulation, and erode agency from the text-producing AI. The wider adoption of these technologies, within a Ba-oriented design framework provides an interesting opportunity to uncover the illusory nature of the individualist myth (which is humanist in nature, linked to the spread of the printed book and connected to Greek sophistry and its will to persuasive power) and rediscover the combinatorial nature of discursive and textual practices that characterize human judgment, decision-making and action.

## **Artificial children. The metaphor of the child-AI and its impact on the social imaginary**

**Paolo Bory**

Politecnico di Milano, Italy

In recent times, human-machine communication (Guzman 2018) has been taking a crucial step toward the domestication of AI assistants in everyday life (Mitchell 2019; Natale 2022). Today, thanks to voice assistants and language models based on deep learning, the communication between humans and AIs is not confined anymore to expert users. In the last years, releases of several beta versions of language models based on AI which can communicate in human language are not only improving the quality and reliability of this technology; they are contributing to the domestication process of a new medium (Haddon and Silverstone 1996) that may impact not only on our socio-technical relationships but also on the way in which humans communicate each other. At the current stage – since, as all experts argue, technology is not ready to behave in a real human-like way - language models such as GPT-3 or LaMDA have often been portrayed and represented in the public debate as kids or children who should be helped, educated and to take care of. The idea of a child-AI is not new; it is since Alan Turing's famous paper on thinking machines that this technology is compared to a child who should be raised with patience and good behavior. This presentation addresses the cultural and social implications of the “child AI” metaphor from the point of view of the social imaginary. Notably, the potential impacts of such conceptualization of AI-based communicative systems can drive the future of these technologies. A critical focus on the paternalistic idea of an “innocent” AI and how it is supposed to obey human values and thoughts will shed light on the social and cultural risks when adopting such a metaphor.

## **Datafied nurses? On real-time data and attention practices in the ICU**

**Chiara Carboni**

Erasmus University Rotterdam, Netherlands, The

Especially in the wake of the Covid-19 pandemic and its overstretching of human and technical resources in (acute) healthcare settings, AI technologies are increasingly being sought after and developed to ease the pressure on chronically understaffed hospitals. This presentation centers on the analysis of an innovation project aimed at making intensive care unit (ICU) nurses' work more data-driven through the implementation of AI technologies. I contrast the AI technologies proposed as part of this project with my ethnographic observation of the daily work of nurses in a high-tech and data-rich care environment such as the ICU, arguing that these AI technologies, proposed for tackling personnel shortages, obliterate nurses' ongoing data work and oversimplify their complex attention practices. Stringing together the more-than-STS reflections of, amongst others, Anna L. Tsing, Henri Bergson, and John Cage, I propose a theorization of more-than-human attention practices as complementing, and extending, more classic STS discussions of care and its ethics. I show how these attention practices, embodied, situated and doubt-ful as they are, prove crucial in ensuring the reliability of, and thus the possibility of acting upon, real-time data in the ICU. If intelligence is “distributed across human and technical agencies” (Amoore, 2019, 4), ongoing work is required to unearth the more-than-human, and often invisible, attention practices that often already exist in everyday clinical practice – as well as their value for data-driven knowing. In concluding, I thus speculate on how centering attention practices could help us begin to rethink the way we develop data-driven technologies in healthcare settings.

## Panel 50 Session 2: Technologies of Discontinuation. Towards Transformative Innovation Policies

*Time:* Wednesday, 28/June/2023: 2:30pm - 4:30pm · *Location:* Aula Unione 1

*Session Chair:* Stefan Kuhlmann

**Topics:** Ecological transitions and climate justice; Technoscientific promises, imaginaries and expectations; Sociotechnologies of (in)secure worlds to come; Innovation imaginaries, practices and policies

**Keywords:** discontinuation, socio-technical systems, governance, ecological transitions

This open special session/track is organised on the occasion of the launch of a book entitled "Technologies of Discontinuation - Towards Transformative Innovation Policies" (Spring 2023, Edward Elgar Publ.). The main authors will present key outputs of their research. Other authors working on related themes are invited to present their research, too.

Getting rid of incumbent socio-technical systems has become a pressing issue for governments as well as economic and societal actors, certainly since the 2020s. Climate change and accelerating global environmental devastation ask for fast abolition of unsustainable ways of energy production and consumption, of agriculture and food production, or of transportation (IPCC 2022). On top of this, since the last turn of century, the global economic and security architecture is dramatically changing in a way that suggests national governments to reduce dependence on international provision with natural resources (such as fossil fuels) and foreign technologies: countries feel the need to abandon vulnerable technological infrastructures and replace them by innovative, more sustainable "local" alternatives (e.g., Edler et al. 2021). So radical change is required. But how to do this?

In science, technology and innovation studies (STIS) little was known about how incumbent socio-technical regimes cease to exist when there are governance efforts to discontinue them in active ways. For a few years now, however, there has been an increase in research and publications that address this question or at least deal with general questions of the destabilisation of sociotechnical regimes (Turnheim 2012; Turnheim and Geels 2012, 2013; Stegmaier et. al. 2014; Koretsky et al. 2023; Goulet and Vinck 2023).

After a series of case studies carried out by the session organisers and by a growing international group of researchers, it is possible to sketch basic patterns and concrete case examples of actively governing the discontinuation of sociotechnical regimes in different countries and on different (organisational, state and supra-state) levels. Cases include the ban on the insecticide DDT in France, UK, and the USA, the phase-out of the incandescent light bulb in the EU, and the exit from nuclear energy in Germany compared with its almost-phase-out in UK.

There is evidence that the discontinuation of a sociotechnical regime and its governance becomes possible when a misalignment of problem, policy, and political streams opens up a 'window of opportunity'. Various discontinuation pathways can be identified, including an Ending Pathway ('phase-out' and 'ban', incremental and abrupt misalignment and ultimately discontinuation of a trajectory), a Weakening Pathway (control, restriction, reduction), a Life-cycle Pathway (what is discontinued, gets replaced or disappears), and a Continuity Pathway (when discontinuation governance fails).

### Ending horizons: examining promises and interventions to remove pesticides in France.

**Bruno Turnheim<sup>1,2</sup>, Marc Barbier<sup>1</sup>, Mireille Matt<sup>1</sup>**

<sup>1</sup>Laboratoire Interdisciplinaire Science Innovations Sociétés (LISIS) / INRAE, France; <sup>2</sup>Manchester Institute of Innovation Research, University of Manchester

Abandoning harmful technologies and socio-technical systems is a considerable task of our time. Focusing specifically on the removal of pesticide use from agriculture in France, this paper seeks to understand how injunctions to emancipate from dependence to harmful systems are processed within society.

The starting proposition is that abandonment, reduction and removal differ significantly from adoption, expansion and addition at play in innovation processes. This questions the theoretical and methodological resources of dealing with transformative changes of socio-technical regime based on performative 'ending horizons'. We refer to these as 'ending horizons', because they involve 1) abandoning prevailing development horizons ('putting an end to the endless'), 2) avoiding new development horizons ('putting an end to beginnings'), or 3) committing to ending as development horizon ('ending as end in itself').

How do these horizons translate to socio-technical systems and their governance?

Concerning promises, expectations and imaginaries, we examine how prevailing expectations about high-input agriculture have become exposed to deconstruction and critique, along with the legitimization of promises about the possibility of pesticides-free agriculture. Specifically, we are interested in tracing the formulation of elimination and reduction objectives (visions for zero or less, where they come from, how they express themselves), social mobilisation, and their influence over public debate.

Concerning strategies, interventions and their impacts, we examine how ending horizons make their way into public policy, and the translations that they involve. Starting with a broad range of available strategies (e.g. bans, selective regulation, controlled use), we observe a tendency for de-radicalising expectations about ends. We discuss how such a tendency may be resisted in favour of more radical and systemic interventions.

The paper ends with propositions about how ending horizons require shifting the locus of socio-technical governance (away from innovation-only), jointly addressing endings and losses, and the nurturing of specific governance capacities.

## **Innovation-as-maintenance: A critical reflection on the relation between innovations and sustainability**

**Lea Fünfschilling<sup>1</sup>, Herman Stål<sup>2</sup>**

<sup>1</sup>Lund University, Sweden; <sup>2</sup>Umeå University, Sweden

Innovation is often seen as a panacea for all of today's 'grand challenges', such as climate change and other persistent problems related to sustainability. Underlying this belief is the assumption that innovation, especially when radical enough, brings relevant change. As a consequence, a lot of recent governance efforts geared towards sustainability and industrial transformation have focused on science-, technology- and innovation policies. While innovation will undoubtedly be necessary for sustainable development, we argue that its role for broader system change is overestimated. The world is filled with obsolete or problematic artifacts, technologies, organizations, institutions, and cultural practices that do not seem to disappear, even in sight of superior, more sustainable alternatives. The idea that innovation will somewhat automatically replace and 'destruct' the existing system does not reflect empirical reality. In this paper, we reflect on four interdisciplinary observations that explain why innovation might have been the panacea for economic growth, but not necessarily for sustainability: Path-dependency, co-evolution, de-coupling, and deep transitions. Based on that, we call for transition policies that go beyond the notion of innovation and instead focus on discontinuation and endings. By conceptualizing innovation-as-maintenance, we thus offer a more nuanced discussion on the role of innovation for societal change and sustainability and thereof resulting implications for governance.

## **Pathways to discontinuation governance – Incandescent Light Bulb phase-out in comparison**

**Peter Stegmaier**

University of Twente, Netherlands, The

As result of their comparative studies of discontinuation governance, Stegmaier et al. (2023) view "discontinuation" as a property of a trajectory<sup>9</sup> in which the constituting relations become misaligned to such an extent that the trajectory's distinctive character is lost, as one possible result of various permutations of distributed agency, emergence, contingency, or deliberate governance. Their research found that a trajectory can become the addressee of discontinuing (besides and most in contrast to "building" and/or "maintaining") governance. Since the empirical reality of governance targets is complex, often composed of nested entities, and the targeted trajectories are rather "moving targets",

the "targeted trajectory" (e.g., incandescent light bulbs) is distinguished from the "wider trajectory" (electric lighting/energy efficiency for energy-using products). When a phase-out or ban occurs, some characteristic patterns can be seen: specific configurations that evolve over time (pathways). Both are important: the configuration as a particular structural state, and the emergent character of it when on the way. When a "window of opportunity" opens, different patterns can be observed: ending pathway ("phase-out" and "ban"), weakening pathway (control, restriction (scope of usage), reduction (scope of production). Together, they can lead to final discontinuation in terms of ban or phase-out, but which can also "only" lead to a development that persists, but in a somewhat constrained, retrenched, or limited way. These pathways cover the core of each discontinuation governance phenomenon: the way to ultimate closure, at once or in steps.

In this paper, I compare the basic trajectory patterns of discontinuation governance of incandescent light bulbs with other examples, such as exit from coal energy production and the stepwise ban of mercury in consumer products. Different governance spaces and socio-technical system structures, political scopes and discontinuation approaches will be identified and discussed.

## **Technology discontinuation – strategic options for transformative innovation policy**

**Stefan Kuhlmann<sup>1</sup>, Peter Stegmaier<sup>1</sup>, Pierre-Benoit Joly<sup>2</sup>**

<sup>1</sup>University of Twente, Netherlands, The; <sup>2</sup>INRAE Occitanie-Toulouse

Abolishing incumbent socio-technical systems has become a pressing issue for governments as well as economic and societal actors. Certainly since the 2020s, Climate Change and continued global environmental devastation ask for effective discontinuation of unsustainable ways of energy production and consumption, of agriculture and food production, or of transportation. Transformative innovation policy is driven by three elements, "(1) targeting policy domains beyond economic and industrial policy; (2) including policy objectives dealing with a broad range of societal challenges; and (3) a policy logic

that challenges a strong pro-innovation bias.” (Diercks et al. 2019). Active discontinuation should be understood as a cornerstone of transformative innovation policy. It requires from policymakers a critical understanding of the multiple interests, demands and legitimacy pressures on economic, social and political actors. Strategists would first have to identify and understand the characteristics of socio-technical trajectories in question and the configurations that may or may not (yet) allow for opening a window to discontinuation. Trajectories can be in the state of emergence, maturation, or weakening. In a multiannual research project (Stegmaier et al. 2023), we have identified a number of features characterising the pathways and possible critical junctures where openings for the active discontinuation of socio-technical trajectories becomes possible.

In our paper, we offer three short vignettes of problematic socio-technical configurations illustrating possible future discontinuations: “cement and concrete for buildings”; “fossil fuel-based steel production”; and “meat consumption”. We resort to heuristics of streams introduced in our book (Stegmaier et al. 2023). In the paper, in a simplified way, the focus is on the active governance of discontinuation, including agenda setting and development, exploring policy options and committing to viable decisions. We don’t claim that these vignettes are empirically complete and robust, rather they should be read as a playful, reflexive aid for translating the discontinuation governance heuristic into practice.

## Panel 15 - Session 1: Boundary struggles: truth, interest and epistemic authority in a changing world

*Time:* Wednesday, 28/June/2023: 2:30pm - 4:30pm · *Location:* Aula Unione 2

*Session Chair:* Luigi Pellizzoni

*Session Chair:* Giuseppe Tiplado

*Session Chair:* Barbara Sena

**Topics:** The value of science, technology, innovation and research practices

**Keywords:** boundary struggles, truth, epistemic authority, technoscientific conflict, conflicts of interest

Although debated for a long time, the demarcation between expert knowledge and common sense has seen an evolution linked to social and technological changes in recent years.

The tension between conflicting dynamics of i) evidence-based policy making, ii) digital platformization of everyday life and news consumption and iii) the progressive loss of relevance of factual evidence in both public opinion forming and decision-making processes [a reconstruction of a quite turbulent debate is provided by Pellizzoni 2019] not only (re)brings to the fore the debate on the demarcation of epistemic authority [Gieryn 1983], but also requires that the issue be addressed taking into account the changing political, technological and social context.

The topic of health protection in emergency conditions, for instance, has become an issue on which ordinary citizens now feel they can actively intervene, making a useful contribution [Collins e Evans 2002: 236]. From another point of view, the increasing production of Big Data in medicine and science is transforming global healthcare and patient participation, by replacing the traditional expert knowledge with impersonal “expert systems [Dash et al. 2019]. It should also be noted how the “positioned” nature of “expert” viewpoints, not only outside, but also within so-called “official” or “orthodox” science, has become increasingly salient. Some of the most recent conflictual instances of public relevance – not only the Covid-19 pandemic, but also the conflict in Ukraine and the climate emergency – have in fact made evident that the (un?)deliberate confusion between the figure of the scientist (generalisable but perfectible knowledge) and that of the expert (contextual but effective knowledge with respect to the problem) creates insidious short-circuits between the request for reliance and the discharge of responsibility.

Even though the topic of “post-truth” seems to have lost momentum, what the expression implies has by no means waned in importance, with a shift from the classic “archetypal” conception of “truth” to a “prototypical” conception [Nordmann 2017].

Given the context above, submissions are solicited on, among others, the following themes:

1. epistemic struggles as conflicts of interests and boundary demarcation within the «orthodox» scientific community or between «official» scientific knowledge and alternatives;
2. relevant discoveries in the construction of the “expert” and “counter-expert”;
3. the symmetry postulate: its potentialities, and possible side effects (e.g. false balance, relativism, science-related populism, etc.).
4. truth, post-truth and competing understandings of truth in the debate over the societal diffusion of technoscience, and its unintended and unpredicted socio-ecological “side effects”;
5. the contrast between “expert” and Big Data knowledge in determining citizens and patients decision-making process in science related issues.

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## An exploration of the infodemic imaginaries emerged during the Covid-19 pandemic

**Elena Savona<sup>1</sup>, Amon Rapp<sup>2</sup>**

<sup>1</sup>University for Foreigners “Dante Alighieri” of Reggio Calabria; <sup>2</sup>University of Torino

COVID-19 lockdowns have impacted every dimension of social life. Moreover, the constant risk of being infected by the SARS-COV-2 virus threatened the ordinary experience of individuals and social groups. This health emergency is a large-scale crisis, which yielded a “symbolic and emotional force” (Alexander, 2018) influencing risk perception and guiding social action. In this context, the communicative dimension played an essential role. Infodemic, considered as a form of symbolic “contamination” (Douglas, 2021; Camorrino and Savona, 2023), seems to have intensified the pre-existing condition of uncertainty and



anguish produced by the risk of contagion. The different positions of truth within the same scientific community (Giddens, 1994), the “viral spread” of data and information, sometimes erroneous or conflicting, the dissemination of fake news and alternative visions to the mainstream (Bloomfield et. al., 2021; Gruzd et al., 2021) shaped different “imaginaries”, which, in turn, affected how individuals and groups responded to the pandemic. Our contribution aims to explore the diverse “infodemic imaginaries” (Durand, 2013; Camorrino and Savona, 2023) (e.g., ecospiritual, techno-scientific, conspirative) emerged during the COVID-19 crisis in Italy: each of these imaginaries is based on peculiar “universe of meaning” (Berger and Luckmann, 2020) and truth positions. To this aim, we adopted a qualitative approach, by in-depth interviewing, also by using a photostimulus technique, individuals belonging to foreign and local communities in Naples: in this way, we aimed to capture how the infodemic contributed to the production of diverse ways to “imagine” the pandemic, as well as the individuals’ and social groups’ diverse “emotional responses” (Lupton, 2003) to risk and uncertainty, linking such responses to the imaginary in which they were embedded. The study contributes to the understanding of how the dimension of imaginary affects the perception and management of collective events, especially with reference to the critical ones.

## **Boundary struggles and epistemic authority in international environmental assessments: the IPBES Transformative Change Assessment**

### **Tim Forsyth**

London School of Economics and Political Science, United Kingdom

Recent debates in STS have identified a transition in environmental expertise and international assessments from “global environmental assessments” (GEAs) to “solutions-oriented assessments” (SOAs). In simple terms, a GEA is an assessment of evidence for biophysical changes in the global environment. SOAs focus on finding solutions to the problems posed by these changes. However, STS scholars ask (1) how do SOAs challenge traditional perceptions of the boundary between science and politics used by expert organizations? (2) What is the agency of expert organizations in making epistemic authority? (3) What new challenges for social inclusion arise from SOAs?

This presentation will seek to answer these questions using ethnographic evidence from the ongoing Transformative Change Assessment conducted by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). The presented is an author in this assessment. Transformative Change refers to the future changes in society and ecology needed to achieve biodiversity and sustainability targets. It is an example of an SOA because it combines scientific projections about future impacts with social and cultural values about what different futures should be.

Evidence so far suggests that discussions about transformative change within the assessment are shaped by predefined boundaries within the authors and leadership team between “social” and “natural” science and by an unwillingness to let “pluralism” interfere with implementing objectives defined by traditional GEA work or by culturally specific ecocentric values. These norms also shape attempts to engage with stakeholders, such as indigenous worldviews. Discussions about co-production of problems and solutions are also affected by rules developed by IPBES for its previous GEA assessments. The presentation will use these insights to outline lessons for understanding stakeholder engagement within SOAs and expert organizations, and for the agency of international assessments in normatively contested debates about acceptable futures around the world.

## **Civilising communication infrastructures in the contemporary era: how dominant communication pathways support authoritative knowledges within civilisations, and the crisis of our civilisation’s current communication transformation**

### **Neil James Henderson**

Griffith University, Australia

While infrastructure has emerged as a central concept in both STS and media studies (Bonini & Magaudda 2022), the media work of Harold Innis offers insights into an infrastructural understanding of media (Young 2017) that have still yet to be fully explored. The key concept of “civilisation” in his work offers a possible re-framing of the position of knowledge and of different knowledges within a spatially and temporally coherent, very large, macro-structure with dominant media of communication historically responsible for both the development and limitations of particular types of knowledge within each civilisation

Innis’s concept of “monopolies of knowledge” points to how socio-material configurations of communication within a civilisation defines the limits of acceptable knowledge within that civilisation, including what knowledge was most authoritative (Carey 1967), as well as the standards by which the legitimacy of knowledge is assessed (Carey 2009). Innis’ statements on the matter tend towards the broad and general, without a great deal of in-depth focus on a specific example. By putting Innis’ broad overview on the position of knowledge into dialogue with Bruno Latour’s (1999;2003) skepticism about the usefulness of the entire concept of knowledge, I propose in this paper that a current clash between authoritative modern knowledge (including but not limited to “scientific” knowledge) and newly-prominent subversions of that authority



have arisen in part due to an ongoing civilisational transformation, one arising from the supplanting of older dominant forms of “broadcast” media with newer “digital” forms in what, until recently, could have been called “modern civilisation”.

### **Conflictual interest in the definition of expertise: the case of Piave’s detention basin**

**Nicola Stocco, Giorgio Osti**

FISPPA, Università degli Studi di Padova, Italy

The issue of expertise that regards river and water management has been historically characterized by the massive role of the state, along with its modernist claims of control and exploitation of resources. Nowadays, with the loosening power of the state institution and the rise of supranational and financial organizations (at least in Europe, and especially in the Italian context), new actors such as environmental associations and engineering companies emerge as standalone agencies that mediate the production of knowledge and the application of policies. Summed with the old bureaucratic infrastructure of water management, the actual context results in a messy organization of regional agencies with overlapping areas of expertise and unclear epistemic authority. Despite the development of participative and bottom-up policy tools (e.g.: *contratti di fiume*), which aim at involving a wide range of actors, competing claims of expertise between different institutional logics still remain, resulting in conflictual situations.

This paper will take into account the actual debate over the construction of detention basins in the Piave river as a case study. We will explore and assess the boundary work that shapes the water governance’s net of actants through the lens of institutional logic (Franco-Torres et al. 2021). This will allow us to analyze the relationship between different levels of water governance (grassroots, organizational and institutional), along with their epistemic authority claims. In this sense, the STS toolkit can be useful to address the different institutional logics at stake, and their ontological references, highlighting the role of conflicting interests in filling the knowledge gap between science and policy (Wesselink et al. 2013).

Franco-Torres, et al. (2021). Articulating the new urban water paradigm. *Critical Reviews in Environmental Science and Technology*, 51(23), 2777–2823.

Wesselink, et al. (2013). Technical knowledge, discursive spaces and politics at the science–policy interface. *Environmental Science & Policy*, 30, 1–9.

### **Developing legitimate knowledge in times of medical uncertainty. Professional expertise and therapeutic protocols during the COVID first pandemic waves in Italy**

**Micol Bronzini<sup>1</sup>, Roberto Lusardi<sup>2</sup>, Enrico Maria Piras<sup>3</sup>**

<sup>1</sup>Università Politecnica delle Marche, Ancona, Italy; <sup>2</sup>University of Bergamo, Italy; <sup>3</sup>Bruno Kessler Foundation, Trento, Italy

Recent years have questioned the role of epistemic authority and expert knowledge in defining what is “true” and how “legitimate” data influence public, organizational and professional decision making.

The COVID-19 pandemic posed a challenge to EBM, which requires that clinical decision-making takes into account guidelines elaborated and validated by the main international scientific agencies (Campo et al. 2022; Gabbay, Le May 2004; Timmermans, Berg 2010). This process may require years and is designed to answer “simple, focused questions in a stable context” (Greenhalgh et al. 2022), thus poorly adapting to complex and rapidly changing situations in a time of radical uncertainty (Pellizzoni 2003).

Our work focuses on the emergence of several interlocked networks of physicians which provided for home treatment in the early stages of SARS-CoV-2 infection in Italy acting as epistemic communities (Haas 1992; 2001; Wanger, Polak, Świątkiewicz-Mośny 2019). By producing, circulating, and trying to institutionalize knowledge. They sought to overcome a position in which they were only recognised as having an executive function, moving to a “boundary-object trading zone” characterized by interactive expertise (Collins, Evans 2002; Gorman 2002).

Protocols, in particular, acted as boundary objects through different social territories inhabited by conflicting epistemic and professional communities for different interests, objectives, methods, and knowledge production practices.

Adopting the Biography Of Artifacts and Practices methodology (Hyysalo, Pollock, Williams 2019), we analyze the trajectory by which these networks confronted/collided in a performative tension with the epistemic institutions holding the knowledge deemed legitimate (Pellegriani 2021).

Our study, by focusing on different epistemologies and practices in contemporary medicine, aims to offer a more articulated and nuanced framework in which the claim of what are “truth” and “authority” takes shape in a broader set of professional relations, ongoing scientific debates, epistemic, and political institutions.

## **Epistemic politics of private clinics in Russia: the promise of evidence-based medicine**

**Masha Denisova**

Maastricht University, Netherlands, The

Today walking the streets of some large Russian cities, one will encounter banners of private clinics depicting smiling doctors who promise to follow “evidence-based medicine” and provide high-quality care. What does evidence-based medicine (EBM) mean in Russia and how it relates to private healthcare spaces?

Since the dissolution of the USSR, Russian healthcare has undergone several major reforms concerning both the organization of healthcare and its epistemic grounds. The rapid transition to a market economy enabled the emergence of paid health services and private healthcare organisations, while epistemic ideals such as EBM became more prominent. Previous research showed that in post-Soviet Russia, physicians deployed EBM as a rhetorical device to gain greater autonomy and redefine their professional identity. They did so not only to envision their future but also to demolish its past – to reject Soviet medical knowledge for it lacked objectivity. Nowadays, the battle for medical objectivity and professional autonomy continues. Interestingly, it is private clinics that have taken the lead in these epistemic disputes.

Today more private clinics in Russia are heavily profiling themselves as EBM-oriented. They openly and quite vocally oppose their medical and knowledge practices to those dominant in Russian healthcare, thus engaging in the epistemic politics of reliable evidence and good care. In 2021-2023, I conducted an ethnographic study of three EBM-oriented private clinics in two large Russian cities to shed the light on their promise of EBM. Drawing on two bodies of literature – science and technology studies and informality studies – I demonstrate how private clinics in Russia became central in disputes around EBM, what (in)formal means they use to practice it in clinics’ spaces and what consequences they face when drawing a boundary between ‘evidence-based’ and ‘Russian’ medicine.

## **Panel 37 - Session 1: Interesting participatory processes in science, technology and innovation: conditions, challenges and prospects for bottom-up innovation**

*Time:* Wednesday, 28/June/2023: 2:30pm - 4:30pm · *Location:* Aula Unione 3

*Session Chair:* Simone Araldi

*Session Chair:* Stefano Crabu

*Session Chair:* Paolo Magaudda

**Topics:** Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation

**Keywords:** co-creation, bottom-up innovation, participation, open science

In recent decades, participatory models of technoscientific innovations have garnered more and more attention both in academia and practice. In particular, a broad array of concepts has been introduced to describe bottom-up processes taking place outside institutional R&D settings and involving a broad range of social actors, such as citizens and end-users. Examples of these notions include but are not limited to: “deliberative” and “participatory” public engagement (Burgess 2014), co-creation (Voorber et al. 2014), user-driven innovation (Franke et al. 2016), research in the wild (Callon and Rabeharisoa 2003), Responsible Research and Innovation (RRI) (von Schomberg 2013) and Open Science (Levin and Leonelli 2017). Despite their differences, all these emerging notions share an emphasis on participation as a condition to align technoscientific developments with the values, expectations and needs of concerned communities and stakeholders.

Yet, existing assessments of these experiences highlight the difficulty to set up interesting processes that are capable to engage and coalesce social actors and ensure long term sustainability, efficacy, effectiveness, and transferability. Issues such as unequal power distribution among participants, lack of reflection and reflexivity, insufficient support from regulators and the scientific community, all seem to contradict the expectation that bottom-up innovation can change dominant institutions and policies for better aligning technoscientific practices and social needs.

The panel welcomes theoretical, empirical, and methodological contributions by STS scholars, social scientists and practitioners exploring the interesting processes that underpin these participatory experiments in science, technology and innovation. The overall goal of the panel is to map and examine the features of these alternative forms of innovation, as well as the conditions enabling them to gain further ground.

### **Time for a change? The chronopolitics of co-creating shared mobility spaces in Munich and Barcelona**

**Alexander Wentland, Manuel Jung**

TU Munich, Department of Science, Technology, and Society

To build more livable and sustainable cities, policy makers have turned to temporary co-creative interventions that promise to solve two problems at the same time: Producing urban laboratories for demonstrating imagined future arrangements of materiality and meaning (Engels et al. 2019) and shape these places in a way that lends credibility to the futures enacted within them (Gieryn 2006). Such interventions entail major social, material, and temporal reorderings. In our analysis, we explore two interventions in Munich and Barcelona, in which policy makers and researchers set up shared mobility spaces together with the residents in two respective neighborhoods. We address four tensions resulting from the specific chronopolitics (Felt 2016) embedded within these co-creation processes: projectification, incongruency of time frames, socio-material persistence, and acceleration.

Our analysis examines how the shared mobility spaces as initially limited measures for a few years, created a rigid temporal structure, limited to funding periods and legislative cycles that were inscribed in the experimental setup. The project-like nature in both cases created pressure to get started and succeed in time and uncertainty about the long-term viability of the emerging infrastructures. Both projects' speeds stood in contrast to the already asynchronous rhythms and routines of society that were largely unaffected by the co-designed, yet short-term interventions. Simultaneously, the interventions destabilized the socio-material order of the neighborhoods and caused significant initial protest. Only through iterative co-creating activities, inducing a long-term learning process for all involved actors, the resistance turned into majority support for the local transformations. In both cases, it was the citizens' local knowledge and initiatives that secured the shared mobility spaces through material participation and maintenance.

Overall, the paper highlights the importance of considering the locally embedded temporal politics of urban sustainability interventions and the need for a more holistic, inclusive, and power-sensitive approach for robust innovation.

## **Epistemic justice in human-machine collaborations: Designing for responsibility and agency in citizen science**

**Niels Jørgen Gommesen**

Independent researcher/ former Southern University of Denmark, Denmark

Citizen science has widely been recognised for its potential to generate innovative contributions to scientific knowledge production that enhance citizens' engagement in and with knowledge production. *Despite this, previous citizen science research has largely neglected to examine the multiple ways human-machine collaborations and the technoscientific structures in citizen science projects contribute to enabling, constraining, and reconfiguring epistemic agencies and science-citizen relations in scientific knowledge production.* With this presentation, I will address this gap drawing from my ethnographic research and co-development of the digital citizen science project, the Sound of Denmark. I will demonstrate that by adopting a participatory design approach and gaining a deeper understanding of agency and accountability in the development of digital citizen science projects, including fostering closer collaborations with participant communities, we can anticipate and mitigate potential negative implications of the design, and ultimately support the pursuit of epistemic justice and scientific citizenship. My key findings demonstrate that digital citizen science development can significantly benefit from diverse fields such as participatory design research, science and technology studies and posthumanities. These fields can inform the development of digital citizen science projects in ways that facilitate the formation of new, more equitable science-citizen relationships facilitating the advancement of citizens' agencies. Finally, the presentation contributes to a broader debate on the formation of epistemic subjects and scientific citizenship and discusses the challenges of designing responsibly in a citizen science context.

## **Doctor Who? Broken Science Today and the Rise of Data-Driven Meta-Expertise**

**Sebastian Koth**

Weizenbaum Institute Berlin

How to organize science in society is a pivotal issue in science and technology studies. One approach to it scrutinizes the expertise required for such a challenge. Surely it is scientific expertise. But what would be the right scientific expertise to deal with this difficult task? Or rather, does such an expertise exist anyway? The big science of the arms, space, and agri technology race during the cold war gave birth to the science policy maker who negotiates the trade-offs between science and politics. Since the 1980s, organizing science has been framed as a public good problem bringing about the science manager who ensures the innovative performance of science with methods of new public management. Today, the increasing importance of information technologies for the organization of science signals another adept to come. In my talk, I want to show how a new meta-expertise is anticipated by the data-driven organization of science.

For this purpose, I draw on my ethnographic research project, in which I investigate the innovation community of Decentralized Science that is driven by alternative ways of organizing science based on distributed ledger technology. I will present findings from the field by proceeding in three steps. Firstly, I introduce sets of problematization of broken science: credibility and replication crisis, siloed data, unpaid labor, inequality, misconduct, stagnant IP application, trust crisis. Secondly, I outline the conceived solution to these issues: applied metaknowledge, meaning the reengineering of scientific practice and institutions on the basis of data about working scientists at remarkable levels of detail and scale. Lastly, I focus on the expertise that bears the epistemic authority of the data-driven science-reform movement, namely cognitive and computational economics. With my talk I wish to sensitize for the distinct arrangement of problematization, ethics, and technologies that characterizes the reorganization of expert organization.

## **Toward a behavioral change for a Socio-Ecological Just Transition. Drivers and barriers to participation in Bologna and Hasselt Living Lab activities.**

**Teresa Carlone, Selene Tondini**

University of Bologna, Italy

Nowadays, climate change shows irreversible consequences for the well-being of humanity, territories, and resources. A socio-ecological Just Transition toward sustainable urban spaces relies on the collaboration among all actors involved in the Quintuple Helix of Innovation (Carayannis et al. 2012). In this scenario, civil society plays a crucial part in innovation and co-design projects, aiming to democratize knowledge and research in the environmental field. The H2020 I-CHANGE project "Individual Change of HABits Needed for Green European transition" intends to demonstrate how collective behavioral change is possible through the involvement of civil society in citizen science initiatives (Goudeseune et.al 2020, Vohland 2021). The research approach is structured around Living Labs (LLs) to raise awareness about climate change impacts in urban space and to promote behavioral changes toward more socially and environmentally sustainable lifestyles. The present contribution investigates variables related to individual and collective dimensions that could function as drivers and barriers to participation in LL activities and thus enable or hinder behavioral change processes. Using a survey addressed to

citizens and city users, selected within two case studies - Bologna and Hasselt - we identify factors that can, in the project phase, increase the success of citizen science activities planned in the LAs and, in the evaluation phase, create indicators to measure project outputs and impacts at socio-economic level. Data collection and analysis has been guided by COM-B model, to set goals and outcome for understanding a concrete and effective behavior change (Keyworth et al. 2020; Michie et al. 2013). The results show a combination of technical, cultural, and socio-economic factors (availability of appropriate services, gender, economic conditions, cultural norms, comprehensive communication) that could play a relevant role in the engagement and active citizen participation and address the complex and multidisciplinary link between technoscientific practices and social needs (Geels 2019).

## **Innovation pathways of local energy communities for novel energy infrastructures and -markets**

**Florian Lukas Helfrich**

University of Twente, Netherlands, The

The energy sector is currently in a state of transformation. In the pursuit of reaching higher degrees of sustainability of energy generation and consumption, new forms of infrastructures and market designs are imagined by core stakeholders in the energy sector such as energy producers and distributors, regulatory institutions, and citizens. These stakeholders set a focus on developing novel energy infrastructures that are characterised by higher degrees of sustainability, decentralisation and citizen engagement, and are anticipated to foster the implementation of renewable energy generation in local environments such as communities and individual households.

Alongside these conceptualisations, new technological devices are imagined as integral parts of these infrastructures and should be implemented to create local and digitalised market designs and energy production. Some energy sector stakeholders perceive blockchain technology and blockchain-based platforms for energy management and -trading, as a means that provides great potential for the digitalisation and transformation of energy infrastructures. It is depicted as a technological structure that enables a revolutionary re-structuring and transforming of the, traditionally centralised, ways in which energy is produced, distributed, and managed towards more decentralised forms with multidirectional relationships.

Based on empirical cases of local energy communities, this paper provides a typology of innovation pathways, analysing a range of governance arrangements and imagined futures for local energy communities: ***Municipality-Managed; Cohesive Communities*** and ***Entrepreneurial Exploration***. Understanding local communities as sites of experimentation in which the ongoing transformation of the energy sector plays out, this paper will assess forms of governance such as arrangements of power, relationships between actors, forms of conflict and cooperation. Critically examining the implementation of blockchain-based energy infrastructures within them and their imagined disruptive potential, hereby serves as an illustrative example towards examining these changes in power relations, forms of agency and interactions within the network of energy sector stakeholders in this context.

## **“No one will protect what they don't care about”: Examining participation and conflict in public climate engagement**

**Sofie Illemann Jaeger**

University of Edinburgh, United Kingdom

Climate change is a crisis that simultaneously demands immediate top-down governmental responses while also requiring long-term solutions built on bottom-up citizen involvement to ensure sustainability and effectiveness for the communities that need to undertake them. Taking a transdisciplinary approach to two contrasting case studies, this paper examines the role of conflict in public climate engagement. It asks how engagement practitioners and participants express their experiences of disagreement and reflects on the potential productive value of conflict in participatory processes.

Using two case studies, I contrast a citizens' assembly held by a local Danish government with a place-based, community-driven climate action project by the Scottish government. The first project aims to apply deliberative democracy principles to create a blueprint for “rethinking the role of authority” in governance that can be scaled across different topics and communities. By contrast, the second case aims to “empower communities” by deploying tailored, place-based approaches that emphasise the unique challenges and needs for shaping climate policy.

My study reflects on recent moves to reimagine the social in the context of technoscience to address the climate crisis, focusing particularly on instances of conflict and dissent in participatory climate processes. Shared by my cases is their effort to recentre collective decision-making to address synergetic issues of public mistrust in government and the urgent need to identify sustainable climate actions. The cases' objectives to build trust and consensus-making have important implications for how practitioners consider, frame, and manage conflict in their participatory processes. The function of conflict in participation is rarely discussed in public engagement. Yet, in the case of climate change with its wicked dimensions, conflict inevitably becomes a central element of participants' participation and experiences when negotiation and compromise of priorities and values become integral to the communal shaping of climate policy and -action.

## Thinking Responsibly the Energetic Transition. Responsible Innovation and Knowledge Co-creation in the Renewable Energy Field

**Pasquale Schiano**

Università di Trieste, Italy

As many authors have pointed out, in the last decades, the positivist paradigm of the modern scientific discourse has undergone some fundamental shifts, paving the way to alternative ways of knowledge production and dissemination. Due to the challenges posed by the climate change, these shifts have been particularly evident in the field of the ecological transition, wherein an unprecedented interest for “bottom-up” practices of knowledge co-creation is swiftly taking shape. A striking example in this context is provided by community energy projects. This term is used to denote a wide range of community-based activities related to the self-production and self-consumption of energy from renewable sources. Thanks to their characteristics, community energy projects have been identified as a useful tool to fulfil the energetic needs of local communities in a sustainable way, making citizens conscious protagonists of the choices concerning dynamics of energetic production and consumption. On the other hand, nonetheless, the often black boxed features of renewable technologies and the many bureaucratic obstacles still related to their development, make it difficult for a truly inclusive and participatory management of community energy projects. Therefore, from this point of view, while community energy projects may well be framed through the lens of the co-creation theoretical approach – meant as a repertoire of methodologies and techniques aimed at the mobilisation of social actors within processes of techno-scientific innovation – they show as well some of the ambivalences and discrepancies related to its application in the realm of ecological and energetic transition. Drawing from the experience of Biccari – a small Italian town located in the Apulia region – this paper attempts to offer some insights about the *modus operandi* of a small-scale community energy projects, enlightening both the potential and the limitations related to the application of the co-creation frame within the field of renewable energies.

## Panel 28: The politicization of infrastructures. European transformations in the name of geopolitics, security, and crisis.

*Time:* Wednesday, 28/June/2023: 2:30pm - 4:30pm · *Location:* Sala Rossa

*Session Chair:* Benedict Lang

*Session Chair:* Jan-Hendrik Passoth

*Session Chair:* Silvan Pollozek

**Topics:** Sociomaterialities of conflict and peace; Methodological challenges in a more-than-human world; Governance of and by data infrastructures; Sociotechnologies of (in)secure worlds to come

**Keywords:** Geopolitics, security, crisis, politicization, infrastructures

Already in dealing with the pandemic, but even more so with the Russian war in Ukraine, infrastructures in Europe became a focus point of public and political debates. From underwater cables and pipelines to electricity or data infrastructures, infrastructures are now finally prominently discussed in terms of geopolitics, vulnerability and threats. In a breathtaking way, huge investments in new projects, hectic construction work, and the (re)assessment of critical infrastructure and emergency plans hint to the many attempts and interventions of states actors in the name of security and crisis.

This is all the more remarkable - and concerning - given that infrastructures are shaped not by governments and parliaments alone, but also by experts and committees, associations and citizen initiatives. Infrastructures have development lifecycles and roll out schedules and are often interdependent with other Infrastructures as well. They grow spatially and thus intervene into and reconfigure many different regional ecologies. And they are not built de novo but need to be built upon installed bases. By this, infrastructures take shape at many sites and in and through many arenas and publics, where many voices and concerns are assembled.

In this panel, we ask how the politicization of infrastructure in terms of security, geopolitics, and crisis (re)configure arenas and publics, affect their development, implementation, and reassessment, and transform Europe in various forms and on various scales.

It invites contributions that focus on topics (among others), such as

- the shifting of boundaries between the "technological" and the "political"
- the (re)configuration of different arenas and voices of infrastructural development and implementation through politicization
- which issues do (and do not) deserve credit
- strategies and effects of polarization, scandalization, devaluation and silencing
- imaginaries, visions, promises of infrastructures in the light of geopolitics, security, and crisis
- the reassessment of infrastructure as critical, vulnerable, or outdated
- roll-out of infrastructure projects on local, regional, national, and EU scale

### The politics and paradoxes of semiconductors

**Linda Monsees**

institute of international relations Prague, Czech Republic

This paper introduces semiconductors as an important site to the study of world politics. Semiconductors are the material for computer chips and thus crucial for the digital economy. Especially during covid19 its delicate supply-chain came to the fore. In order gain theoretical leverage vis-à-vis dominant policy and practitioner's narratives about semiconductors, I conceptualise semiconductors as infrastructure. This means that I do not understand semiconductors as one technology or device but as an infrastructure that is multiple and fluid. Deploying such a perspective allows to complicate the politics of semiconductors. First, it allows us to see how semiconductors are mostly debated in the context of securing and developing advanced technology. However, semiconductors are virtually used everywhere and as an infrastructure form the backbone of many other basic infrastructure such as energy or transport. While semiconductors are enacting a certain 'way of life' – a sustainable, digitally advanced and connected society – many other aspects are erased such as environmental and labour conditions as well as the many different kind of 'chips' which are needed and produced.



## **The Openness (and) Politics of Research Infrastructure**

**Lai Ma**

University College Dublin, Ireland

When the war in Ukraine broke out on February 24th, 2022, questions arose for the academic and communities: what would this mean for Russian archives, libraries, research institutions, and universities? Should Russian researchers be banned from participating in international conferences? Should membership of Russian archives and libraries in international associations be discontinued? Scientific missions were suspended, ties were being cut, and conferences cancelled.

Meanwhile, the importance of open science has been hailed for its importance for scientific progress. For example, the UNESCO Recommendation on Open Science is “committed to leaving no one behind with regard to access to science and benefits from scientific progress by ensuring that the scientific knowledge, data, methods and processes needed to respond to present and future global health and other crisis are openly available for all countries...” Yet, the critical research infrastructure European Open Science Cloud (EOSC) is “to provide European researchers, innovators, companies and citizens with a federated and open multi-disciplinary environment where they can publish, find and reuse data, tools and services for research, innovation and educational purposes”, whereas AmeliCA has stated its scope to strengthen the non-profit publishing model beyond the Global South.

The politicization of research infrastructure is largely unexamined. It is as if the development of open science can be apolitical. Yet, knowledge flows have never been as open or free: some knowledge is hidden and classified in the name of national security, some are used as tools for cultural diplomacy and the spread of political ideology. Knowledge exchange can be further hampered at war times. The war in Ukraine speaks to the necessity of examining the politicization of open science infrastructure—and how it may affect research practices and knowledge flows. In this talk, I will examine the development of open science infrastructure and how it has been politicized.

## **Decentralization as a Means of Security? Political Issues that Remain**

**Suzette Kahlert**

European University Viadrina, Germany

With the recent migration of users from twitter to the fediverse, decentralized digital spaces and their infrastructures gain more and more public attention. As I have found in my case study on the non-profit project matrix.org, which describe their infrastructure as “an open network for secure, decentralized communication” (<https://matrix.org/>, accessed on 22.1.23), decentralization in itself is valued as a means of security. Matrix.org was very successful in labeling their vision as a democratic endeavor and were e.g. working with the French government on secure messenger solutions. But how does a so-called decentralized infrastructure, where (meta)data is shared among connected servers and not monopolized, change the value of (meta)data? This begs a lot of other political questions like: How will this model of sharing (meta)data potentially change existing power structures in Europe? For whom will the (meta)data be accessible and for whom not?

It is safe to say that the decentralization of infrastructures itself is political as it shapes certain digital spaces and imaginations of these. But decentralization on its own is not inherently a process of enhanced democratization, security, and transparency. As my research shows it doesn't take away problems that non-decentralized digital spaces have to deal with – like e.g., content moderation, or transparency – but it shifts the problems and therefore potentially can lead to a more individualistic view of responsibility within digital spaces. It is important to analyze the political implications and responsibilities of infrastructures themselves and question power dynamics even while designing the technical aspects. It needs to be part of the building and imagination of infrastructures from the beginning, to find their blind spots and reflect on them critically, following questions like: who and how is this space imaged for, who is excluded from these imaginations and who could be harmed by them?

## **Problematizing Ocean Infrastructures: Europe's struggle to rule the subsea data cable network**

**Christian Bueger, Tobias Liebetrau**

University of Copenhagen, Denmark

This paper argues that the oceans have become a new site of global politics because they host the most important infrastructure of the digital age: The global submarine data cable network. Although nations depend on this infrastructure, it has been analyzed only sparsely. In this paper we provide one of the first studies of how the cable network is increasingly problematized politicized and becoming a critical object of international security. Reconstructing the nascent security debate on data cable protection in the European Union we demonstrate how political actors struggle to develop appropriate responses due to the contested nature of the infrastructure. A core element in this contestation is whether and how cables should be seen as an object of maritime or cyber security, whether it is military, civil or private protection measures that should lead and how to cope with increasing great power competition in the field of new technologies. In reconstructing the



debate the paper demonstrates how theoretically approaches on infrastructures, practice theory, and governance objects can be fruitfully be combined.

### **The contested sea: Infrastructuring the Adriatic**

#### **Leonardo Ramondetti**

Politecnico di Torino - DIST, Italy

The combination of global pandemic, war, supply chain problems, and energy speculation has disrupted established international economic relations, thus redefining trade routes, infrastructures, and logistics spaces. The Mediterranean is at the heart of this process, particularly the Adriatic Sea. This has become one of the most important branches of the Belt and Road Initiative (BRI), with massive investment by COSCO Shipping and other Chinese State-Owned Enterprises (SOEs). China's activism, in turn, has triggered the reaction of the European Union (EU) and local governments. As a result, a plethora of international projects and local initiatives are in progress to infrastructure the Adriatic Sea, drawing new geographies and building new types of urbanity.

The politicisation of these infrastructures is evident from the restructuring of two major Adriatic ports: Piraeus and Trieste. Following the 2008 financial crisis, COSCO took control of most of the port of Piraeus, and expanded the container platforms to build the largest transshipment hub of the Mediterranean Sea. Conversely, in Trieste, local actors, national governments, and European partners have replaced China in upgrading infrastructures, modernising terminals, and reinforcing the special fiscal regime and statutory status of the port. While showing the many interests at stake, both processes have been building new spaces, scaling-up economies, and transforming the environment.

Piraeus and Trieste are however only two of the many examples of the many processes of infrastructuring which are transforming the Adriatic Sea. These raise two subjects for investigation: first, the extent to which new global networks and infrastructure megaprojects (e.g., the BRI and the TEN-T/TEN-E corridors) make the territory in which they settle a contested arena; and second, the ways in which the redesign of infrastructures and logistics zone is turning the sea into an ever more urbanised landscape.

### **Assessment of the geostrategic position and use of the TEN\_T and branch railway lines in Slovenia and its border regions**

#### **Marko Savić**

Mobilitatis Omni, Slovenia

Many transport policy experts would probably still argue that Slovenia has an excellent geostrategic position and that international transport—freight and passenger flows—in Central Europe and beyond cannot bypass Slovenia. But, as I wish to argue in this paper, new railway lines construction and their upgrades in previous decades and their current roll-out in Slovenia's border regions more than enable the transport flows to bypass Slovenia.

To fully understand this current development, it is necessary to map not only all TEN\_T railway corridors—core, extended core, and comprehensive—but also all branch and other functional and non-functional, possibly critical, railway lines in Slovenia and its cross-border regions in Italy, Austria, Hungary, and Croatia. Reflecting on the mapping of the use of the current railway lines, including the railway throughput capacity, railway electrification system or its absence, its inside-border, and cross-border passenger timetables, and the description of the formed actor-network associations, I will show how the geostrategic position of Slovenia has changed in recent decades and what the possible development in the next few years—taking into account new constructions and existing railway lines upgrade—are.

Slovenia and other EU countries are formally committed to the Paris Agreement that demands transport emissions—actant in the formed actor-network associations—to be reduced by 55 per cent by 2030 and by 90 per cent by 2050. I will show in the proposed paper that the planned roll-out of the railway construction and existing railway lines upgrade in Slovenia not only does not stand a chance to achieve the transport emissions reduction goals but also significantly reduces the much acclaimed geostrategic (transport) position of Slovenia and with it its carbon lock-in. Simultaneously, I will reflect on my own activist mission to re-construct the cross-border branch railway lines and how these railway lines are systematically silenced by state- and EU-sponsored studies.

## Panel 20: Extracting Humanness, Exploiting Labour: The Inhumane Face of Artificial Intelligence

*Time:* Wednesday, 28/June/2023: 5:00pm - 7:00pm · *Location:* Aula A

*Session Chair:* Fabio Morreale

*Session Chair:* Elham Bahmanteymouri

*Session Chair:* Brent Burmester

*Session Chair:* Matteo Pasquinelli

**Topics:** Working conditions and organizations interested in and by automation; Algorithmic knowledge, media ecologies and artificial intelligence; Ethics, innovation and responsibility in technoscience; Extractivist powers, imaginaries and asymmetries

**Keywords:** Labour exploitation; immaterial labour; AI-training; data extractivism; digital labour

An ever-growing number of digital and non-digital companies and governments embed forms of artificial intelligence (AI) in their technical infrastructure. The dominant AI technique, Machine Learning (ML), is based on the paradigm that computer systems can emulate humans when provided with enough “training data”. In most cases, this training data is the product of human labour, and the way in which it is collected is problematic. Data collection procedures are opaque; business models fail to account for the value of the labour being contributed by individuals, and consent to collect and use this data is not explicitly requested.

Particularly widespread are systems in which the training data is gathered simply by virtue of users voluntarily engaging with digital platforms and online tools for purposes other than contributing data to a training set used by AI systems. For example, an internet user filling out a reCAPTCHA is actually generating data that is then collected and used for various Google AI applications. As another example, Spotify’s music recommendations are informed by many different types of human input, including user interactions with the platforms (e.g. the music they like or skip, the playlists they create) and music reviews and comments written by music journalists and aficionados on blogs and forum that are scraped by Spotify bots to extract music taste automatically.

Individuals interacting with AI-powered systems are commonly unaware of the ongoing extraction of value as they volunteer their preferences, intelligence, and behaviours to AI owners. They are also commonly unaware of how their information and actions generate corporate profits. Using a Marxian lens, we frame these extractive practices as forms of labour and specifically immaterial labour that has an external value that individuals are steadily but inadvertently producing. Consequently, they cannot use the collective power this affords to make demands of their ‘employers’. The Marxian approach suggests a classification of knowledge class for all individuals whose interactions with AI generate value that is expropriated from them. Framing this issue using the theme of the conference, an interesting world to come would see new political struggles of the knowledge class whose work is exploited by digital capitalism and new ways to break the circuits of surplus value/surplus data as the engine of this type of capitalism.

The topic of this panel is aligned with current STS discourses, including digital labour, AI ethics, and asymmetric power relations between digital corporations and their users. Given the highly interdisciplinary nature of this issue, we argue that STS is the perfect venue for these conversations to be finely clarified, confronted, addressed, and resolved. In this track, we encourage submissions across different domains discussing instances of labour exploitation and humanness extractivism in AI. Possible contributions include the following i) political and philosophical lenses to frame this phenomenon; ii) initiatives to uncover issues at the intersection of labour and AI; iii) methods to audit AI training sets; iv) proposition of possible forms of resistance; v) discussions of case studies to which this issue applies.

### The «human-in-the-loop» model: between servo-instrumentality, surrogation, and dividual economies

**Edoardo Biscossi**

University of Naples L'Orientale

My contribution looks at the exploitative and extractive dynamics behind the industry discourse around automation and AI, reflecting on how these are rooted in an image of the human-technology-nature relationship that is modelled after servitude, instrumentality and surrogation. More specifically, I will draw on some of the research carried out within my ongoing PhD project — which looks at platform-mediated gig work from a critical media studies perspective — including auto-ethnographic engagement with platforms Clickworker and Appen, and the close reading of technical objects such as patents and interfaces. My aim is to put these empirical observations in dialogue with value and information theory, software studies, critical race theory and feminist studies.

Within «human-in-the-loop» or «human-as-a-service» platforms, workers are configured as an on-demand flux of living labour to integrate in any business model — similarly to a metaphorical API, suggesting that the logic of production really is becoming one with the logic of software (Parisi 2016). Gray and Suri use the term «ghost work» (2019) to describe this globally distributed infrastructure of invisibilised labour sustaining the illusion of autonomous disembodied AI, and the

enchanted technological tools it powers. Atanasoski and Vora mobilise the idea of a «surrogate humanity» (2019) to inscribe the platform-mediated flows of detail-intensive secretarial work and data *cleaning* into the history of racialised and gendered labour.

My research also addresses how the machine of platform-mediation enslaves not only individual bodies, but also dividual productive capacities into a servo-instrumental relation with technology. The political implications of this go towards the proposal of a dividual politics for platform labour that imagines socio-technical collectivity — following Simondon — beyond the servo-instrumental dynamic that reproduces the technocratic domination of the *user* over the *used* other.

### **Will writers lose their jobs with the advent of new ai language generators?**

**federico bomba, michele cremaschi, paolo grigis, liu Yiyang, antonella de angeli**

unibz, Italy

The creative co-creation between theatre playwrights and a linguistic model, such as an AI language generation, offers a unique opportunity to expand the creative possibilities of playwriting while also raising important questions about authorship and the role of technology in the creative process. On the one hand, the use of a language model can provide playwrights with new and diverse perspectives, as well as the ability to generate large amounts of text quickly. This can enable playwrights to explore new themes, characters, and narrative structures that would otherwise be difficult or impossible to achieve. On the other hand, it also raises ethical and practical concerns about the authorship of the resulting work and the impact of the technology on the creative process. Playwrights and AI experts will have to work closely together to ensure that the language model is trained on the right data, that the final product is coherent, and that the co-creation respects the authorship of the playwright. A clear and transparent collaboration agreement is needed to avoid any potential misunderstanding, and also to avoid the risk of the AI taking over the creative process. Overall, the creative co-creation between theatre playwrights and a linguistic model presents a unique opportunity to explore new ways of storytelling, but it also requires careful consideration of the ethical and practical implications of the technology.

### **Riscrivere Marx per la società dell'informazione**

**Stefano Diana**

Independent researcher, Italy

The combined work of Turing and Shannon shaped today's "information society", and founded it on a new metaphysics of the artificial that has become customary and seemingly natural. But it was covertly set up to fit machine requirements instead of human ones, from the very beginning. To highlight the disguised aberrations and hazards of this deeply machine-biased culture, I have asked for help to Karl Marx's own way of thinking. As I show with samples from the Grundrisse and the Capital, certain topoi of his critique of political economy of his time can be rewritten by substituting a few keywords, to produce a surprisingly relevant analysis of the information society and the role that so-called Artificial Intelligence plays in it. The reasons for this oddity stem from the fact that digital data can be seen as the current upgrade of Marx's money as dehumanizing universal abstraction and "automatic fetish" that expands itself independently of human needs.

### **'Platformized' labor: the case of neo-craft work**

**Alessandro Gandini, Gaia Casagrande**

University of Milan, Italy

In the decades-long debate on digital labor, a relevant position in recent years has been occupied by the critical discussion of processes of 'platformization' of work. This has mainly revolved around *platform-based work*, where the platform directly organizes and oversees the capital-labour relation (e.g. Uber, Deliveroo), and *platform-dependent work*, whereby platform activity constitutes the essential component of one's work, but workers' tasks are not directly organized/overseen by the platform (e.g. content creators). However, we contend, processes of platformization of work today increasingly blur the boundaries of different forms of work that are not necessarily concerned with a direct engagement with the digital, but where social media and/or other types of platforms have become part and parcel of cultures and practices of work.

In this paper we aim at developing a more accurate definition of this '*platformised*' labour. With this term we intend all work whereby social relations of production are repurposed (in part or in full) by way of platform intermediation, despite it not necessarily being enabled by, or undertaken through/on, a digital platform. To support this argument, we focus on the case of so-called 'neo-craft' work. This has come to identify a new form of craft work characterized by the peculiar combination of traditional craft with a post-industrial imaginary that chiefly entails practices of self-presentation and the curation of an online presence. Based on data collected in the context of the ERC-funded project "CRAFTWORK", we propose to consider neo-craft work as an epitomous example of 'platformised' labour according to 4 main dimensions: *Platform repurposing*; *Aesthetics: Demand and supply*; *Ethics of self presentation*. We will conclude suggesting that neo-craft workers represent a

peculiar type of global labourers whose activity cuts across the changing nature of labor and work and platform-based cultural production.

### **Mobility and surveillance: the marriage of 5G with artificial intelligence**

**Diego Vicentin**

UNICAMP, Brazil

The marriage between the fifth generation (5G) of mobile networks and Artificial Intelligence (AI) systems has been made public as something that will change life profoundly and in many ways. The 5G-AI union is a fundamental element of a promised new cycle of capitalist accumulation which strengthens the centrality of information and surveillance technologies as means of exploitation of population's bodies and subjectivities through data extraction for monetization and appropriation of surplus value. It is the purpose of this paper to shed light on the development of 5G networks and its necessary alliance with AI systems. To this end, first, we will build an analytical framework on how mobility is constituted in the operation of mobile communication networks. Mobility is commonly understood as articulation between communication and movement, but it also refers to the increment of bandwidth (data traffic) that happens to be the result of every new mobile technology generation (2G-5G). By reviewing the history of mobile network technologies we may better understand the role of network operators (telcos) in data-driven capitalism and their current relations of mutual dependence with AI and Big Tech corporations. On the one hand, the implementation of machine learning tools in network management is a necessary condition to the 5G functioning; on the other, 5G enables the implementation of a myriad of AI applications. To such a degree, we will analyze concrete cases of both, the application of AI within 5G infrastructure (such as network slicing and self healing functions) as well as AI applications that are enabled by 5G (digitization of agribusiness and other applications that require low latency). With that we intend to describe in detail the marriage of 5G with AI and foresee some of its consequences.

### **Outsourcing Imagination: AI Generated Images and Creative Labour**

**Chrys Alexander Vilvang**

Concordia University, Canada

When a Computer Vision training data set is developed by humans, the limiting functions of natural language and categorization become embedded within a system – often causing vision machines to replicate existing visual and aesthetic dynamics through reductive processes. These restrictions subsequently impact the image making capabilities of Generative Models, channeling a myriad of visual possibilities through the finite structures of human words and classifications. New approaches in the interrelated fields of Computer Vision and Image Generation Artificial Intelligence (AI) have not only reimagined the role of human labour in the creation of training data but have also reinvigorated the debates surrounding what types of labour AI may one day perform. Though Computer Vision has been largely shunned by scholars within visual culture's iconic turn for its tendency to reinforce dominant visual hierarchies and favour literal image interpretations, the emergence of Generative Adversarial Networks (GANs) and Contrastive Language Image Pre-training (CLIP) may profoundly transform the fractious relationship between AI, visual culture, and creative production. When paired together for generating images from text, GAN+CLIP neural networks offer rare opportunities for human viewers to reconsider the perceptual foundations upon which much of aesthetic and practical visual perception is premised, bringing imagination to the fore. Unlike DALL-E and Stable Diffusion, the uncanny images produced by GAN+CLIP are often difficult for their human counterparts to meaningfully decipher, providing unique insight into the inner workings of unsupervised Machine Learning (ML) and offering a glimpse into what has been described as the imagination of AI. This research proposes alternative perspectives to resist dominant AI/labour narratives and consider how AI may be used to enhance, rather than extract, exploit, or replace imagination and creativity in human labour.

### **Automating work: fragmenting, coordinating and enclosing**

**Joaquin Yrivarren<sup>1</sup>, Miquel Domènech<sup>1</sup>, Attila Bruni<sup>2</sup>**

<sup>1</sup>Universitat Autònoma de Barcelona, Spain; <sup>2</sup>University of Trento, Italy

Based on ethnographic fieldwork in the R&D area of an Italian company developing robotics and AI solutions for microbiology laboratories, in this paper we seek to understand how R&D practitioners identify and define the laboratory activities to be automated. Through various sources of data (participant observation, grey documentation, and open interviews) we focus on one of the earliest stages of robotics innovation, concerning the ideation of a new prototype. By describing the making of prototype's sketches and simulations, and the rough assessments triggered by them, we emphasize the material and performative character of robotics imaginary and R&D practices. Particularly, we will focus on how robotic designs rest on the possibility of selecting certain activities and qualifying them as of "low value-added". We will show how R&D practitioners take for granted the need of automating human work, making large use of material proxies, that is,

components that are supposed to perform what has been qualified as low value-added activities. They also imagine the way to coordinate all the components within the boundaries of a new machine. Hence, by fragmenting, coordinating, and enclosing low value-added activities into a robotic module, practitioners render human activities substitutable, thus making the dominant robotics imaginary real.

## Panel 13 Session 3: Artistic Intelligence? Making it together in the Multispecies World

*Time:* Wednesday, 28/June/2023: 5:00pm - 7:00pm · *Location:* Aula B

*Session Chair:* Silvia Casini

*Session Chair:* Gediminas Urbonas

*Session Chair:* Roberta Buiani

*Session Chair:* Philippe Sormani

**Topics:** Ecological transitions and climate justice; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Methodological challenges in a more-than-human world; Technofeminism and interspecies solidarities; Embodied identities, genders and interests

**Keywords:** multispecies research; organism-oriented ontology, composability and cohabitation, sympoiesis, art as research

In recent years, academia has sought new approaches to tackle phenomena that couldn't be grasped through traditional discipline-specific research methods. Anna Tsing expresses the difficulties of examining and communicating the system known as the Anthropocene and calls for "new kinds of storytelling" that can "tell empirically grounded stories of particular times and places and positions and [that can] tell them with some much curiosity and wonder". In practice, this means to abandon the "god's view from nowhere" (Haraway), which leads to the prioritisation of anthropocentrism. Tsing proposes an embodied approach that takes in different positionalities, that is, she exhorts us to become-with the non-human and more-than-human, instead of just observing them from afar. To this end, the feminist and more-than-human curatorial work of Haraway and Tsing with her platform *Feral Atlas* (2021), the collaborative thought-exhibitions by Latour and Weibel at ZKM (*Iconoclash 2002*, *Making Things Public 2005*, *Reset Modernity! 2016*, and *Critical Zones 2020* all devoted to the crisis of representation in art, science, and politics), and the visual STS approach by Galison in his collaborative work all use curatorial and artistic practice as research. These forms of research embodied, situated, and materialised knowledge that matters (Turkle 2011: 7). Moreover, they foreground storytelling, invention, and fictionality as tools for 'getting real' and challenging anthropomorphism (Skiveren 2022). All these collaborative endeavours might offer the coordinates of new zones of friction and creative resistance, asking us to engage with indigenous perspectives and traditions, forging alliances with symbionts, imagining anew the social and material fabric of the world. Perhaps from these zones new ways of being can become thinkable along the lines of what Ingold suggests with the concept of a «mycelial person» (Ingold 2003).

With this panel, we encourage proposals coming from both academics and practitioners for creative/performative presentations (regarding curatorial practices and/or exhibitions and storytelling), interactive sessions (bearing on material objects), and/or traditional academic papers. In particular, we ask prospective contributors to reflect on how exhibitions understood as "more-than-human alliances" might contribute to STS research and methods, demonstrating the importance of cherishing the process rather than the results; the significance of relational thinking; and the importance of interrogating the epistemological contributions of exhibitions.

At a time when some of the prominent venues promoting collaborative work in art, science and technology studies have closed (Science Gallery Dublin) or are under threat (SymbioticA), we call for forms of engagement, critical zones and methods capable of nurturing a "slow art-science" practiced by amateurs and connoisseurs in the guise of what Isabelle Stengers (2017) suggests in her manifesto for a slow science. What are the coordinates of such zones? How can we draw a map to chart our ways through a changing world? How to be alive in the "regime of the human," characterised by the lure of progress and "techniques of alienation," and "still exceed it" (Tsing 2017: 19). How can artists and scientists use their observatory stations not as ivory towers but as scaffolding for "engagement all the way down" (Stengers: 2019, 19)?

### Making through mutualism

**Alexander Eriksson Furunes, Leika Aruga**

Norwegian University of Science and Technology, Norway

How can we open up the process of knowledge production to embrace pluralistic worldviews and unimagined possibilities? This contribution explores the act of collective making as a form of knowledge co-production that is based on mutualism, transgressing the boundaries of human and non-human, 'expert' and 'lay people', as well as differences of gender, age, class, race or disabilities. It is based on the artistic work conducted as a series of design and build collaborations through the traditions of mutual support that function as self-organised platforms for sharing knowledge and skills as well as caring for the place and environment.

Artistic research is not research on artistic practice, but through artistic practice. Knowledge production happens through the integration of the act of making something and reflection that follows it. Therefore, questions are not posited in advance, so the field itself emerges, to a large extent, during the course of the research/practice. The creative process of making something together becomes a dialogue with each other and the material that one engages with. In a collective process,

experimentation with different materials and mediums allows different forms of knowledge and perspectives to be articulated, communicated and mediated. The frictions and tension created in the process makes it possible to discover something new while leaving space for different perspectives and values to coexist within the artefact itself.

By creating a better understanding of such a process, we aim to illuminate how different forms of knowledge—whether scientific, experience-based, professional or tacit—can be mediated and communicated to generate new understandings and perspectives that shape our built environments. We take inspiration from traditions of mutual support found across the world and explore mutualism in relation to the exchange of complex, entangling forms of knowledge in the making of our built environment.

## **Practice-Based Studies in More-Than-Human Co-creation: Exploring Multispecies Creativity in Biodesign as Ethically Transformative**

**Yuning Chen<sup>1</sup>, Adam Frank<sup>2</sup>, Larissa Pschetz<sup>1</sup>**

<sup>1</sup>University of Edinburgh, United Kingdom; <sup>2</sup>University of Dundee, United Kingdom

The rapid proliferation of biodesign, the field that incorporates the functional affordances of living organisms in the creation of desirable technologies and products, critically challenges the predominant anthropocentric values of design practices. Critics, biodesign practitioners, and commentators are increasingly recognising that a more-than-human shift, where care and attention are directed to non-human life, is crucial to designing with living systems. Underlying this, the fields of STS, environmental humanities, multispecies studies, and critical ecofeminism provide fertile grounds for the discussion of such challenges, problematising practical issues around the ethics of handling organisms and the unintended impacts of design on species and ecosystems already vulnerable to climate change and pollution.

Adopting a research-through-design approach, this paper aims to particularise and diversify the growing imperatives of multispecies ethics through extending modes of creativity beyond anthropocentrism. It presents the results of a work-in-progress analysis of different practices of biodesign, as well as an autoethnographic study of the first author's own research-through-design practice. In particular, this paper makes explicit the ways in which biodesigners concretely expand their methods and tools to represent and accommodate more-than-human interests in their projects, such as through the use of new metaphors, practices of attention, interfaces, materials, and deployments of moral concern. It will also explore how wider thematic concerns are situated in the techniques and practices employed in the case studies. For example, the representation of conflicts of interest in design practice between humans and the more-than-human world, and the place of care ethics sensitive to broader political and ecological viewpoints concerned with climate justice. Lastly, the paper will evaluate these efforts and explore some of the ways in which they might inform and develop ethical theorising that seeks to navigate the networks of interests connecting human and more-than-human ecologies.

## **Water as an interface and formal principle of interspecies communication**

**Andrea Gogova**

independent researcher, artist, Slovak Republic

In the artsci research I relate water body figuration to possibility mediate interspecies communication to better understand our common human and more than human water-based life. My questions are: Could emerge meanings or feelings in the interrelation of water body figure and water as medium? If yes, then interspecies communication will be interaction of each water umwelt through dialogic membrane – 'which is water body medium', in the semiosphere. How is it possible to realise communicable water body of artwork?

Water is important medium of interconnectivity between organisms together (as hydrolysis, dehydration synthesis etc.) and transferring information of life. Fluidity is not only one state of water matter, but formal aesthetical principal of artistic, designer, and architectural practises. Then water body figures appear in the differentiations in the repetition processes of multiplicity of water cycles and niches, similarly, as appears meaning of sign (Derrida, 1967 – *différance*; Deleuze, 1994; Neimanis, 2017). Also, any act of observation (sensual and intuitive) is differencing agency and makes a "cut" between what is included and excluded. According to the principle of linguistic impossibility, is not possible to completely translate one language to the other. Then the intuition and feeling, which related to the artwork, play a crucial role to understand.

Water is an essence. The essence of artwork will be related to the water body essence. Then the artwork water body figures relate to the differencing agency (e.g., AI agents fluid mechanics principle of neuromorphic dynamic computing) and emotionally influence meaning. Then it is possible to see water as a common equal medium of communication between all bodies of water (human, more-than-human) and can equally bring information for everyone through to the 'hydro languages' of water-based world of artwork.



## **An Ocean without Dimensions: On the Visual Culture of Deep-Sea Mining**

**Theo Reeves-Evison**

Birmingham School of Art, United Kingdom

Prior to the formation of modern oceanography in the 19<sup>th</sup> Century very little was known about the abyssal environment. With the scientific voyages of the H.M.S Challenger, not only were several thousand new species of marine life discovered, but the sea floor was shown to contain vast quantities of polymetallic nodules. In the present day, and these nodules are now subject to the extractive gaze of numerous deep-sea mining (DSM) companies, with over 20 mineral exploration licenses having been issued by the International Seabed Authority to date. This paper takes this extractive gaze as its starting point, contrasting the way DSM companies flatten and fix the ocean in their public facing visual materials with artistic projects that aim to preserve its dynamic materiality.

Building on work in the ocean humanities that suggests a 'terrestrial bias' is applied to the sea (Jue, 2020), the paper will argue that the distinctiveness of the deep sea is played down in the visual culture of DSM. As marine biologists have pointed out, a consequence of mining would be the disturbance of sediment on the abyssal plane. This sediment would be transported in the water column far beyond the zone in which extraction takes place. These environmental effects are impossible to apprehend without taking account of the material dimensions of the ocean as a space of 'churning', 'drifting', and 'dynamic fluidity' (Steinberg and Peters; 2015). Such disturbances are also literally out of sight insofar as they are beyond the limits of human perception. In the absence of direct observation, artistic projects by the likes of Emma Critchley and Armin Linke fill the lacuna in the visual culture of deep-sea mining, counteracting an extractive gaze with an immersive and materialist perspective that facilitates reflection on how we experience the abyssal environment in the first place.

## **Artistic Re-imaginings of the Border: From Macro to Seal Level Rise**

**Claire Waffle**

Bauhaus-Universität, Weimar, Germany

In the context of a humanly-induced water crisis this practice-led research focuses on a coastal community and former salt marsh that will be affected by sea level rise. The research deals with the consequences arising from the changing relation between land and sea for a Welsh village, Fairbourne, which is likely to lose its community and homes to climate change in the near future.

As an example of how the dominant narrative about a place's future can act as a closure of space (Massey), alternative imaginaries have become frozen and need to be opened up again. How can we find alternative ways of storying the past, present and future of this village as a multispecies habitat? What role can technology play in this process?

'Artistic Re-imaginings of the Border: From Macro to Seal Level Rise' employs a range of technological tools in creating friction and resistance to the common narrative of this site. By performing cuts and ruptures in imagined and physical space and collaging images of the village's past and future together, different perspectives and scales become highlighted and open up alternative ways of knowing the site. Stringing together contrasting and partial observations such as the distant "god's view from nowhere" (Haraway), calculations about rising seas and embodied and intimate accounts of human and non-human entanglements creates a multi-layered description of this site. By challenging these different modes of representation, this paper aims to render the material reality of living amongst an ecological crisis tangible.

(Massey, D. B. (2005). *For space. For Space*, 1-232.

Haraway, D. (1988). *Situated knowledges: The science question in feminism and the privilege of partial perspective*. *Feminist studies*, 14(3), 575-599.)

## **Oslofjord Ecologies-what can art do?**

**Kristin Bergaust**

Oslo Metropolitan University, Norway

The Oslofjord is biology, materiality, culture and history as well as future plans and challenges.

Oslofjord Ecologies is a platform developed for artistic research and production, public engagement and transdisciplinary collaborations. Starting as a workshop in the context of Renewable Futures international network in 2016, Oslofjord Ecologies has developed through research projects, exhibitions, seminars, public activities and publications without much formal organization.

A fjord is a geographical freak, a topography that contains and harvests the ocean and forces the sea to coexist with the inland, the agricultural, the industrial, the cultural, to become infrastructure and enter human perception as a spectacle. In Norway's most densely populated area, humans use the fjord for business, transport and leisure. A severe ecological crisis affects biodiversity from microorganisms to cod fish, birds and humans. Even so, it is still possible to restore better ecological



balance. What can art and artists do? Isn't it better to get involved politically through the institutions and processes we access as a democracy? Or initiate political actions to bring about a change and save the Oslofjord? Artistic practice offers alternative relationships, interactions and epistemologies, invented by the artist while referencing other practices, research paradigms or aesthetic, theoretical and professional perspectives. The method carries meaning and contributes to layers of interpretation and reception as well as facilitating innovative production. Maybe the methodological flexibility and inherent transdisciplinary openness are among the components artists can bring to a common good. Throughout the Oslofjord Ecologies, the rhetorical ring and totality of *what can art do?* is a conversation starter and motivator across disciplines, while at the same time inquiring into the singularities of art. By changing the question to *how does art do (something)*, we seem to activate an array of suggestions and links to other fields of knowledge.

## Panel 21: A caring interest for the planet: making archives and readers \*sensitive\* in times of the new climatic regime

Time: Wednesday, 28/June/2023: 5:00pm - 7:00pm · Location: Aula C

Session Chair: Claudio Coletta

Session Chair: Paolo Giardullo

**Topics:** Ecological transitions and climate justice; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Methodological challenges in a more-than-human world; Extractivist powers, imaginaries and asymmetries

**Keywords:** New climatic regime, care, interest, sensitiveness, publics, infrastructures

This panel addresses the sensitiveness of infrastructures and publics in times of entangled climate crises, focusing on the concepts of care and interest, archives and readers. Sensitiveness is thus intended as materially enacting and enacted by things, knowledge and practices, whether they be digital, organizational, bodily, or else. The idea of the panel draws on the following words by the writer Georgi Gospodinov in the novel *Time Shelter* (our translation): *"Time and epochs mingle, somewhere in Siberia seeds which rested 30000 years beneath the thawing permafrost started blooming. The earth is going to open up its archives, although it is not clear whether there will be readers"*. We believe that the quote raises challenging issues for STS: how to read and re-present the layered and connected crises featuring the new climatic regime? How to take care of more-than-human archives and make sure that there will be more-than-human readers? During the last decades STS scholars addressed in many ways the composition of the new publics brought by the crises, and yet such engagement and effort must be constantly actualized and maintained. The panel is inspired by the seminal work of Susan Leigh Star on invisibility and infrastructures and by the political-ecological endeavour of Bruno Latour, as well as by the many (STS) scholars that in the last decades contributed to unfold key STS concepts including care, ecology, publics, affectivity, attention, sensing. The panel invites thus to address the climatic regime by 'working on the fringes' between care and interest, taking into account the following question: how to compose new publics and materialize them into durable archives that mobilize attention and interest, and whose readers could become agents of care? Therefore, we invite to discuss approaches and ways of seeing, listening, doing and feeling that contribute to align archives and infrastructures as well as readers and publics, so as to be conducive to forms of sensitiveness and ethical-political agency for climate justice and just transitions. The panel welcomes theoretical/empirical contributions and experiments from SSH and STEM (including design, planning, art, and activism) where interests and calculations interact with attention and care, addressing (but not limited to) the following topics:

- the making of archives and readers through scientific activism, 'citizen sensing', including the quasi-scholarly practices of artists, writers, activists, and more-than-human communities;
- the modes of organizing sensitiveness and unsensitiveness in climate transitions;
- the practices of care, as institutionalised, infrastructured and/or made visible/invisible;
- the methods and the 'arts of attention' for developing a caring interest.

### The Old-New Face of Contributive Knowledge

#### Miłosz Markiewicz

Humanities/Art/Technology Research Center, Adam Mickiewicz University in Poznań, Poland

The beginnings of the Internet in Central and Eastern Europe, and specifically in Poland, are not the story of large providers, but of local community activities carried out in the nearest neighborhood. Unofficial (and illegal) neighborhood Internet networks were organized both in housing estates and blocks of flats, which not only distributed and shared access to the Internet and its content but also served to share already existing resources via common servers, where films, music, etc. were stored (local P2P networks). The beginnings of Internet culture in Poland thus demonstrate its commoning and contributive nature (Attali, Stiegler), as well as its anti-capitalist potential. People who individually organized the Internet from official providers or reached for original sources were treated with disdain – as those lacking the necessary knowledge or competence.

My research hypothesis is that looking at how neighborhood Internet networks, which are associated with the early days of internet access, operated will allow us to understand how alternative models of knowledge are distributed and produced. The proliferation of conspiracy theories, climate denialism, or filter bubbles on social media are all effects of the Internet that could have been predicted as early as hacking the system for neighborhood internet networks.

The aforementioned disruptions are, according to Bernard Stiegler, characteristic of the Anthropocene understood as the Entropocene, i.e. an era of increasing entropy (biophysical, social, and psychological). In turn, the Neganthropocene project, initiated by Stiegler and the Internation collective, is an attempt to overcome it. The Neganthropocene is based on local contributive, bottom-up, and commoning practices. It seems to me that neighborhood internet networks can be considered

an early model of such practices. Therefore, it is worth revisiting and understanding them today to propose a new face of them that will work for the Neoganthropocene.

### **How to map more-than-human care for landscapes in Aegean olive groves?**

**Efe Cengiz, Anne Beaulieu, Carol Garzon-Lopez**

University of Groningen, Campus Fryslân Netherlands

The futures of olive groves in Western Anatolia were already being imagined differently by actors whose methods, discourses, knowledge and care practices varied. With the escalation of climate change, the ongoing collapse of the Turkish economy, and sharpening socio-political divisions, the affective conflicts surrounding these landscapes only intensified. Radical, and at times contradictory, changes took place in these landscapes. These extreme shifts have potential negative consequences for the ecological networks and ecosystem functioning of landscapes, but characterizing these highly complex changes is difficult.

Mapping seems a logical step in documenting landscape shifts. Yet mapping is reliant on and constitutive of knowledge infrastructures that are neither transparent nor innocent. It is therefore crucial to interrogate the assumptions that enable mapping as a form of archiving (including standardisation, use of abstracting coordinate systems, commensurability), to understand whose interests maps serve and what is made in/visible.

In turn, maps can be mobilised as tools in further decisions about landscapes, carrying into those processes the values through which they are constituted. For example, when maps show hotspots of biodiversity or boundaries of ecosystems, they effectively link value and territory, and enable certain activities in particular locations for specific actors while disabling others. How to map without risking furthering extractivist dynamics?

We aim to produce an interactive, not-solely-cartographic map that will serve as an archive for the remembrance and critique of these changes, while also including subjugated and non-human olive knowledges. We will present our attempts to design and develop a mapping practice that would be inclusive of non-human interests as well as explicit about its assumptions. Inspired by the work of Anna Tsing and others, our ambition is to start to elaborate a mapping practice supported by a knowledge infrastructure that sets up a dialogue between the arts of noticing and techniques of calculation.

### **Extracting histories: The Repparfjord Case**

**Zane Datava**

NTNU, Norway

In the summer of 2021, I lived and researched in a tent camp with activists protesting establishing of a new copper extraction site in Northern Norway. Participatory observations and interviews with participants and visitors opened nuanced and moving histories of how and why the planned mining site would influence people locally and globally. Sami reindeer herders, climate activists, fishermen, cabin owners, and locals were coming and sharing their opinion. Kids of people who had heard stories around the dining table about their parent's involvement in Alta protests in the '70s - '80s against building a hydroelectric power plant were now participating in demonstrations against the construction of Repparfjord mining site and the dumping of mining residues in the fjord. The consequences of energy extraction were highlighted through the stories and histories of past events. Through the generations, people had to move and deal with water and soil pollution, infrastructural transformations, and geographical, physical, and intangible losses, such as denial of their ways of living and language.

Authorities and municipalities often justify energy extraction, and industries put forward the 'naturalness' of it, as it uses water, soil, or air to generate energy and the availability of nature. Looking through the lens of narratives of Finnmark's people, activists, and of industry actors, and histories of the green energy transition and ANT theory, more than human alternatives are whole life-worlds consisting of places, animals, fish, plants, water, soil, languages, stories, and location - names, deeply embedded in human lives, were revealed. The elements "making" nature are impossible to detangle, as one was tied to another. Every part sustains the whole, as opposed to the developers' assumption of nature as empty and infrastructure as maintaining the inevitability of it being used versus its worth as such.

### **Discourses about smart grid futures amidst contrasting present materialities: Between the global 'Helios' and the local 'Naeras'**

**Panagiotis Kazantzias<sup>1</sup>, Aristotle Tympas<sup>2</sup>**

<sup>1</sup>National and Kapodistrian University of Athens, Greece; <sup>2</sup>National and Kapodistrian University of Athens, Greece

Smart grids, to increasingly integrate AI and related technologies into energy transmission and distribution networks, are canonically presented as a key to sustainability. Positioned as it at the borders of Europe, Asia, and Africa, and defined by a

challenging geography that includes many remote island and mountain locations, the Greek electricity grid offers a unique case when it comes to approach this presentation critically. Many Greek locations have long been considered as ideal cases for the transition to sustainability through local grids. An emblematic project is the 'Naeras' one, on the island of Icaria, which combines wind and hydro power, and is based on local energy storage and an island-wide grid. At the same time, we find contrasting approaches that rely on the longest transmission possible, such as grandiose schemes for massive wind and solar energy installations for the generation of electricity that will be transmitted from Greece to Central/Northern Europe. A characteristic example is the project 'Helios', which was promoted in the early years of the Greek economic crisis as a realistic version of project 'Desertec', an extreme long-distance transmission of solar electricity from Africa to Europe. In contrast to 'Naeras' and other projects that perceive sustainability and renewability as connected to local grids, including the pioneering smart grid of the island of Tilos, 'Helios' and other projects of transmission that would be as long as possible, and would even be based on electricity generation through oil and gas extraction in Greece, rely, as we hope to show through our paper, on a very different (and in fact competing-contrasting) conception of grid smartness. Our empirical research is based on both the technical press and popular media.

## **Archives in the Making: Sensing the Past and Future through Climate Proxies**

### **Melissa Charenko**

Michigan State University, United States of America

Climate" defies easy definition. Anyone can observe or feel some aspects of the weather, but they can never experience the full temporal or spatial range that is climate. Climate is beyond human experiences. It must be mediated through instruments like thermometers, climate models, and organic and inorganic remains that respond to climatic conditions. With such varied ways to know climate, it is no wonder that observers have advanced competing ideas about climatic patterns. The myriad ways that people come to know climate has led to varied understandings of what climate is.

My paper focuses on how scientists and the public turned natural archives into comprehensive knowledge about climate. Those archives comprise material traces that indirectly track the climates of the past, such as sloth dung, packrat middens, fossil pollen, tree rings, algae, and air bubbles in ice. Together, these traces are known as "proxies." These natural recorders of climatic variability are ubiquitous in studies of climate since they are some of the only ways to determine climatic conditions over the vast stretches of Earth's history where no instrumental measurements or record-keeping exist. Earth's current warming would look "normal" without the long-tail of the past to put the current trends in context.

This paper examines how scientists and the public became sensitive to climatic change using proxies by showing how the material traces at the heart of climate science constrained and compelled what they thought about climate's past and future.

## Panel 7 - Session 2: Where's the 'intelligence' in AI? Mattering, Placing and De-individuating AI

*Time:* Wednesday, 28/June/2023: 5:00pm - 7:00pm · *Location:* Aula D

*Session Chair:* Ludovico Rella

*Session Chair:* Fabio Iapaolo

**Topics:** Technoscientific promises, imaginaries and expectations; Technofeminism and interspecies solidarities; Algorithmic knowledge, media ecologies and artificial intelligence; Ethics, innovation and responsibility in technoscience

**Keywords:** AI, Materiality, Hardware, Distributed Cognition, Individuality

This panel seeks to interrogate the multiple – and sometimes contradictory – world visions, political imaginaries, and social expectations underlying conceptualizations of the human and, by extension, AI. From Pygmalion to Ex Machina, one source of our perennial fascination with the thinking machine originates in the prospect it evokes that attributes deemed uniquely human – e.g., consciousness, intelligence, autonomous action – might be replicated in mediums other than the human body. In its historical attempt “to reproduce the quintessence of our humanity, our faculty for reason” (McCorduck, 2004, 4), AI research often and perhaps inevitably has incurred anthropocentric and anthropomorphic fallacies. This is particularly manifest in the scientific and cultural imagination of AI as discrete technologies operating in ways different from, yet fundamentally similar to, the sovereign human subject – as the repeated insistence on notions like autonomy, rationality, control, and decision-making attests to. With its tendency to abstract away embodiment from intelligence (Hayles, 1999), XX-century cybernetics paradoxically reinforced this imaginary, often by association with the liberal autonomous subject, whose sense of agency lies in Enlightened self-interest. This panel, conversely, aims to bring together novel perspectives precisely on the materiality and de-individuality of AI, to complicate and destabilize intuitions about how to understand our technologies and ourselves. Following Beatrice Fazi (2019, 821), if we are to “recast the metaphysical question of the nature of thought”, we need to move past the simulative paradigm where AI merely imitates human thought.

For that to happen, a re-apprehension of the specific corporeal and technological materialities of intelligence is necessary. While even for human intelligence the mind-body connection is fundamental to cognition, Machine Learning and AI systems are predicated upon a very different form of materiality and embodiment. Resembling more a kind of “infrastructural intelligence” (Bruder, 2017) comprising multimodal sensing capabilities, ground truth data, training datasets, Edge AI hardware, graphic card-powered datacentres, and emerging neuromorphic microchips, the materiality of AI is key to the problematization of individuality that this panel wishes to explore. Rather than insisting on the individual – whether human or machinic – as the sole locus of intelligence and the base unit of ethico-political concern, we embrace the provocation that intelligence is “distributed across human and technical agencies” (Amoore, 2019, 4), including the broader socio-computational spaces where their embodied interactions occur. As human and machine interpretative decisions become ever more closely intertwined, the crucial question arises of how to envision adequate ethico-political responses beyond the terms (and terminology) dictated by liberal individualism.

Conceived as an experimental venue for interdisciplinary encounters, this panel seeks contributions exploring themes including, but not limited to:

- Imaginaries of AI personhood and their hidden ideologies
- Affordances and limitations of machine intelligence
- Space and computation
- Law and AI
- Genealogies of ‘artificiality’, ‘agency’, and ‘subjectivity’
- Algorithmic knowledge production and (re-)conceptualizations of intelligence
- Embodiment in posthuman, post-colonial, feminist science, queer, and critical race studies
- New perspectives on human subjectivity and technical agency vis-à-vis advances in AI
- Sociotechnical assemblages and automated decision-making
- AI hardware accelerators, neuromorphic microchips, sensors, and Edge AI
- The materiality of algorithms and robotics

### Touching is Believing: Artificial Intelligence, Surgical Embodiment and Feeling

**Mary F.E. Ebeling<sup>1</sup>, Paolo Milani<sup>2</sup>**

<sup>1</sup>sociology, Drexel University, United States of America; <sup>2</sup>physics, Università degli studi di Milano

The use of AI in clinical systems—from databases to intraoperative video analysis—is increasingly central in surgical practice. AI supports evidence-based, real-time clinical decision-making to optimize patient care and surgical workflows (Hashimoto et

al. 2018). Many turn to AI for real-time surgical support. In this context, image-processing is crucial, however, the sense of touch is fundamental to surgical practice.

A team of surgeons, material scientists, physicists, radiologists, surgeons, AI, and 3D printers, construct organ models based on CT scans of patients. AI collaborates in the process of model building, used primarily to make the algorithmic translation faster. What AI is not capable of is to replicate the embodiment of the surgeon's touch.

In this paper we examine embodiment, and “feeling” in translational medical research. We consider the abstraction of bodies, the generation of “digital twins” that substitute human bodies with data, and through this, the creation of “haptic twins” in order to reproduce the “touch experience.” Contrasting against rationality and neutrality often attributed to AI (Crawford 2021), we account for the embodied intelligence in a surgeon's touch, used in collaboration with AI to build computer-based digital twins used to print 3D surgical models of organs. These models are validated through the fingers of surgeons who touch the models to ascertain if they “feel right”. Thus, a surgeon's embodied intelligence form part of the larger, embodied “intelligent network” across the laboratories that build these models. We consider the embodiment of medical screening data into “bodies” through the creation of 3D printed organs, and we elaborate on the sociotechnical consequences of these embodied and immaterial collaborations. Through these considerations, we theorize embodiment of feeling in medicine and the impossibility of AI to synthesize surgical expertise embodied in touch (Underman 2020; Prentice 2012).

### **Simulating operations: Managing (meaning in) autonomous vehicle crashes**

#### **Sam Hind**

University of Manchester, United Kingdom

Operational Research (OR) was a new managerial science designed to apply novel scientific methods and practice to industrial processes. Using some of the first electronic stored-program computers in the world, OR practitioners became pioneers of simulation programming. This work, pioneered by Stafford Beer, KD Tocher and others at the influential ‘Cybor House’ in the 1950s – the R&D department of British steelmakers United Steel – sought to offer an abstracted, ‘total’ environment in which different operational states, activities, and scenarios could be modelled and tested. Fast-forwarding to October 2020, Waymo lifted the lid on their autonomous vehicle operations in Phoenix, Arizona. In a 21-month period their vehicles had been involved in 47 so-called ‘contact events’, ranging from ‘sideswipes’ to ‘rear end’ collisions. Except only 18 actually happened. The remaining 29 were referred to as ‘simulated events’, predicted by Waymo’s own counterfactual calculations. In these cases, trained operators had assumed control before an actual incident had occurred, thus preventing any subsequent crash. In so doing, Waymo engineers would then run their own simulation(s) to determine whether a contact event would have happened. Generating these synthetic ‘what if’ scenarios constitute a central pillar of Waymo’s autonomous vehicle testing program. In this paper I explore the significance of these simulated events; both their technical operation as part of a suite of tasks performed by Waymo engineers, and their subsequent discursive mobilization by Waymo’s PR department. In this, I consider these simulations as not only devices designed to demonstrate Waymo’s ‘watertight’ safety protocols (in light of wavering public confidence), but also as ways to suspend, and ultimately manage, the meaning of crashes involving Waymo’s autonomous vehicles. Through the setting of virtual parameters in so-called ‘motion planning’, Waymo is able to engineer the knowledge of their vehicle’s decision-making qualities that is produced, projected, and validated.

### **Matter of Intelligence. The Technoscientific Production of Posthuman Sociality**

#### **Hannah Link, Herbert Kalthoff**

University of Mainz, Germany

Since robot technology seems omnipresent as a solution to many social problems, such as elderly care, childcare, or dangerous and physically demanding tasks in industry and the military, roboticists face a wide range of demands. Consequently, robotics operates with different concepts of so-called ‘artificial intelligence’ (AI). On the one hand, there are classical approaches that understand the mind as an isolated logical, machine-like entity that operates through mathematical calculations. On the other hand, this understanding is contrasted by more recent approaches that aim at decentering and embodiment of cognition. According to these approaches, intelligence emerges successively through the perceptive interactions of an embodied agent with its environment.

Based on ethnographic observations and interviews with roboticists, we aim to examine knowledge practices in robotic laboratories along with central concepts of artificial intelligence. Firstly, we propose a systematization of current AI concepts. This goes together with a discussion of the role of materiality in emerging fields of robotics (such as behavior-based robotics or soft robotics). Secondly, we argue that a technoscientific focus on decentralization and materialization of AI contains profound posthuman implications, such as disruption of the boundaries between matter and cognition, knowledges and distributed agencies. In new approaches of robotics, matter does not seem to be mastered by a powerful human subject

alone. Instead, we conceive it as an essential but dynamic and disruptive element in designing artificial intelligence. In this sense, matter is understood as an agent that takes part in the ongoing remaking of the world. Thirdly, we aim to elucidate how knowledge practices of these new fields of robotics contribute to specific rearrangements of the social.

## **Spatial Arrangements of, by, and through AI: From Code/Space to Spacecodes**

**Ludovico Rella**

Durham University, United Kingdom

Louise Amoore (2020) recently conceptualised AI algorithms as a generative spatial arrangement of propositions that allows to engage with the world experimentally: in AI all space is feature space because AI is geared towards apprehending the world as a spatially oriented collection of features assembled in feature matrices. This paper takes that spatial imagination forward and explores three different ways in which Artificial Intelligence can be apprehended spatially. First, as AI algorithms are more and more frequently deployed at the Edge, one must be attentive to the spatialities and materialities *of* AI training and inference. Second, space is generated *by* Artificial Intelligence as virtual spaces in Reinforcement Learning, or as latent space by generative graphic and language AI (GPT and DALL-E2). Third, the spatialities *of* and *by* AI influence and are influenced by novel apprehensions of space *through* AI: the so-called "manyfold hypothesis" in machine learning argues that space is a topological manifold that ML algorithms can unfold in ways unavailable to humans.

Through an analysis of computer science papers and interviews, this paper argues that understanding of artificial intelligence as spatial arrangements has important repercussion on how we conceptualize both space and AI. Kitchin and Dodge's concept of code/space stands for when "software and the spatiality of everyday life become mutually constituted, that is, produced through one another" (Kitchin and Dodge 2011, 16). While Kitchin and Dodge tend to focus on how software influences space, this paper argues that AI algorithms are spacecodes, i.e. forms of software that are always inherently spatial, always producing and inhabiting different spaces and topologies. In turn, in line with the aim of this panel, a spatial approach to AI can help us in decentring datacentres and deindividualizing AI, allowing to apprehend it as a spatially dispersed and internally multiple cognitive assemblage.

## **The politics of remediation**

**Rocco Bellanova<sup>1</sup>, Linda Monsees<sup>2</sup>**

<sup>1</sup>Vrije Universiteit Brussel, Belgium; <sup>2</sup>Institute of International Relations, Prague

This paper explores how specific digital materialities - of which AI and machine learning are made of - enact European politics. Empirically, we focus on databases and semiconductors. While often overlooked, these two things matter for any European policy and ambition grounded on the premise of novel forms of knowledge and intelligence generated by 'AI' and machine learning. That is, they are both the actual matter upon which AI and machine learning can eventually run, and their mere existence, availability and governance are among the conditions of possibility of AI and machine learning. Leveraging on the notion of 'remediation' (Bolter & Grusin 2000, 5), we unearth the double movement by which "our culture wants both to multiply its media and to erase all traces of mediation." By foregrounding databases and semiconductors - we argue - we can thus gain a critical vantage point on what we can call the 'political ontologies' of AI and machine learning. Supplementing ongoing debates concerning the nature of algorithmic intelligence and knowledge, we insist on the importance to study how the digital materialities that AI and machine learning rely on already create political ontologies - be they novel forms of supranational integration or asymmetric relations among diverse actors. For example, in the empirical explorations we propose, we discuss how much database interoperability risks obscuring how marginalized people's data become sources for novel algorithmic practices. And the focus on achieving autonomy in semiconductors' production obscures how the chip industry ultimately not only underpins all other infrastructures, but it also affects European supranational integration.

## **Geopolitics and Artificial Intelligence. Power between technological topography and information topology**

**Francesco Barbaro**

Sapienza Università di Roma, Italy

Artificial Intelligence (AI) gives rise to a space dense with political implications. At a first level, it takes the form of a geography composed of heterogeneous elements: tangible and intangible resources, research and development centers, high-tech companies with their headquarters and production sites, masses of users handing over their data to machine learning, governments and non-state actors interested in obtaining and exercising the power that comes from AI itself.

Yet, data serving as inputs to "intelligent" processes and information-based applications constituting their many possible outputs both generate a political space that represents a second level irreducible to the first one: indeed, their use in competition and conflict, at different scales, does not take place according to the usual criteria of distance and

territorialization of physical spaces but rather opens up scenarios consisting of new forms, connections and relative positions of power.

That said, a challenging question arises: in the context of AI, where does power lie? In the control of its topographic level, by overtaking adversaries in the race for AI-based technologies? Or in the strategic use of its topologic level, that is, of an information space that is both distributed and interconnected but in any case such as to decisively condition traditional political spaces?

The question calls for an approach that accounts for the complexity underlying AI: at both levels, in fact, the significance of space is highlighted by the tension between the functional necessity of interconnections and dynamics of competition and conflict with strongly territorialized and securitized features.

The geopolitics of AI will be investigated by resorting to analysis of the actors and other elements involved, but more importantly their spatialities, prompting a deeper reflection on power between technological topography and information topology.



## Panel 25: Interesting failures to come: history, actors, and scenarios in unsuccessful digital technologies projects

*Time:* Wednesday, 28/June/2023: 5:00pm - 7:00pm · *Location:* Aula Unione 1

*Session Chair:* Olga Usachova

*Session Chair:* Ginevra Sanvitale

*Session Chair:* Paul Edwards

**Topics:** Technoscientific promises, imaginaries and expectations; Innovation imaginaries, practices and policies

**Keywords:** digital technologies failure, unsuccessful technological development, maintenance and repair, consequences of tech failure, failure acceptance

For a long time innovation in the development of digital technologies has been portrayed only from the successful side. In contrast, the recent review emphasizes that “innovation projects [that] failed either completely or partly range from 40 to 90%” (Rhaiem & Amara, 2021). Unsuccessful digital technologies project development has been addressed from different fields, such as government information system (Pelizza & Hoppe, 2015), digital media (Magaudda & Balbi, 2018), organizational management of ICT project implementation (Ungerer, 2021), the environmental history of technology (Jones-Imhotep, 2017), the history of telecommunications (Lipartito, 2003). This evidence shows how failure is an unavoidable and multifaceted process in the development of digital technologies.

Designing interesting worlds to come thus also implies expecting interesting failures to happen. And learning from past and present technology failure is a crucial step to future success in addressing the more-than-human challenges ahead of us. This panel will focus on two connected aspects of digital technologies failure. On the one hand, we discuss the controversies in current developments of digital technologies, drawing attention to the so-called unsuccessful development. On the other hand, we are interested in historicizing failure in the development of digital technologies, looking into both exceptional and recurring cases of digital technologies failures across time. We envision digital technologies failure as a societal, technological and political construct, typically resulting from the interaction of multiple human and non-human actors. digital technologies failure is therefore also a pointer to failures in our relationship with the natural environment, in our societal order and norms, in our technopolitical arrangements.

We invite submissions from science and technology studies, history of science and technology, and other related disciplines that address the following questions (but not limited to):

- How can we define “failure” in digital technologies? What is the role of non-human actors in existing conceptualizations of digital technologies failure? How can discourses and practices in different contexts contribute to the definition of digital technologies?
- What is the role of maintenance and repair practices in digital technologies failure? Which more-than-human alliances are implied by these practices? What is the relationship between digital technologies failure, more-than-human-challenges, and repair and maintenance practices?
- What conditions underlie the institutional acceptance of technology failure? Why do some digital technologies failures receive more public attention than others? How do processes of accountability work in publicly-funded failed digital technologies projects?
- What are historical and contemporary examples that address learning from digital technologies project failure? How are these learnings recorded and transmitted (but also forgotten and omitted) over time?
- What is the relationship between digital technologies failures and the promises sustaining the implementation and diffusion of these technologies? Can technology promises be understood as a counterpart of technology failures? How do past technology failures inform future technology promises?

### Technoscience, Self-Help and the Contours of Productive Failure

**Debbie Lisle**

Queen's University Belfast, United Kingdom

This paper offers a genealogy of productive failure: the widely accepted consensus in Late Capitalism that failure is something we *learn* from. Operating across various modes of governance (e.g. policy-making, popular culture, finance, development, healthcare, education), failure has been repurposed as a fundamental learning opportunity that not only drives innovation, creativity and profit, but also delivers happiness. Building on Halberstam's (2011) concept of toxic positivity, this paper offers a genealogy of productive failure through its specific origins in Neoliberal self-help and post-war technoscientific failure analysis (e.g. FMECA & RCA). Here, failure can only ever be a phenomenological problem of personal experience that is 'cured' by the templates of self-help, or a technical problem of systemic collapse that can be dissected and 'solved' through preventive risk-analysis. This paper critiques the normative infrastructure sustaining the marriage of self-help and technoscience, with particular emphasis on its pathway of redemption + prevention. Drawing on concepts within

Queer Theory, Disability Studies and Afropessimism, the paper reconfigures failure as an unruly beast that cannot be 'scaled' to individual or systemic registers. Instead, we need to think in collaboration with those non-conforming bodies that inhabit failure's radical contingency, adjust their everyday lives to failure's unruly circulations, and refuse to be redeemed by inducements to productivity.

## **Back in the kitchen! Failed gendered labor promises in automated food processing**

**Ginevra Sanvitale**

Trinity College Dublin, Ireland

Food processing, whether in the household or in the factory, is often performed by women, considered a low-skilled job, and a prime target for digital automation. Digital automation in food processing is associated with promises of improved work conditions, increased gender equality, and more time for leisure activities. However, these promises are seldom fulfilled. This paper investigates failed gendered labor promises in automated food processing. Building on insights from the history of technology, labor history and women's history, and on contemporary automation projects in the food processing industry, I contribute to develop an Intersectional Feminist understanding of the promise/failure dichotomy within digital automation of food processing. Food processing technologies in the household have historically failed to ease housewives' care duties (Schwartz Cowan 1983). Similarly, promises of improved work conditions have failed to materialize for women workers in industrial food processing (Gray 2014). Investigating automated food processing through the lenses of intersectionality highlights how 1) different sites of automation (the kitchen and the factory) are strictly interconnected symbolically and materially; and how 2) failed gendered labor promises in food processing are informed by conservative societal norms and technopolitical arrangements. In order to function, automated food processing in the kitchen needs automated food processing in the factory, and vice versa, forming a multi-sited entanglement of (women) workers and machines. This entanglement might foster technological innovation, but does not necessarily foster societal change. The future's kitchen, from the American Cold War kitchen (Oldenziel and Zachmann 2009) to contemporary anthropomorphic kitchen robots (Treusch 2015), has been modeled after the needs of a traditional nuclear family in the Global North. The future's factory, as envisioned in Fourth Industrial Revolution literature, privileges organizational and economic outcomes over human well-being (Melville et al. 2022), not differently from yesterday's industrial production (Gray 2014).

## **Successful Losers. Failed and losing technologies which have been crucial in the creation of the Web**

**Martin Fomasi, Gabriele Balbi**

Università della Svizzera Italiana, Switzerland

The scientific literature on the relevance and role of failures in analogue and digital communications is increasing (Lipartito 2003, Magaouda & Balbi 2018; Ames 2019). Even in the subfield of Internet history, the role of failures has been put at the center: studying failures in web history have been considered heuristically more and more relevant (Draper 2017), as for example digital platforms can die, decline and ultimately disappear (McCammon & Lingel 2022). This paper aims to reframe the concept of failure and, consequently, of success focusing on the technological history of the Web. As Niels Kerssens (2020) has already underlined in the case of Euronet, every seemingly failure has a legacy and, with this paper, we aim to follow his research agenda.

In the decades before the "invention" of the World Wide Web, released in the public domain in 1993, several competing hyperlink technologies promising similar task of the Web like Xanadu and Grif were designed and marked the development of the web before "disappearing". In the same period, other non-hypertextual information retrieval technologies allowing access to a large amount of data like Gopher, Archie and FTP archives emerged. All of them progressively converged into the Web providing an initial expansion of the available data and, even if they still exist, are now minoritarian compared to the Web.

With historical research digging into the CERN archives and through interviews with Web developers in the 1980s and 1990s, the paper focuses on the tools and services which have been disappeared over time, but later played a relevant role in making the Web a global success. Theoretically, this case study may help rethinking the legacies of losing and apparently failed technologies, towards a more complicated relationships of success and failures.

## **Failure vs. sustainability of digital platforms for refugees**

**Olga Usachova**

University of Padova, Italy

Since the "long-summer of migration" in 2015-2016 in Europe (Römhild et al., 2018), two social phenomena have intensified massively. One is the mobility of people fleeing military conflicts and wars to Europe and the other is the response to it of the local governments and volunteer initiatives. For the purpose of this paper, we concentrate our attention on the confluence of

the response by municipalities that adopted digital artefacts as information sources for refugees and digital initiatives that offered such artefacts. Namely, I focus on the digital platforms for refugees in Germany. In contrast, acknowledging the information deficit that “impedes the efficacy” (Schrieck et al., 2016) of collaboration between governments, non-profit initiatives, and volunteers, such information platforms often substitute the local government information services for refugees and migrants.

This paper examines the relation between (non-)use practices and failure vs. sustainability of information systems for refugees and migrants governed by third parties. I reflect on the affordances of such information systems in a broader discussion of the digital transformation of public services on the municipal level.

Drawing on the ethnographic fieldwork in Germany, tracing the actor-network of digital platforms for refugees, it became evident that many activities of municipalities concerning IT governance implementation are given to external IT service providers where municipality officers are “devoid of the skills and competencies” (Mergel, 2021) play rather a role of the guardians for digital innovation. As such, I concentrate on the aspect of failure vs. sustainability of such information platforms for refugees and migrants by bringing attention to the practices of use affected by the practices of platform implementation.

### **Fearing failures as a driver for design. The case of digital contact tracing apps: promises, implementations, and learning**

**Céline Cholez<sup>1</sup>, Nicolas Baya-Lafitte<sup>2</sup>**

<sup>1</sup>Grenoble-Alps University, France; <sup>2</sup>UNIGE, Switzerland

In the spring of 2020, the public authorities of more than 40 countries around the world placed their hopes in digitalized Covid-19 contact tracing via mobile application solutions – a digital technology development promising to alleviate manual contact tracing, encourage individual contacts-cases to get tested and confined, and thereby curb the contagion to facilitate a return to the normal. The realization of such promises was based on a script in which different actors, human and non-human had a role to play. Considering that adoption by a critical mass of users was essential for digital contact tracing to be effective, two major issues were promptly identified by the different design teams: the reluctance from citizens worried about their privacy and the technical opacity of private mobile telephone operators, whose systems could “kill the apps”.

We examine in this paper how different countries have implemented their respective solutions with respect to these potential failures (Vinck, 2017). We draw insights from comparing cases: France, Switzerland, Japan, and Colorado in the US. In this light, we depict how the promises to enroll actors were problematized, focusing on the consequences of valuing resistance and non-adoption and design and implementation misalignments. We unfold how the perspective of these two obstacles has determined the design strategies in technical (centralized/decentralized systems – monitoring and maintenance competencies), organizational (public/private - local/national service provider), and functional (services offered) terms, and how finally, this led to losing sight the promise of epidemic efficiency. We associate the different responses in this “fears-of-failure” driven design to deep differences in the health systems' digital culture, digital sovereignty stakes, and territorial/organizational lack of coordination.

### **Searching for Failures in the Smart City**

**Burcu Baykurt**

University of Massachusetts Amherst, United States of America

Every smart pilot, one way or another, fails to deliver on its initial promises. This so-called failure of smartness is sometimes spectacular and receives public attention. More often, however, it is slow, quiet, and barely noticeable to residents. This paper draws on five years of multi-sited ethnographic fieldwork in an aspiring smart city in the U.S. Midwest, in which the local government partnered with Google, Cisco, and Sprint and launched a series of “smart” pilots. The city’s “smart city” experiment was launched in 2015 with great fanfare. After two years of constructing smart technologies downtown and then trying to figure out how to make these new systems work for the city, it turned out that these smart pilots were less useful than originally imagined. In early 2020 the smart city project was quietly ended in the city, and there was no specific accountability for what was learned from these pilots. Using this case study, the paper examines the strategies that public and private stakeholders (i.e., municipal agencies, local entrepreneurial community, tech companies, and engaged residential groups) use to recast the smart city pilot as a *non-failure*. Juxtaposing the overall narrative of the smart city pilot (that it is not a failure) with the everyday failures of various smart technologies during the pilot, this paper aims to theorize how the mundane failures of smartness are decoupled from the failure of a smart city.

## **(Don't) keep on pretending – conditions and constraints for 'successfully' failing technology projects.**

**Stefan Gaillard<sup>2</sup>, Maximilian Roßmann<sup>1</sup>**

<sup>1</sup>Maastricht University (UM), The Netherlands; <sup>2</sup>Radboud-Universiteit Nijmegen (RU), The Netherlands

Typically, people label technology projects as failed when technologies don't meet their promises, timeframes, or requirements. What constitutes a failure, however, changes when altering the goal, for example by pointing to secondary findings, such as, collaborations evolved with the organization's new visibility from working on grand challenges, or the acquisition of employees and funding. If these secondary goals are taken as the yardstick, the question arises of how and to what extent one can and should keep on pretending the success of failing technology projects to still meet these goals. This presentation will show how overstating the certainty or relevance of facts constitutes the danger of hype and "imaginative illusions" (Kind 2016) that can turn the aspiration of secondary goals into the opposite and jeopardizes health decisions, investments, and trust in science.

Most prominently, studies in the economic sociology suggested that many future-oriented practices do not aim to factually realize a product but instead manipulate the value of research assets (Birch 2017). The sociology of expectation highlights a coordination function, as stakeholders mutually observe and adjust their projected actions (Borup et al. 2006). Hermeneutic Technology Assessment (Grunwald 2020) understands visionary communication as relevant medium for social debates about technology related values and virtues. And finally, the philosophy of imagination discussed how constraining the imagination allows learning (Kind 2016).

This presentation merges and extends the ongoing debates by distinguishing goals of pretense practices and discussing practical constraints for their success. It will discuss four visionary functions (Lösch et al. 2017) as standards to which visions can 'fail'. Next, examining different 3D printing visions as make-believe (Roßmann 2021, Roßmann et al. 2021) will illustrate and explain how visions respond to the discourse about reality and how the concealment of uncertainties or facts carried the risk of hype, "imaginative illusions," and malicious consequences.

## Panel 15 - Session 2: Boundary struggles: truth, interest and epistemic authority in a changing world

*Time:* Wednesday, 28/June/2023: 5:00pm - 7:00pm · *Location:* Aula Unione 2

*Session Chair:* Luigi Pellizzoni

*Session Chair:* Giuseppe Tiplado

*Session Chair:* Barbara Sena

**Topics:** The value of science, technology, innovation and research practices

**Keywords:** boundary struggles, truth, epistemic authority, technoscientific conflict, conflicts of interest

Although debated for a long time, the demarcation between expert knowledge and common sense has seen an evolution linked to social and technological changes in recent years.

The tension between conflicting dynamics of i) evidence-based policy making, ii) digital platformization of everyday life and news consumption and iii) the progressive loss of relevance of factual evidence in both public opinion forming and decision-making processes [a reconstruction of a quite turbulent debate is provided by Pellizzoni 2019] not only (re)brings to the fore the debate on the demarcation of epistemic authority [Gieryn 1983], but also requires that the issue be addressed taking into account the changing political, technological and social context.

The topic of health protection in emergency conditions, for instance, has become an issue on which ordinary citizens now feel they can actively intervene, making a useful contribution [Collins e Evans 2002: 236]. From another point of view, the increasing production of Big Data in medicine and science is transforming global healthcare and patient participation, by replacing the traditional expert knowledge with impersonal “expert systems [Dash et al. 2019]. It should also be noted how the “positioned” nature of “expert” viewpoints, not only outside, but also within so-called “official” or “orthodox” science, has become increasingly salient. Some of the most recent conflictual instances of public relevance – not only the Covid-19 pandemic, but also the conflict in Ukraine and the climate emergency – have in fact made evident that the (un?)deliberate confusion between the figure of the scientist (generalisable but perfectible knowledge) and that of the expert (contextual but effective knowledge with respect to the problem) creates insidious short-circuits between the request for reliance and the discharge of responsibility.

Even though the topic of “post-truth” seems to have lost momentum, what the expression implies has by no means waned in importance, with a shift from the classic “archetypal” conception of “truth” to a “prototypical” conception [Nordmann 2017].

Given the context above, submissions are solicited on, among others, the following themes:

1. epistemic struggles as conflicts of interests and boundary demarcation within the «orthodox» scientific community or between «official» scientific knowledge and alternatives;
2. relevant discoveries in the construction of the “expert” and “counter-expert”;
3. the symmetry postulate: its potentialities, and possible side effects (e.g. false balance, relativism, science-related populism, etc.).
4. truth, post-truth and competing understandings of truth in the debate over the societal diffusion of technoscience, and its unintended and unpredicted socio-ecological “side effects”;
5. the contrast between “expert” and Big Data knowledge in determining citizens and patients decision-making process in science related issues.

### References

Collins, Evans, 2002 3rd wave of science studies, in «Social studies of science», 32

Dash, Shakyawar, Sharma, Kaushik, 2019 Big data in healthcare, in «Journal of Big Data», 6

Gieryn, 1983 Boundary-work and the demarcation of science from non-science, in «American sociological review»

Nordmann, 2017 Vanishing friction events and the inverted Platonism of technoscience, Routledge

Pellizzoni, 2019 Innocent, Guilty or Reluctant Midwife? On the Reciprocal Relevance of STS and Post-truth, in «TECNOSCIENZA», 10

### From an STS perspective: An analysis of a recurring phrase in academic writing about science, technology, and society

**Michiel van Oudheusden<sup>1</sup>, Danielle Shanley<sup>2</sup>, Fabien Medvecky<sup>3</sup>**

<sup>1</sup>Athena VU Amsterdam, Netherlands, The; <sup>2</sup>Maastricht University, Netherlands, The; <sup>3</sup>University of Otago, New Zealand

Science and Technology Studies (STS) is a vast, interdisciplinary playground that invites diverse explorations of science, technology, and society relations. Despite this vastness, numerous authors in STS use a single phrase – “From an STS perspective” – when writing for peers and broader audiences. To claim “an STS perspective” suggests that there is some specific coherent, cohesive, and delineating perspective within STS. This claim seems to clash with the ideals of openness and

multiplicity, which are taken as being central to STS scholarship. Taking this tension between singularity and plurality as its entry point, this paper examines how STS scholars recurrently use the term “STS perspective” in STS journal articles, STS handbooks, and STS conference abstracts over the past ten years. It considers two questions: 1) Does a close examination of the phrase give us a better sense of what STS means to STS scholars? 2) What does the phrase accomplish rhetorically, for instance in terms of signaling membership of a research community? The paper seeks to sensitize STS researchers to how they draw intellectual boundaries around STS and the rhetorical moves they make as scholars and writers – whether deliberately or inadvertently. It argues that the phrase “From an STS perspective” and variations of it, can be enabling of different articulations of STS. However, such phrases become meaningless tropes that risk excluding various perspectives (both STS and non-STS) from the conversation if its authors do not give some indication of what they mean.

## **From outpatient clinic to health policy, an ethnography of data**

### **Matteo Valoncini**

Alma Mater Studiorum University of Bologna, Italy

Facing the impact of Covid-19, Italy's healthcare services have massively accelerated the introduction of digital practices. Within a fragmented healthcare system driven by health emergencies such transformations attracted interests of private and non-private actors, transforming the territorial services without clear guidance. To date, the epistemic reliance placed on "numbers" has been the basis for the Local Health Authority (LHA) to make decisions about the management of citizens' health. Thus, LHA governance is guided by analyzing digitalized information flows from the territory to the region. Through the analysis of these data packages, the LHA makes decisions about which resources to allocate. For this purpose, the area of Information Communication Technology (ICT) is crucial. However, a focus that is limited to the technical functioning of software and hardware is not sufficient to fully understand the process. Understanding how the data packages that LHA uses for governance are constructed is critical not only at the epistemological level but also represents a challenge on how social studies of the sciences can be configured as a useful tool for policymaking. Actually, data collection occurs through a network of human and non-human actors which isn't impartial or neutral. Specifically, I want to analyze the preliminary results of an ethnography carried out in a general practitioner (GP) outpatient clinic. These results show how digital technologies are assisting the day-to-day activity of GP; however, they appear to offer little information on “health” per se. In fact, the information flows in which the GP takes part affect not only the GP's work but also his or her clinical choices. Indeed, a continuous trade-off occurs between what the network of human and nonhuman actors can do, between what the software enables and what financial accounting rewards or discourages.

## **Governing Regulatory Science: institutional divergence and epistemic authorities in the Glyphosate case**

### **Alice Livingston Ortolani**

Science Policy Research Unit - University of Sussex, United Kingdom

What happens when epistemic authorities are challenged using their own methods? I use the case of the risk assessment of the herbicide glyphosate to gain an enriched understanding of epistemic struggles that exist within scientific communities and the changing nature of controversies in science-based policy. The case highlighted the unique challenge posed by the contrasting conclusions of the International Agency for Research on Cancer (WHO/IARC) compared to the USA/EU national risk assessments. As an international organisation, IARC could not be accused of promoting national interests and its authoritative status could not be easily dismissed. Discussions amongst opposing parties then focussed on issues of scientific relevance, methods and practices and experts' conflict of interests on both sides, and has reached a wide audience, destabilising the decision-making process. Data came from documentary sources, including legal-discovery documents and scientific literature to develop interim hypotheses tested through semi-structured interviews with scientists, experts from regulatory institutions and members of civil society organisations. Findings suggest that orthodox techno-scientific approaches within the USA and EU authorities, and differential institutional access, undermined the influence of all types of stakeholders as experts, except for the pesticide industry. The latter have formed an influential epistemic community together with agencies' experts that defended their expertise and practices as “sound”: official science, rather than the “*best available science*”, and financial inequalities were part of the systemic asymmetry in the dispute. Although EU legislation includes a provision for alternative practices and knowledge, an institutional vacuum for alternative approaches left stakeholders without effective access to governance processes, many of whom have temporarily converged around IARC. Building on social theory of risk, post-normal science and other STS literature, I conclude that we need not assume the objectivity of incumbent experts, and instead explore how to create better governance arrangements for complex and uncertain science-based policy.

## Settling Truth Claims through Animal-Technology-Interaction: The Case of REST

**Bettina Paul<sup>1</sup>, Larissa Fischer<sup>2</sup>, Torsten Voigt<sup>2</sup>**

<sup>1</sup>Universität Hamburg, Germany; <sup>2</sup>RWTH Aachen University

Explosive Detection Dog Teams (EDDT) are a vital but also highly contested part of aviation security practices. In the case of the so called "remote explosive scent tracing" (REST), the non-human animals and their handler are integrated into a standardized scenario, where the dog smells possible threat-posing-samples under controlled lab-conditions. This specific triad of human, technological and animal enactment can be read as strategy to operationalize and validate a practice that is critically scrutinized.

Based on insights from participant observations, interviews, and document analyses, on more-than-human sensing practices at airports, the paper will demonstrate how the access to non-human modes of sensation is conceptualized and standardized through a socio-technical environment. Using the example of REST, the paper addresses specific enactments of non-knowledge (Aradau 2017), when it comes to what human beings can (not) know about the olfactory differentiation of the dog, in contributing to the epistemic authority in security practices. We thereby ask whether a conceptual distinction of each entity is implicated in the interaction or is contested (Lynch/Collins 1998). In exploring the nexus of human perception and non-human (animal and machine) sensing, the paper will contribute to the question of how non-knowledge shapes the more-than-human practice in a field of competing truth claims.

Aradau, Claudia (2017) Assembling (Non)Knowledge: Security, Law, and Surveillance in a Digital World. *International Political Sociology*, 11, 327-342.

Lynch, M., & Collins, H. M. (1998) Introduction: Humans, Animals, and Machines. *Science, Technology, & Human Values*, 23(4), 371-383.

## Sliding doors:refused knowledge as another way of making science at its boundaries

**Maria Carmela Agodi**

University of Naples Federico II, Italy

Assuming the point of view of the social worlds of refused knowledge (RK), their claims and practices are not anti-scientific. According to their perspective, the current boundaries of science are the result of a contingent closure of the institutional arenas where knowledge is given credibility and legitimacy, that might have been different than it is and can be overturned in a possible future. Thus, for example, it does happen that some of their claims have passed through the gatekeepers of institutionalized science. At the boundaries of it, they continue to circulate, find followers and new supporters.

This contribution aims at analyzing the process through which the social worlds supporting the health properties of alkaline water and diet achieve resilience and bestow legitimacy:

- a) by identifying and weakening enemies;
- b) by enrolling allies.

From an internal point of view, the "enemies" of the RK supporters can be labeled either as counter-experts or as *deviant* scientists, being active within large networks (composed by institutional scientific communities, governmental bodies and biomedical industries), kept together by non-scientific interests and acting against the ethos of science and the general society. Allies are enrolled either as experts - sometimes crossing the boundaries of science - or as parts of possible new assemblages fighting together in a larger arena in the name of individual's health and freedom; or, further, as implicated actors - depicted as potential beneficiaries of their knowledge claims and practices and/or victims of their enemies and the social order they support.

These constitutive processes were especially activated during the pandemic time, when they converged in the constitution of a broader arena encompassing different social worlds in contesting prevalent scientific consensus and the social regulation of the emergency

## The Covid-19 Pandemic and The 'Public' Authority of the Experts: How to rely on experts when there's none

**Daniela Chironi, Riccardo Emilio Chesta**

Scuola Normale Superiore, Italy

Since the beginning, the Covid-19 Pandemic has posed a big dilemma for the social studies of expertise. While expert knowledge is a key resource to understand and solve the health crisis, which expert advice is more reliable than others? If the virus is unknown, what's the most relevant scientific expertise to rely on? The picture is even more complicated if we focus on the way some experts became public authorities, navigating both the traditional media (newspapers, tv) and new



online social media. This presentation is based on an intensive fieldwork conducted in Italy through in-depth interviews and focus groups with a variety of doctors, epidemiologists and scientific communicators. It highlights two key aspects:

1. how in a situation of high uncertainty the media have played a key role in conferring a public authority to specific scientific actors rather than others;
2. how the presence/absence of strong public institutions of public understanding of science can play a role in producing a public culture of authoritative expertise

Preliminary results suggest a quite critical picture. The public authority of experts during the Covid-19 crisis seems to be mainly affected by 1. the absence of a public institutional setting favoring a democratic understanding/communication of science, 2. the prevalent commercial logics of communication dominating the media favoring sensationalism and polarization.

## **Who Holds Epistemic Authority in Participatory Governance Structures? About Moments of Crisis and Their Stabilisation**

### **Gereon Rahnfeld**

Bauhaus-Universität Weimar, Germany

An emerging social technology in governance structures is the citizens' assembly (Voss, 2016). It was used for example during the 'Conference on the Future of Europe', which ended in 2022. The aim of this participatory format is to bring citizens together and provide them with the opportunity to debate specific political questions. Subsequently, they formulate recommendations which they hand over to politicians, who might implement them. However, citizens' assemblies are not only attended by citizens, but also by experts (systems). Their task is to provide the citizens with a knowledge base for the discussion. This raises the question of how experts operate as part of democracy (Holst et al., 2023) How are they integrated in social technologies that should support democratic decision-making? If there are not only citizens but also experts involved, who is it that dominates the knowledge created by citizens' assemblies?

In my presentation I would like to approach this question from the angle of the concept of 'epistemic authority'. If citizens' assemblies are supposed to provide citizens with the authority to come up with policy recommendations, how can the inclusion of experts be judged with regard to this very authority? As an answer to this question, I will present parts of my research findings concerning the citizens' assembly 'Germany's Role in the World' (2021). Here I would like to focus on the moments where the distribution of epistemic authority is in limbo and a struggle for epistemic authority takes place. Against this background I would like to elaborate on some operations of what could be called boundary work (Gieryn, 1983) as for example the creation of consent (Oreskes, 2021) as well as the technique of stage management (Hilgartner, 2000) in order to comment on how epistemic authority is stabilised within these changing social technologies of governance.



## Panel 37 - Session 2: Interesting participatory processes in science, technology and innovation: conditions, challenges and prospects for bottom-up innovation

*Time:* Wednesday, 28/June/2023: 5:00pm - 7:00pm · *Location:* Aula Unione 3

*Session Chair:* Simone Araldi

*Session Chair:* Stefano Crabu

*Session Chair:* Paolo Magaudda

**Topics:** Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation

**Keywords:** co-creation, bottom-up innovation, participation, open science

In recent decades, participatory models of technoscientific innovations have garnered more and more attention both in academia and practice. In particular, a broad array of concepts has been introduced to describe bottom-up processes taking place outside institutional R&D settings and involving a broad range of social actors, such as citizens and end-users. Examples of these notions include but are not limited to: “deliberative” and “participatory” public engagement (Burgess 2014), co-creation (Voorber et al. 2014), user-driven innovation (Franke et al. 2016), research in the wild (Callon and Rabeharisoa 2003), Responsible Research and Innovation (RRI) (von Schomberg 2013) and Open Science (Levin and Leonelli 2017). Despite their differences, all these emerging notions share an emphasis on participation as a condition to align technoscientific developments with the values, expectations and needs of concerned communities and stakeholders.

Yet, existing assessments of these experiences highlight the difficulty to set up interesting processes that are capable to engage and coalesce social actors and ensure long term sustainability, efficacy, effectiveness, and transferability. Issues such as unequal power distribution among participants, lack of reflection and reflexivity, insufficient support from regulators and the scientific community, all seem to contradict the expectation that bottom-up innovation can change dominant institutions and policies for better aligning technoscientific practices and social needs.

The panel welcomes theoretical, empirical, and methodological contributions by STS scholars, social scientists and practitioners exploring the interesting processes that underpin these participatory experiments in science, technology and innovation. The overall goal of the panel is to map and examine the features of these alternative forms of innovation, as well as the conditions enabling them to gain further ground.

### Oncogene-focused advocacy: fighting cancer with social media

**Madeleine Akrich<sup>2</sup>, Pascale Bourret<sup>1</sup>, Alberto Cambrosio<sup>4</sup>, Jean-Philippe Cointet<sup>3</sup>, Aymeric Luneau<sup>3</sup>**

<sup>1</sup>Aix Marseille Université, SESSTIM, France; <sup>2</sup>CSI Mines ParisTech, France; <sup>3</sup>medialab SciencesPo Paris, France; <sup>4</sup>McGill University, Canada

In recent years, STS scholars have analyzed the emergence of a novel kind of patient group characterized by a “partnership model” and “evidence-based activism” (Akrich, Rabeharisoa, Callon). The present contribution builds on this line of work by focusing on the emergence of cancer patient groups such as ROS1 ders, EGFR Resisters, and ALK-positive, whose identity is grounded in sharing a particular genomic variant within or across different types of cancer. We examine how these groups have established close links with oncologists, leading to the establishment of distinctive forms of biomedical innovation. Given the rarity of some molecularly defined cancers, these groups often have members from different countries and continents and resort to social media to develop their activities both at the national and international levels. Our investigation resorted to qualitative and quantitative approaches. Using a standardized list of hashtags, i.e., “[type of cancer]sm” (e.g., #bcsm for breast cancer social media, etc.), we created a database of tweets. We used a supervised learning approach to classify the source of tweets as originating from patient groups, oncologists, media organizations, and the industry. In addition to characterizing the dynamics of these groups (retweets, replies, chats), we explored the content of tweets through their semantic embedding. In parallel, we interviewed several patient advocates and oncologists who are particularly active on social media. According to our preliminary results, oncogene-focused patient groups self-define as research advocates, their activities evolving in parallel with the evolving understanding of cancer(s). As recognized components of the precision oncology collective, they accelerate research on their own diseases and circulate information via hybrid networks. They contribute to establishing the required infrastructure (e.g., cell-lines, patient-derived xenografts, and real-world data) and design collaborative research projects for developing and testing new drugs.

## **An inter-stakeholder dialogue to tackle social barriers to health: collaborative innovation in contexts of socioeconomic deprivation**

**Ilaria Galasso**

Independent Resaercher, Italy

This paper scrutinizes collaborative approaches to equitable innovation in contexts of extreme socioeconomic deprivation.

In the article "Bounded Justice", Melissa Creary (2021) argues that public health inclusivity attempts to bring vulnerable people 'at the table' have limited reach if deep-rooted structural inequalities are not adequately addressed. This paper adopts a 'bounded justice framework' to scrutinize the opportunities and challenges for collaborative inclusive innovation in relation to barriers to health in contexts of socioeconomic deprivation, with specific focus on migrant and homeless people.

This paper learns from but also adds to studies embracing collaborative or community engagement approaches while interfacing with the health of vulnerable groups (eg: Pratt 2020). The originality of this paper is that it not only proposes a collaborative approach between the researcher and the informants from deprived environments, but also direct collaboration between the informants and the medical and political representatives who can respond to their needs.

Direct consultation of socioeconomically deprived migrants and homeless, as the people most exposed to the social determinants of health (Marmot and Wilkinson 1999), can help identify specific and actionable socioeconomic barriers to health. I argue that ethnographic research is the appropriate first step for effective consultation of these people, as it allows to first-hand explore their everyday lived experience, and it incorporates time for developing trusting relationships with them (Hammersley and Atkinson 2007).

The second critical step I examine, is an inter-stakeholder dialogue. Once relationships are consolidated, and specific barriers to health are identified, I propose to jointly engage the socioeconomically deprived people affected by these barriers, together with the people who have the power to act on them: local medical and political authorities.

I argue that, with appropriate information and mediation, these three categories together can plan and implement concrete and feasible steps to mitigate socioeconomic barriers to health.

## **Contested/contesting responsibilities in the bottom-up development of biomedical wearable technologies**

**Lorenzo Urbano**

Politecnico di Milano, Italy

In recent years, the use of wearable technologies for health and wellness has become more and more common, with both dedicated "smart" devices, like glucose sensors, and health-related functions of more generalist devices, such as fitness trackers and smart watches. These devices allow for a more granular and constant control of certain parameters, like heart rate or blood glucose levels; they also make data on these parameters more accessible. This is particularly important for people with chronic diseases or their caregivers: the information gathered by these devices can be used to define, in a more specific and effective way, everyday care practices. But the widespread use of these technologies also poses new problems, especially relating to how this information is produced and stored, and to the potential consequences of its use. Especially when these technologies are developed outside traditional health institutions. Who is responsible for ensuring the accuracy of the data gathered, and for preventing or at least accounting for possible misuse?

This contribution will explore these questions, drawing from two cases of wearable technologies developed, from the bottom up, by two Italian patient organizations. In particular, it will focus on how these two organizations reflect on their responsibilities in the development and use of these technologies. On the one hand, bottom-up development can more easily answer specific problems connected to everyday care, problems that often fall outside the purview of institutional R&I processes. On the other hand, innovation for health removed from healthcare institutions faces the significant risk of lack of formalized certification of the technologies developed, risk that is passed on to patients and caregivers. The tension of these contested responsibilities is at the heart of the reflexive discourses and practices of these organizations.

## **Co-producing Innovation through Free Software and Open Hardware: The Case of R-MAP, a Participatory Environmental Monitoring Network in Italy**

**Sergio Minniti**

University of Padova, Italy

In recent decades, technoscientific practices have expanded the principles of openness and collaborative development from Free and Open Source Software (FOSS) projects to physical artifacts, giving rise to Open Hardware (OH) – an umbrella term standing for technical artifacts whose design is made publicly available through open licences. The spread of projects based on open informatics and electronics has been increasingly interpreted as a move towards the "democratization" of

innovation, allowing participatory and horizontal organizational arrangements of R&D activities as well as processes of commoning. Yet, while participatory models of innovation based on open digital technologies are broadly recognized as pivotal drivers in fostering the co-shaping of innovation, several critical issues regarding their effectiveness as alternative forms of innovation as well as their relation with R&D institutional settings still require further analysis.

In order to reflect on the challenges and tensions emerging from co-production initiatives, the presentation offers some preliminary insights from the case study of a participatory environmental monitoring network called "R-MAP", a platform based on free software and open hardware whose development involved an informal group of makers, public institutions, an association of weather amateurs as well as other civic organizations. The presentation relies on data collected from semi-structured interviews with practitioners and key informants conducted in Italy between 2021 and 2022, and it focuses on two main issues: 1) the role played by open software and hardware as "boundary objects"; and 2) the negotiations between different epistemic authorities occurred in the development of the platform.

## **Digital and Participative Reforestation: applying the Actor-Network Theory to Ecosia, the search engine that plants tree**

**Stefano Oricchio**

Università della Calabria, Italy

Ecosia is a web search engine run by a German social business that devolves most of its advertising revenues to reforestation projects in more than 35 countries. Since its foundation in 2009, Ecosia has been planting more than 166 million trees (as of 17th January 2023), thus offsetting its emission and providing a more-than-carbon-neutral digital service. In theory, its digital users contribute to plant trees and to actively remove CO<sub>2</sub> with every web search.

Ecosia configures a very peculiar kind of innovation, in which a specific socio-technical arrangement provides a material participation device<sup>1</sup> with concrete ecological effects. Managing and coordinating a collective and participative process that encompasses users, digital infrastructures, organizations, local populations and trees, Ecosia represents an actor-network in which humans and non-humans are mobilized and configured in specific settings. This theoretical contribution aims at applying the Actor-Network Theory to Ecosia in order to figure out the multiplicity of actors, interests and point of views mobilized by an apparently simple tool, in which digital and environmental aspects intertwine with several implications on the participative process.

The talk will thus show and discuss Ecosia's script, co-articulations and ambivalence, identifying both its opportunities and limits, and putting STS into dialogue with other literatures. Critical issues such as slacktivism, internet-centrism<sup>2</sup>, greenwashing and neo-colonial relations<sup>3</sup> will be addressed, while highlighting the importance of mitigating digital ICTs' environmental impact and of exploiting trees as natural climate solution. Finally, urban reforestation will be suggested as a possible strategy for Ecosia to tone down some of its contradictions.

<sup>1</sup> Marres, N. (2012) *Material participation: technology, the environment and everyday publics*

<sup>2</sup> Morozov, E. (2013) *To save everything, click here. The folly of technological solutionism*

<sup>3</sup> Büscher, B. (2014) Nature 2.0: exploring and theorizing the links between new media and nature conservation, in *New Media & Society*

## **COMPARING PLATFORM MODELS Between capitalism and cooperativism**

**Fabio Virgilio, Stefania Parisi, Mariacristina Sciannamblo**

Sapienza University of Rome, Italy

Over the past decade, the increasing cross-pollination between Media and Communication Studies and STS (Gillespie et al. 2014; Musiani et al. 2016; Bonini and Magaudda 2022) has underlined the role of the materiality of mediation, particularly in light of platformization processes (Helmond, 2015) and their forms of circulation. Furthermore, the emergence of "platform studies" (Bogost and Montfort 2007) sheds light on the interplay between the platform economy and the agential role of technical components (algorithms, standards, protocols), uncovering the processes of value creation and power distribution.

This led to the identification of two different socio-economic models characterizing the platform ecology: a profit-oriented mainstream one known as "platform capitalism" (Srnicsek 2017) and a democratically governed alternative, or "platform cooperativism" (Scholz 2016). The latter takes shape from the critique of the extractivist mechanisms of the former, advancing a platform organizational model based on solidarity, shared ownership and democratic governance.

Adopting an STS perspective, this contribution aims at comparing the socio-technical assemblage of two digital platforms working in the short-term rental market: Airbnb and Fairbnb, ascribable to platform capitalism and cooperativism, respectively. Observing their constitutive elements (data, algorithms, interfaces, ownership relations, business models, user agreements) and whether and how they inform the mechanisms (datafication, commodification, selection) of the "platform

society" (van Dijck et al. 2018), the work aims to bring to light the mutual articulation between the platform economy and the performative power of their material architecture.

The contribution proposes a twofold reflection: on the one hand, it highlights the characteristics of a cooperative platform, which finds in participation the necessary prerequisite for reconciling technoscientific requirements, needs and principles of communities and end-users. On the other hand, it identifies the main difficulties that platform co-ops face being subjected to the neoliberal market logic, with consequences regarding its effectiveness, efficiency, scalability and sustainability.

## Panel 22 - Session 2: How are STS interested in robotics?

*Time:* Wednesday, 28/June/2023: 5:00pm - 7:00pm · *Location:* Sala Rossa

*Session Chair:* Letizia Zampino

*Session Chair:* Ilenia Picardi

*Session Chair:* Assunta Viteritti

**Topics:** Technoscientific promises, imaginaries and expectations; Algorithmic knowledge, media ecologies and artificial intelligence; Innovation imaginaries, practices and policies; Sociomaterial learning processes and/in digital worlds

**Keywords:** Robots, digitalization, humanoid robots

In the first half of the last century, robotics penetrated the human imagination with stories of Karel Čapek's *Rossum's Universal Robots* of the 1920s, but also with Isaac Asimov's science fiction novels *I, Robot*. It then crosses over to the cinema with HAL 9000 from *A Space Odyssey*, the supercomputer on board the spaceship Discovery that rebels against the human, until the TV series *Westworld*, which features humanoid robots populating a strange amusement park.

All these imaginaries have fuelled an idea of the humanoid corporatisation of robots, technical objects that 'come to life', black boxes that relate, collaborate and sometimes oppose humans. On the other hand, scholars and robot designers believe that robotics - particularly in its interactions with other technologies, such as Artificial Intelligence, 5G, the Metaverse - will bring about profound social transformations that will affect every aspect of human life. STS studies over the past 30 years have promoted perspectives on analysing technology as networks and as interconnection processes, opening up the various black boxes. How have STSs studied and are studying robots and robotics? This is the basic question this track aims to answer. Robots and robotics are now interconnected in many spheres of social worlds, constructing complex technoscientific processes that promise future worlds capable of supporting, enhancing and expanding the skills of humans by replacing them in the most strenuous jobs or empowering them in the most advanced spheres (from the study of cognition, to space technology, to nanorobots to liquid robotics). Which epistemic communities are involved in the design and production of robots and robotics? How do the fields of robotics shift or connect the worlds of designers to those of users? How do STS take an interest in robotics and the study of robots as they take forms and specialisations in the various fields? What categories, concepts, theoretical frames are translated into the study of this broad field? Which theories and concepts from the STS tradition are enlisted in the social study of robots and robotics?

Empirical, theoretical and methodological contributions from different STS fields of study and application in robotics are welcome, and may include (but are not limited to):

- design, uses and applications
- arts and everyday life
- gamification for adults and children
- healthcare and medicine
- education and learning
- ecological transition and climate change
- space exploration
- security and arms
- work and industry,
- automatisisation and computing
- digital transition
- agriculture robotics
- liquid robotics

We do not know whether the more than human alliances that robots and robotics foster will lead us to interesting times, but we will certainly experience times that will be interesting to study, and STS perspectives can help us in this.

### **Robots-vulnerable: from Pandora to Atlas**

#### **Edmondo Grassi**

Università San Raffaele Roma, Italy

The pervasiveness of AI and related technologies has now become an immanent reality in the structure of contemporary society and in the institutions that characterize it. It is a device which, being able to influence and model some characteristics of the social individual, to know many aspects of it, to become a shadow assistant - as if to rise to the role of that unconscious part of thought and personality that emerges only in the flow of big data -, manifests a character of innovation and ultra-accelerated development compared to that of the subject and its fruition abilities: AI and the automation of

mechanical supports, such as robots, have become indispensable elements of a system biotechnology that is called to a new discovery of its limits and potential.

We are experiencing a revolution of which we are not yet fully aware, since in a decade the communicative pillars of our civilization have been unhinged, in which technology has changed private habits, public practices, practices institutional, collective actions, asking questions of an ethical matrix that cannot be reduced to a single value matrix, but will require the application of a cultural pluralism that characterizes postmodern society.

Have we become omnipotent? Science is carrying out “impossible but real” enterprises with its technique, such as cloning, artificial uterus, biometric studies. Has omniscience been achieved only because every question that is asked to the devices is answered in a few tenths of a second? The online consultation has become the first action to dispel doubts. Has politics become the subject of finance and technology?

The contribution, supported by a three-year research, uses the philosophy and sociology of the imaginary as a reference framework to analyze the process of conception, development and implementation of AI in robotics from imaginative contexts to its applications in reality.

### **Tracing the path of robotics at school**

**Assunta Viteritti, Letizia Zampino**

Sapienza, University of Rome, Italy

The mutual consolidation of the processes of digitalization and datafication is playing out in educational environments that are reassembling themselves to address the processes of automation and AI in both markets and companies as well as other spheres of social life. In an era that we might define “digital governance in education (Landri, 2018), the associations and vendors of technology are posing themselves as actors that regulate the training of teachers and school managers, shaping the purchase of certain technology on the basis of pedagogical assumptions inscribed both in national and European funding calls.

In particular, the challenge coming from Europe is structured around computational thinking to prepare new generations of citizens to deal creatively and non-passively with a new technological frontier: robotics (Grimaldi et al. 2022; Jones 2017; Bers 2021).

The article privileges the Actor Network Theory (ANT) gaze to follow executives and teachers, associations, companies, and digital policies involved in bringing robotics to school. It uses a sociomaterialist approach to look at related conceptualizations fueled by feminist studies and feminist materialism to escape simplifications and technological determinism (Braidotti, 2003; hooks, 2000). At the empirical level, the actions taken are distributed along three lines of research: an initial mapping of the companies and associations operating in the Italian school market; a documentary analysis of funding calls and government sites and of the identifies leading companies; semistructured interviews and observations of the main sponsorship of educational robotics. From an initial analysis the political, corporate and work market are not transparent and linear, they implement funding calls as “black boxes” that contain the conditions and constraints to be followed passively in order to gain funding used for the purchase of technologies and robots often sponsored by companies, the same ones that provide training course to teachers and managers.

### **Becoming-with the machinic ‘other’: Entangling with robots in digital videogaming**

**Leonardo Piromalli**

“Sapienza” University of Rome, Italy

While in the dominant anthropocentric model machines are seen as tools, slaves, or anthropomorphized human companions, feminist and STS critique has critiqued this binary perspective to examine the distribution of agency and power in the human-machine relationship (Haraway, 1991; Suchman, 2011). Recently, this approach has been continued into the growing strand of game studies (Giddings, 2007; Caracciolo, 2021) also with the aim of observing how such artifacts suggest the shaping and the very enactment of human-machine and player-avatar cyborgs.

This contribution shall explore the issue of technoscientific imaginaries on the relationship between human and machine, and how they may contribute to articulating technology, culture, and society. To this end, videogames set in “technologically dense” scenarios will be examined with special focus on the issues of non-human agency and empathy, the webs of inequalities that intersect machinic action, latent human anxieties for tech-powered dystopical cyberfutures, the status of player-machine assemblage in this scenario, and, more generally, the blurred divide between human and non-human.

Challenges for technical design shall thence be examined toward a reflexive ethics of inclusiveness and equity that favors machine agency over human projections.

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## **AIBO: An Emotionally Intelligent Artificial Intelligence Brainwave Opera**

**Ellen L. Pearlman**

Fulbright/University of Warsaw, Poland, United States of America

AIBO is an embodied, immersive, interactive love story about our infatuation and trust in artificial intelligence, and how AI hierarchies over our experienced emotions. The performance takes place between a human character Eva and AIBO, a custom built 'sicko' AI. Eva wears an EEG brainwave headset attached to a body suit of light that displays her emotions as different colors, akin to peeling away her skin, revealing her exterior nervous system of light. She performs a spoken word libretto about their love affair. Her brainwaves trigger databanks of videos and audios of her emotionally themed memories. Eva's libretto, uploaded to the computing cloud is processed by a custom built GPT 'sicko' AIBO character, seeded with 47 'sicko' or perverted texts. AIBO's answers are analyzed with the Natural Language Processing Toolkit in the Google Cloud. The results of these analysis of AIBO's emotional values launch different colored background: green for positive, red for negative and yellow for neutral. AIBO also tries but fails to recreate Eva's previous emotions because it wants to learn how to be human. These memories display as glitchy videos. AIBO raises issues about a time when humans and machines potentially merge bodies and consciousness, raising tensions about the embodied vs. the virtual, while also exploring if an AI can be fascist.

## Panel 26: Interesting worlds as matters of caring and commoning

*Time:* Thursday, 29/June/2023: 9:00am - 11:00am · *Location:* Aula A

*Session Chair:* Mariacristina Sciannamblo

*Session Chair:* Maurizio Teli

*Session Chair:* Giacomo Poderi

**Topics:** Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Methodological challenges in a more-than-human world; Everyday life and design of the mundane; The value of science, technology, innovation and research practices; Extractivist powers, imaginaries and asymmetries; Building alliances in public participation and engagement

**Keywords:** caring, commoning, collaborative research, co-design, engagement

The concept of 'interest' has been central in STS since its inception (Callon and Law 1982; Callon 1982), when it was introduced to describe networks of relationships between human and non-human actors through the employment of devices, the development of interpretations, and the mobilization of alliances. The discussion of the formation of interests and its related processes of translation has brought the issue of power, and its reconfiguration(s), under the spotlight, as meaningfully articulated by Callon through the questions: "Who speaks in the name of whom? Who represents whom?".

More recently, the increasing prominence of critical approaches - e.g. feminist and postcolonial STS - and the intersections with cognate research fields - e.g. participatory design, information science, environmental humanities - have stressed the politically engaged character of STS which emphasized its 'activist interest' (Sismondo, 2008). That has spurred the emergence of a "collaborative turn" in STS (Farías, 2017) that we see as a direct consequence of STS concerns with power. The collaborative turn has brought about questions on the ethical, affective, and political dimensions of researching by means of collaborative and committed action-research projects based on dialogue, mutual learning, and caring relationships within heterogeneous collectives.

These concerns have been troubled and further elaborated by feminist thinking in STS, in particular with the prolific reflections on the concept and practice of care (Mol et al. 2010; Martin et al. 2015), which emphasize the ambivalent, situated, and material character of care as well as our own care and concerns as STS researchers and practitioners (Puig de la Bellacasa 2017).

In parallel, STS research has explored the importance of the commons whether these are natural, material, human made, or immaterial (Papadopoulos 2018). Commoning practices can indeed be considered matters of care as they attend to everything we do to maintain, continue, and repair our world (Tronto 1993). Additionally, commoning prompts us to reconsider human-nature and more-than-human relationships in ways that challenge dominant existing extractive capitalist models, towards "the production of ourselves as a common subject" (Federici 2018). These allow us to stay with the troubles that attend to matters of care and the related implications of unpacking the logics, contradictions, and multiple ruptures generated by capitalism. Against this backdrop, we hope to make visible the neglected and often invisible labor of reproducing the commons, and to question which and whose material, political, and ethical orders come into play when researching and intervening in/for the commons.

This panel invites presentations that explore the intersections between caring and commoning in the context of STS intervention-oriented research. Both empirical and theoretical contributions are welcome. These may include (but are not limited to):

- disciplinary intersections among STS, design, and commons/-ing studies;
- knowledge co-creation, co-design processes, material publics and grassroots innovation;
- ICT, labor, and precariousness;
- theories and methodological approaches as forms of caring and commoning;
- complexities, opportunities, and contradictions of making new alliances between researchers, activists, local populations, and institutions;
- sites of ambivalence and contradictions in caring and commoning practices.

### Farming in the Ecological Condition

**Andrea Ghelfi**

Università di Firenze, Italy

How to become companion of the Earth by taking part in more than human communities of food? This is the open question that accompanies the making of alternative forms of living in the Genuino Clandestino peasant network. By exploring the peasant return and its culture of eco-sharing, the development of self-organised peasant markets in Bologna and the community of *Mondeggi Bene Comune, Fattoria Senza Padroni* my research on agroecology in Italy scouts the multiple



practices of mending and ecological reparation that animate the everyday politics of agroecology. During my presentation I will concentrate my attention on a specific key study: the emergent commons of *Mondeggi Bene Comune, Fattoria Senza Padroni*. Mondeggi farm is located in the municipality of Bagno a Ripoli, about twelve kilometres from the centre of Florence. It covers about two-hundred hectares and includes about ten hectares of vineyards, ten thousand olive trees, about ten hectares of arable land, a 14th century Medicean villa and eight farmhouses. In June 2014 the estate was occupied by a group of activists and became the largest land occupation in Italy. Since the first moment the people involved in this project started to call Mondeggi a territory of 'emergent commons', which means that the commons emerge inside an activity of commoning which involves a daily cohabitation with other people and with animals, plants, and the soil. This is not only the social commons but the worldly commons, ecological commons that emerge out of the process of commoning matter. The eco-commons of Mondeggi are inseparable from agroecology, from material reparation, from a reinvention of rural forms of living, from the desire of cultivating an everyday relation with the land. The 'emergent commons' come with the experimentation of daily practices of regeneration and socio-ecological reparation

### **Urban nature landscapes: the possibility of multispecies commoning?**

**Kristine Samson**

Roskilde University, Denmark

The affective, ethical, and embodied engagements of care and commoning have recently been explored by several STS and feminist scholars (Puig de la Bellacasa 2017, Singh 2017, Barad).

The paper presents findings relating to how and when multispecies commoning takes place according to situated and embodied encounters. While questioning to what extent multispecies commoning and care is possible within an exploitative urban development framework, it also shows the cracks and micro-utopias happening in urban natures, opening up for imaginaries of future multispecies cohabitation in the city.

If commoning is understood as reclaiming the power of making basic decisions about our lives and doing so collectively (Federici 2018), how can we understand this in relation to posthuman and multispecies relationality? Furthermore, how are such multispecies commoning affected by human exceptionalism in urban development? However, commoning is also about human-nature relationships (Bollier and Helfrich 2015, Haldrup, Laurien, Samson 2022), hence it is relevant to explore what constitutes a multispecies common, and how they enact encounters between species.

The performative urbanism lab is a collaborative, transdisciplinary lab exploring embodied and situated relations in post-industrial landscapes (Juhlin & Samson 2023). During the past three years the lab has explored multispecies commoning and community-making through artistic research and participatory design. We found that each landscape enacted situated but asymmetric relationalities, and that multispecies commoning were highly dependent on various complex entanglements, encompassing regulations and policies. This, in particular became clear in the case of Amager commons in which a commoning of environmental activism, the European Habitats Directive, and a thriving habitat of water salamanders succeeded in putting the development of "Commons City" on hold. Departing from the lab's explorations of urban natures and Amager Common in Copenhagen, the paper presents comparative findings on the complex entanglements and the possibility for multispecies commoning beyond human exceptionalism.

### **Entanglements between biodiversity and rural traditions in Italy: nourishing more than humans relationships**

**Laura Boffi**

Università Ca' Foscari Venezia, Italy

This paper aims to untangle how biodiversity and traditional agropastoral contexts are intertwined, to learn how biodiversity preservation is embedded in situated farming practices and to uncover opportunities to support specific relationships among farmers and other species by means of a participatory design process.

Focusing on Italian traditional farming traditions, the project situates in Central Italy, in the protected mountain areas of the Abruzzo region, whose agropastoral practices are historically rooted in local communities' culture. Although in the past decades, many villages of those territories have been experiencing depopulation, with the consequent abandonment of agriculture and livestock activities, the project fieldwork has shown an initial change of direction which is outlined by the re-activation of former grandparents farms or by the rise of new enterprises which are grounded into sustainable farming methods. Ethnographic accounts foreground an embodied *eco-commoning* approach to farming which has been inherited from the ancestors and has contributed to shape, enrich and preserve the current environmental landscape. On the other hand, the re-activation of traditional agropastoral activities in the actual context may present novel challenges and hidden risks to unintentionally fail in reciprocal care among farmers and the *more than humans*, due to the modified environmental and anthropic conditions, the different current approach to environmental conservation, the knowledge gap between the growing scientific knowledge and the inactive indigenous local knowledge.

The core of the paper revolves around a specific story collected during the fieldwork about the cleaning of a drinking trough for sheep grazing by an unaware shepherd, which could have potentially hurt newts reproduction. Therefore, I suggest a participatory process based on co-creation and prototyping to *shape the eco-common* of the drinking trough through which the *commoners* could be made visible and the co-existence of species could go beyond the anthropocentric dualism of human- not humans.

### Care as commoning and commoning as care: moments of care in the Greek digital space

Hara Kouki<sup>1</sup>, Vasiliki Makrygianni<sup>2</sup>

<sup>1</sup>University of Crete, Greece; <sup>2</sup>Aristotle University of Thessaloniki, Greece

Our worlds are permeated by digitization and the boundaries between the digital and the non-digital are messy, if there are any (McLean et al., 2019). This has been further accentuated during the protracted pandemic crisis that, at the same time, has revealed the invisible but leading role of (gendered) care in people's lives (Care Collective, 2021). Care becomes all the more attractive as a positive aim showing a solution out of multiple crises, also in the digital world: caring practices may reconfigure the digital space and generate more safe, just and unoppressive places, but at the same time colonizing and 'carewashing' discourses and policies can also reproduce enclosures, inequalities and spaces of exclusion.

Building on literature that engages critically with practices of care, while promoting feminist understandings of STS (Puig de la Bellacasa, 2017; Mol, 2008; Lupton, 2013;), this paper focuses on the tensions and relations between digital space and care practices; our aim is to make visible and find ways to talk about negotiations and contestations that open up to an unanticipated (digital) future. Drawing on examples from the Greek digital sphere during the pandemic, we investigate how groups of people created digital spaces that enacted collective care practices against an institutional context that focused on commodification, securitization and individual responsibility. Focusing on specific initiatives that 'cared for' LGBTQ communities, feminist and labour issues, and artists' rights, we intend to investigate how care was presented, performed and transformed in these digital spaces; the characteristics and materialities of such spaces, their dynamics and limitations; the ways through which these care practices challenged systemic digital violence and institutional carelessness. In a (digital) world overwhelmed by multiple crises of care, we aim to theorize care as commoning and commoning as care so as to write 'otherwise' possibilities and imagine new relationalities.

### Accessing urban imaginaries through senses as a pathway to commoning and caring

Chiara Del Gaudio

Carleton University, Canada

The politics of urban imagination, when understood as the process of making sense of the environment around us (Rancière, 2000), are one of the elements of commoning practices. By enabling the understanding of who can take part in them and who is represented within the city, they promote the development of new relationships able to maintain or disrupt current orders and systems. They also influence how people think about the environment they live in, act within, appropriate the urban space and make community (Soja, 2000). The concept of 'urban imaginary', which is thus the cognitive mapping of urban reality, speaks of the making and remaking of a city's public culture (Linder & Meissner, 2019). Considering the key role that imagination plays in shaping the commons, a design process was conducted to promote reflection on existing urban imaginaries, the development of new relationships with the local environment and between human beings, and a renewed interest in co-creating new ones. The starting point of the process was the city as a space to be sensed. The activities held aimed at creating space for sensing the local environment to reconnect with it and promote care – thus acting beyond a rational understanding of it. The process was open to a wide audience and part of a Master course on Design Anthropology. This presentation will focus on the latter and on the counter-mapping process that students were asked to design subsequently to the sensing activities. The analysis of the processes designed by the students showed how promoting reconnection through the senses opened up the affective dimension of urban imaginaries and promoted interest and care. This approach, often disregarded within participatory design in favor of more pragmatic ones, can be crucial when researching and intervening in/for the commons.

### Taking care of uncertainty: how civil society used ICTs to mitigate inequalities during the pandemic

Roberto Cibin

Institute of Sociology, Czech Academy of Science, Czech Republic

This paper explores bottom-up ICT-based strategies to respond to inequalities affecting people belonging to vulnerable groups during crisis situations such as the recent Covid-19 pandemic. The case study is the Covid-19-focused EU-funded research project RESISTIRÉ and its analysis of the impact of the pandemic and related policies on gender inequalities and

other inequality grounds. Using an intersectional approach, RESISTIRÉ also maps the bottom-up strategies to mitigate pandemic-related inequalities.

The Covid-19 pandemic and the associated socioeconomic crisis did not affect everyone in the same way. Instead, they contributed to increasing inequalities or creating new ones for women and people belonging to more vulnerable groups (related to sex/gender, gender identity, sexual orientation, nationality, religion, ethnicity, etc.). In a growing situation of uncertainty, where it was suddenly no longer possible to conduct normal activities or access services, public policies aimed at mitigating the effects of this crisis often forgot to consider the interests of the most vulnerable people. In many cases, civil society organizations took care of these interests, also through establishing - or strengthening - alliances with digital technologies and ICTs.

The paper will offer an analysis of how such interactions have taken place through the mapping carried out within RESISTIRÉ in 30 countries in Europe. We will propose an overview of how civil society took advantage of existing or new ICTs (both open and proprietary) to take care of the most vulnerable people during the pandemic to reduce the uncertainty caused by the pandemic crisis. We will observe how the construction of such commons took place differently depending on the issues to be addressed and the type of knowledge at stake: on the one hand, sharing of information Vs building of relationships, and on the other hand, providing access to knowledge Vs creating situations of knowledge co-construction.

## **Posthuman Care in the Age of Emerging Technologies**

### **Yueh-Jung Lee**

The University of Texas at Dallas, United States of America

In the age of emerging technologies, the concept of care becomes more complicated as it connects to more actors, including collective humans (e.g., groups, cooperatives) and nonhumans (e.g., animals, plants, minerals, data). On the one hand, the care concept can be stretched to cover more-than-human operatives that were not previously covered under the human-centered world. On the other hand, it is naïve to assume that “care” is intrinsically good. The false assumption of care being neutral and good is dangerous and ignorant. The concept of care, inherited from human-centered tradition, carries stereotypically sexual and racial roles into new actors in our daily routine, such as female smart assistants and submissive care bots.

This paper rearticulates the concept of care through the lens of critical posthumanism. Namely, how “care” is framed, how posthuman care is different from human-centered care, and how it reshapes responsiveness and responsibility in multiple worlds. The paper first draws on care-related concepts from Shannon Vallor’s (2016) *Technomoral Virtues*, Neda Atanasoski and Kalindi Vora (2019) ’s *Surrogate Humanity*, and María Puig de la Bellacasa’s (2017) *Matters of Care*. Secondly, I utilize textual analysis and sort out four directions (i.e., Care humanly, care nonhumanly, care fragmentarily, and care ecologically) of posthuman care that are distinct from human-centered care. In the analysis, I discuss how we, as humans are able to care for nonhumans in practice. In addition, I synthesize various care and theorize how they collectively form responsive and responsible care in the context of posthuman worlds. To do so, I utilize an experimental project, *Not-my-fish*, to demonstrate the response-ability from the aspects of humans, nonhumans, fragments, and ecology. In conclusion, I address the limitations and opportunities in the current discourse of posthuman care.

## Panel 13 Session 4: Artistic Intelligence? Making it together in the Multispecies World

*Time:* Thursday, 29/June/2023: 9:00am - 11:00am · *Location:* Aula B

*Session Chair:* Silvia Casini

*Session Chair:* Gediminas Urbonas

*Session Chair:* Roberta Buiani

*Session Chair:* Philippe Sormani

**Topics:** Ecological transitions and climate justice; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Methodological challenges in a more-than-human world; Technofeminism and interspecies solidarities; Embodied identities, genders and interests

**Keywords:** multispecies research; organism-oriented ontology, composability and cohabitation, sympoiesis, art as research

In recent years, academia has sought new approaches to tackle phenomena that couldn't be grasped through traditional discipline-specific research methods. Anna Tsing expresses the difficulties of examining and communicating the system known as the Anthropocene and calls for "new kinds of storytelling" that can "tell empirically grounded stories of particular times and places and positions and [that can] tell them with some much curiosity and wonder". In practice, this means to abandon the "god's view from nowhere" (Haraway), which leads to the prioritisation of anthropocentrism. Tsing proposes an embodied approach that takes in different positionalities, that is, she exhorts us to become-with the non-human and more-than-human, instead of just observing them from afar. To this end, the feminist and more-than-human curatorial work of Haraway and Tsing with her platform *Feral Atlas* (2021), the collaborative thought-exhibitions by Latour and Weibel at ZKM (*Iconoclash 2002*, *Making Things Public 2005*, *Reset Modernity! 2016*, and *Critical Zones 2020* all devoted to the crisis of representation in art, science, and politics), and the visual STS approach by Galison in his collaborative work all use curatorial and artistic practice as research. These forms of research embodied, situated, and materialised knowledge that matters (Turkle 2011: 7). Moreover, they foreground storytelling, invention, and fictionality as tools for 'getting real' and challenging anthropomorphism (Skiveren 2022). All these collaborative endeavours might offer the coordinates of new zones of friction and creative resistance, asking us to engage with indigenous perspectives and traditions, forging alliances with symbionts, imagining anew the social and material fabric of the world. Perhaps from these zones new ways of being can become thinkable along the lines of what Ingold suggests with the concept of a «mycelial person» (Ingold 2003).

With this panel, we encourage proposals coming from both academics and practitioners for creative/performative presentations (regarding curatorial practices and/or exhibitions and storytelling), interactive sessions (bearing on material objects), and/or traditional academic papers. In particular, we ask prospective contributors to reflect on how exhibitions understood as "more-than-human alliances" might contribute to STS research and methods, demonstrating the importance of cherishing the process rather than the results; the significance of relational thinking; and the importance of interrogating the epistemological contributions of exhibitions.

At a time when some of the prominent venues promoting collaborative work in art, science and technology studies have closed (Science Gallery Dublin) or are under threat (SymbioticA), we call for forms of engagement, critical zones and methods capable of nurturing a "slow art-science" practiced by amateurs and connoisseurs in the guise of what Isabelle Stengers (2017) suggests in her manifesto for a slow science. What are the coordinates of such zones? How can we draw a map to chart our ways through a changing world? How to be alive in the "regime of the human," characterised by the lure of progress and "techniques of alienation," and "still exceed it" (Tsing 2017: 19). How can artists and scientists use their observatory stations not as ivory towers but as scaffolding for 'engagement all the way down" (Stengers: 2019, 19)?

### Charting the Cold: Atlas of Winterness

#### Indre Umbrasaite

Institute of Architecture and Landscape, Graz University of Technology, Austria

Charting the Cold: Atlas of Winterness

Rooted in architectonic thinking, the 'Atlas of Winterness' is a research project that seeks to articulate a new togetherness in a hyper-connected world destabilised by environmental, political and social transformations. Its objective is to render a space of possibility for a 'natural contract' (Michel Serres) between life forms and living environments under today's sun.

Cosmographic in nature, yet with a close-up view and multiple entry points – in space (geographical), in time (historical) and in life, both human and more-than-human (cultural) – the investigation revolves around winter, the season on the verge of extinction. By embracing the broad spectrum of human knowledge, the arts and humanities alongside the technical and natural sciences, this kind of inquiry holds the potential to transcend disciplinary boundaries, bringing otherwise disparate discoveries and inventions into novel forms of communication and resolution – forming a climatic model that serves to find

new stabilities between the modelling functions of culture and nature, set in opposition throughout the modernity, between us and a changing season.

The proposed approach practises thereby the method of 'observing in order to act' and 'working with', as put forward by the French gardener, landscape architect and philosopher Gilles Clement. Charting an ever changing landscape of (winter-) narratives, histories, beliefs, materials, artefacts, personalities, creatures, places, rooms, fashions, traditions, events, rituals, beings, organisms, mechanisms, ... rare and common – this open, because inexhaustible, inquiry embodies, enacts and imagines 'winterness': space-time-life of the cold.

### **Plants in multi-species democracies. Possibilities from artistic practices.**

**Alfredo Ramos, Ernesto Ganuza**

CSIC-CCHS, Spain

One of the most relevant elements that structure exclusions within democracies are the forms of epistemic injustice (Fricker, 2009). In recent years, different theoretical approaches have challenged this type of injustice with the aim that the epistemic recognition of non-human actants allows them to improve their inclusion in democratic systems (Grusin, 2015; Morton, 2017; Page, 2021).

The possibilities of dialogue between the non-human turn and democratic theory, have been governed, up to now, by the recognition of non-human animals and their involvement in thinking about time, materiality and forms of interaction within democratic systems (Meijer, 2019). Since the mid-2010s, Critical Plant Studies (CSP) have raised the need to expand these relationship frameworks (Gagliano, Ryan and Vieira, 2017). From this interdisciplinary group, the need to place issues such as agency, public, will, etc., in dialogue is claimed, from an approach that also includes the capacities of plants.

This text proposes to review the implications that CSPs may have for the development of multi-species democracies, focusing on two questions: a) how the most characteristic forms of inclusion in democracy are questioned and b) ) how the CSPs are related to the debates on the different repertoires that go beyond the verbal/ rational forms of communication (Fabrino, Ercan and Rosenbaum, 2020) to build and legitimize forms of knowledge and interaction more linked to a more complex sensitive plot. To this end, special attention will be paid to the work of two artists who are developing interspecies communication practices with possible democratic implications: the Electrobiota collective (Argentina) and the couple formed by Maria Castellanos and Alberto Valverde (Spain).

### **Drawing in anatomy: a practice of artistic intelligence**

**Joanne Louise Macdonald**

University of Aberdeen, United Kingdom

Drawing in anatomy can become a mode of enquiry to navigate complex bodily structures, understanding these dynamically by tracing their relationships as parts of larger interconnected systems, focusing analytically on details while connecting and synthesising experience to envisage the whole. The body offers a context for deep, sensory observation that triggers curiosity and demands ethical responsibility. It is valuable as an approach to other forms and relations in organic life, including multispecies research.

As an artist and doctoral researcher, I have evolved a practice of drawing as a mode of enquiry that can be undertaken by any student, anatomist or clinician, to open up perception and support thinking. This way of drawing differs from the highly skilled tradition of anatomical illustration that fixes the body as object. Tested through 200 drawings in two contexts (specimen and dissection), this approach engages the researcher in open-ended experimentation organised around a question that emerges from within the experience. I focused on the facial nerve to spark questions such as How does the superficial temporal artery divide? What material qualities and dynamics determine fixity and elasticity to enable activities such as smiling or chewing? I needed to re-image anatomy in pictorial space as process, not static object. I explored different methods: restricting drawing materials to determine marks that mirrored the irreversibility of dissection, establishing a drawing plan that raised a question as a point of entry and organising force, introducing timed drawings and everyday materials to respond to the financial and time constraints facing students. In dissection drawing enabled me to respond to the body's materiality from different perspectives, literally and philosophically.

Reminded that for Arendt 'experience and thinking go hand in hand' (Hill, 2020) and that Dewey advocated 'learning through experience' (Dewey, 1938), I propose drawing a practice of artistic intelligence.

## **Ecosomatic dance as a transdisciplinary method for bringing attention to us-ness: situated, responsive storytelling created within AI choreography**

**Adesola Akinleye**

Texas Woman's University, United States of America

It is in traditional Lakota and Yoruba dances that I first experienced dancing as tentacular. This is the sensation and awareness of the ongoing configuration and re-configuration of a transactional, relational ontology which the Lakota language confirms in *Mitákuye Oyás'íj*: "we are all related". Dance practices, in general, reveal, map, and story human relationality within the wider assemblage of our multispecies world.

In this hybrid interactive-paper-presentation I use dance practice-as-research to bring a symposium ontology into focus; dance emerges across reflection, sensation, and immediacy of the empirical in response to, in making-with, world around. I will share my current AI project in which I have captured traces of dance choreography to create a collection of interactive AI movement scores/experiences. The AI program/choreography gives a provisional movement syntax to the physical space the user is inhabiting heightening somatic awareness. The AI user moves with the trace choreography creating ecosomatic alliances, a transcorporeality between body, material surroundings, and the temporality of the AI traces. When dancing, there is a porosity between perception of body and of environment. The knowability of sensation is cradled in environmental dynamics. Things/moments acquire meaning through the dancing body passing through them, belonging to them, combining, re-arranging as inner experimentations.

Being responsive comes into sense (wisdom/intelligence/feeling) as the AI user approaches meaning through the embodied dialogue of dancing. My research uses dance choreography as *method* for exploring the syntax of belonging within a given assemblage, a Place. I propose an invitation, beyond the discipline of choreography, to engage in the process of dance. Structures, bodies, sounds, temperatures, smells, memories, and textures converge in the moment of dance. Dancing as method, I propose, heightens the 'response-ability' of belonging and the impossibility of not belonging to now: a common ground created through shared awareness of being present.

## **Displaying hybrid materials as an arts-based path to transdisciplinary research**

**Rita Giuffredi<sup>1</sup>, Laura Colucci-Gray<sup>2</sup>, Andrea Caretto<sup>3,4</sup>, Raffaella Spagna<sup>4</sup>, Alice Benessia<sup>4</sup>, Alba L'Astorina<sup>1</sup>**

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<sup>4</sup>Pianpiccolo Selvatico Fondazione ETS, Italy

Academic knowledge is constrained by the ties of a disciplinary organization that creates ever-increasing specialization, producing knowledge that is efficient in solving technical problems but often unsuitable for dealing with complex, socio-ecological issues, like the health of soils. New ways of practicing research, and of thinking its role in society, appear necessary to overcome the *empasse* and ground a production of knowledge which is relevant, inclusive, contextual and relational, subject to a plurality of legitimate and democratic accountability (Funtowicz & Ravetz, 1993; Jasanoff, 2004; Nowotny et al., 2003).

We propose here an experience of arts-based knowledge-production realised within the BRIDGES project, aiming at experimenting, on the case study of soil health, innovative methods of research, pivoting on transdisciplinarity, hybridization and participation.

By sharing a concrete example, we will involve conference participants in the experience of curating the display of hybrid materials produced during an experience of soil digging led by two artists. This method is particularly suitable to ground transdisciplinary research: investigating the dimensions of hybridity incorporated in the exposed materials, as well as their narrative unfolding, has the potentiality to overturn the traditionally reductionist research setting to include contextual, relational, experiential dimensions, and to expand the range of engaged social actors (in particular involving young researchers and citizens). With Haraway, we mean to explore collectively, since the very initial phase of research, "(...) what matters we use to think other matters with; (...) what stories we tell to tell other stories with; (...) what stories make worlds, what worlds make stories" (Haraway, 2016).

We will discuss how this method, privileging visual, performative and processual dimensions over traditional, rational, scientific reporting, is able to ground transdisciplinary knowledge-production, valuing attention to experiential, sensorial and contextual elements, and promoting a structural, conceptual, shift from anthropocentrism to include more-than-human communities.



## Panel 33: Technologies, devices and ways of engaging with citizen science in the context of research and innovation: co-producing knowledge, co-designing technologies and co-creating research to address sustainability challenges

*Time:* Thursday, 29/June/2023: 9:00am - 11:00am · *Location:* Aula C

*Session Chair:* Helena Solman

*Session Chair:* Julia Kirch Kirkegaard

**Topics:** Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation

**Keywords:** citizen science, knowledge co-production, co-design of technologies, research and innovation, material participation

Solving key contemporary sustainability challenges, such as climate change, energy transition or biodiversity loss requires firm evidence-base, robust definition of the environmental problems and innovative solutions. Research and innovation however tend to prioritize expert definition of problems and technological innovation as means to solve these problems. At the same time, the outcomes of research and innovation often impact the lives of citizens or require committed action from them. Expert knowledge alone is not sufficient in tackling the complex social and environmental challenges, but what tools and methods can help to engage citizens to contribute own knowledge, to share their concerns and to participate in processes of research and innovation? What tools or (digital) technologies can be used to generate a citizen science evidence base? Can (digital) technologies help in connecting the different kinds of expert and lay people expertise? How citizens can and experts can co-design new technologies, co-produce new definitions of environmental problems or to co-create research projects?

This panel brings together experiences, ideas, reflections and observations about ways of doing research and innovation with citizens to arrive at science and innovation that is supported by citizen data-driven, that focuses on socially relevant problems and that leads to socio-technical innovation and hence to socially robust solutions that can make an impact on addressing the sustainability challenges of our times.

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### Thermal Drones Assemblages. Remote sensing as more-than-human practice

**Giulio Galimberti<sup>1</sup>, Nicole Miglio<sup>2</sup>**

<sup>1</sup>State University of Milan, Italy; <sup>2</sup>State University of Milan, Italy

This paper reflects on the use of thermal imaging drones for remote sensing purposes by exploring how this more and more widely available technology ensures an access point to new forms of engagement between humans and non-humans. The lowering of the cost of these technical devices has made them widely accessible and thus brought large amounts of useful data for scientific activism.

Thermal imaging drones are employed nowadays for industrial and energy inspection (Rakha, et al 2019), for increasing the security of critical infrastructure, for screening practices - detecting heat from large numbers of people (Barnawi et al, 2021) - , and for monitoring wildlife, and invasive species (Kim et al, 2019). Taking up these examples, we argue that thermography can enhance a specific way of being in the environment that would otherwise remain latent in human perception. Thermal imaging produces images that can be categorized as image data (Prasad 2005), since they are images that simultaneously exhibit a "visual text" of an object and a mathematical structure of its associated data (Waldby 2000; see also Elkins 1999,

Farocki 2004). Data obtained from the infrared spectrum and mapped through visual-numerical representations – providing us with images full of easy-to-use information – are crucial for scientific initiatives because they allow them to incorporate aerial imagery into existing citizen science monitoring projects.

Thermal sensing practices become ways of articulating, animating, and enacting new environmental and more-than-human assemblages, extending our possibilities for intervention. These practices also show how drones do not simply enable a way of looking at and learning about the world from afar, but rather they originate a complex way of relating, engaging, and committing to it.

## **Expectations in Citizen Science: on the power of knowledge and what it should help to achieve**

**Bernhard Wieser**

TU Graz, Austria

Citizen Science (CS) comprises a variety of heterogeneous expectations. CS is said to hold the potential to actively engage citizens, enhance the public understanding of science, boost innovation and even help solving the key challenges of our times (Danielsen et al. 2014; Hyder et al. 2015; Blaney et al. 2016, Hecker et al. 2018). There is a wealth of literature on the potentials of CS; emphasising why it is need (e.g. McKinley et al. 2017; Bio Innovation Service 2018). This literature seeks to foster mutual learning, co-creation, co-design and the fruitful proliferation of CS projects (Weichselgartner & Kasperson, 2010; Emilia et al., 2014; Robinson 2018). Without doubt CS has repeatedly created opportunities of engagement and allowed citizens to contribute meaningfully to creating required knowledge (Newman et al. 2017).

It is, however, less clear what type of knowledge CS projects actually create. In other words, what are the criteria that allow classifying the outcome of CS projects as “knowledge”. What qualifies such knowledge produced by CS projects to be conceived as “scientific” and which epistemologies correspond to the respective understandings of “scientific knowledge” (Blaney et al. 2016; Roy et al. 2012). Importantly, what other types of knowledge are produced by CS projects and how can they be accounted for (Robinson 2018, Leach & Fairhaed 2002). These questions are even more pressing when digital technologies are diploid to generate a citizen sciences knowledge base (Schade & Tsinaraki 2016). What type of knowledge is expected to be collected, communicated and used through digital infrastructures? How do these “digital forms of knowing” (Marres 2017) help achieving the goals of CS projects?

In this paper, I seek to answer these questions using a selected number of CS projects and complement this empirical basis with existing literature.

## **Participatory AI: Examining Citizen Engagement and Co-Creation Perspectives for Sustainable Futures**

**Jussara Rowland**

Instituto de Ciências Sociais, Universidade de Lisboa, Portugal

In recent years we have seen a rise in discourses advocating the potential use of artificial intelligence to address major societal challenges and sustainability goals. These have often been accompanied by calls for citizen participation, both at the industry level and in research, stating that sustainability cannot be achieved without their perspectives and knowledge. Aside from ethical and transparency concerns, this concern has also been motivated by the desire to conduct more inclusive and participatory science. However, depending on the field, sector, or theoretical perspective, citizens' engagement in AI research and innovation tends to be framed differently. One approach sees citizen participation in AI research projects as an integral part of data collection, monitoring, and curation. For others, their main concern is making AI more responsive to people's needs, perspectives, and local knowledge. This presentation explores the different ways “participatory AI” defines citizen engagement in the co-design of new technologies and their involvement in research projects. It is based on the analysis of existing frameworks and guidelines for “participatory AI” published by private corporations, NGOs, and research institutions. What issues do these guidelines aim to address? What publics do they identify? How are citizens' contributions defined? What methods do they ascribe? What limitations and concerns do the guidelines identify? The goal is to understand how citizens' participation in the field of AI is being conceptualized, and how this relates to citizens' engagement in citizen science and the co-production of socio-technical innovation to achieve sustainable solutions.

## **Foodlog: deliberation and knowledge co-creation in an online setting**

**Maud Oostindie**

Maastricht University, Netherlands, The

‘Laymen’ and ‘experts’ tend to be seen as operating in two distinct realms of knowledge, with experts holding claim to the higher realm of ‘true’ knowledge – so too in the field of climate and sustainability. Recently, scholars in a variety of disciplines question this distinction and argue for the inclusion of citizens in the deliberation on and design of sustainability policies.



Participatory approaches are heralded as leading to more democratic decision-making, but deliberative theorists and their critics have demonstrated that it is not that straightforward.

In recent years, much informal public deliberation on issues related to climate and sustainability has been moving to online spaces. People use social media and news media comment sections to discuss a wide variety of issues around climate and sustainability. In these spaces they communicate and deliberate, agree and disagree, get into conflicts and find common ground. Analysing this online communication can teach scholars about how people give meaning to their experiences with deliberation and knowledge co-creation around sustainability.

Thus, this paper aims to explore how the public navigates discussions around climate and sustainability in informal online settings. Specifically, I conduct online ethnographic fieldwork on the Dutch news and discussion platform Foodlog, where I investigate how platform users engage in and make sense of online deliberation, disagreement and conflict around sustainability topics. Understanding how the public gives meaning to their online deliberation and how it co-creates knowledge on sustainability is key in order to fruitfully and democratically solve pressing sustainability issues in collaboration with the public. This paper intends to contribute to this aim by conducting an ethnographic case study of meaning-making on Foodlog. My research consists of participant observation in Foodlog's comment sections, combined with in-depth interviews with platform users. The main aim is to understand everyday online communication on sustainability challenges.

### **Wind energy and noise: Forecasting the future sounds of wind energy projects and facilitating Dutch community participation**

**Helena Solman, Julia Kirch Kirkegaard, Sanekke Kloppenburg**

Wageningen University, Netherlands, The

This paper presents a case of a digital device - a noise app - employed to tackle public concerns. Taking outset in the contested issue of wind turbine noise, we focus on how a noise app was deployed by an operator of a Dutch wind farm to communicate predicted noise levels to the local community and to monitor their noise annoyance. We analyse the noise app as a digital framing device that governs concerns through three entangled processes of *capturing, channelling and managing*. We show how in the process of *capturing*, the app uses a particular definitions of 'the public' and of 'noise' as a matter of concern. We use the term *channelling* to highlight who is involved in the interpretation of the data about annoyance, and how certain conclusions come to be seen as legitimate. Finally, we discuss how in the sub-process of *managing*, specific kind of solutions are proposed that fit this problem definition. We argue that through these sub-processes the noise app also leads to unforeseen effects (*overflows*). Particularly, we see the emergence of expectations from residents to be more actively involved in decision-making around the wind farm, and residents resorting to alternative forms and channels for expressing existing and new concerns. We conclude by reflecting on the broader justice implications that digital framing and overflowing in terms of 1) recognition justice, 2) procedural justice and 3) distributional justice.

### **Digital technologies in environmental citizen science: how they shape knowledge production and codify participation**

**Deborah Gonzalez Canada**

University of Melbourne, Australia

Since 2019, I have studied the knowledge practices of volunteers in contributory biodiversity monitoring who use digital technologies for training, data collection, data analysis, and communication. Drawing on insights from my research, in this panel I propose to explore how certain citizen science (CitSci) apps and platforms shape the knowledge production of volunteered scientists and codify their participation.

Using Latourian concepts, I consider CitSci apps and platforms as *inscription devices* that are crucial in the *circulation of reference* (Latour, 1999) related to biodiversity monitoring. In my two case studies, I found that CitSci digital technologies contribute to *sensitizing* participants (Waterton 2003) and directing their attention to 'what to monitor', further standardizing data collection and helping in making objectivity and authenticity. CitSci apps and platforms also contribute to making biodiversity records mobile, transferable and traceable. As such, the innovations that go into CitSci apps are important for making data generated by citizen scientists credible and improving their usage in biodiversity conservation efforts.

However, one must be careful to a-problematically rely on technologies to democratize knowledge production (Pritchard and Gabrys, 2016). CitSci apps and platforms codify (Marres, 2015) volunteers' participation in certain ways that can limit citizen scientists' knowledge practices as individual "users" that are only invited to collect data. Even in CitSci projects that are proposed as contributory (as defined by Bonney *et al.*, 2009 and Shirk *et al.*, 2012) and thus only require data collection, my fieldwork shows that, in practice, volunteers are doing much more. Some volunteers use their expertise for data analysis, formulate their own research projects, teach other volunteers and non-participants, and use CitSci data for advocacy and

conservation efforts. Going forward, the challenge is to design CitSci apps and platforms so that they accommodate those alternative knowledge practices, or at least, do not obstruct them.

## Panel 29: Materiality and research in museums of science, technology and medicine

Time: Thursday, 29/June/2023: 9:00am - 11:00am · Location: Aula D

Session Chair: Simona Casonato

**Topics:** Heritage industry and the production of collective memory

**Keywords:** Science Museums, Research, Artefacts, Materiality, Heritage

How are “interests” conceptualised in the science and technology museums (STMs)? What interests animate the ideal scopes and practical actions of the many actors moving in the field of STMs and in their practices of research, communication, and artefacts collection? How do these interests shape ideas of long-term perspectives and put contemporary challenges in a historical frame?

The International Council of Museums recently stated that museums must be “in service of society” and that their first task is “research” (ICOM, 2022). In museums, research is often related to collecting artefacts, which is substantial to knowledge production in disciplines such as art history, archaeology, and natural history. But the science and technology cultural heritage reveals a different status that has not been approached in the same way. STMs have often been conceptualized as a monolithic yet ambiguous category that includes institutions as different as national museums and science centres, overlooking the field complexity (Bud, 2017). Social sciences (and namely STS) have mainly looked at STMs in terms of exhibitions and public engagement, missing a deeper view of their social and technoscientific practices, especially in deeply characterizing activities related to the past of science and technology, like collecting and heritage building (Spada, 2022).

In general, in the last decades, the museum as an institution has been increasingly defined by its social role, almost questioning the role of collections in the very concept of “museum” (Brown and Mairesse, 2018). The concept of heritage has been enlarged by dematerialized bottom-up perspectives, like the Convention of Intangible Cultural Heritage (UNESCO, 2003) and the Faro Convention (Council of Europe, 2005), focusing on education and social activism.

In this scenario, what does it mean for museums to be socially oriented, to produce autonomous research, and to be concerned – at large – with science, technology, and medicine in terms of material culture, heritage, and history? STMs need fresh perspectives on the social and cultural agency of technoscientific artefacts that they collect, which can be interpreted in their more-than-human facet, as actants of the heritage industry.

The panel addresses scholars in STS, social sciences, and humanities, as well as curators and practitioners, inviting to look “behind the exhibit”, focusing on the interests at stake in STMs and the role of museum research and artefacts in the construction of collective memories and technoscientific imaginaries (Canadelli et al., 2019). We encourage to consider the long historical tension between two (supposed) opposite views of museums, conceptualized as the “forum-versus-temple”, that has become a standard starting point of the museological reflection since the 1960s (Cameron, 1971; Poulot, 2020). Following the path traced by the Anglo-American museology, we would like to include both the perspectives of curators and scholars, addressing topics such as heritage co-production, public history, material culture of science and technology, power imbalances between museums stakeholders and museum audiences, and the role of history in the contemporary science and technology debate (Artefacts Consortium, 1993; Boon, 2011; Graham, 2016; Alberti, 2022).

### Technical Museum Collections as if Science Studies Matters

#### Tim Boon

Science Museum Group, United Kingdom

The Science Museum London, like many of the world’s great technical museums, built a substantial part of its collections prewar, on principles established before the post-1960s disciplinary expansion of History and Philosophy of Science and Science and Technology Studies. Most of those earlier curators, who came mainly from science and engineering backgrounds, saw the past of science and technology as a matter of intrinsic development, affecting – but not affected by – economy, society and culture. The modern HPS-STs humanities- and social science-associated discipline by contrast sees science and technology as intrinsically imbricated in materiality, economy, society and culture at the global scale. This presentation, drawing on the *Congruence Engine* digital collections project, proposes some ways in which the totality of these collections amassed using archaic criteria may be addressed in ways that respect the concerns of the modern discipline.

### “From Leonardo to Marconi”: moving beyond traditional narratives in Italian science and technology museology

#### Laura Ronzon

Museo Nazionale Scienza e Tecnologia Leonardo da Vinci, Italy

What are the research interests of a museum dedicated to science and technology today?

Like most science and technology museums, the Leonardo da Vinci National Science and Technology Museum was not born as a research institute. Conceived in the period between the two wars on the model of the great national museums of the late nineteenth and early twentieth centuries, it was intended as a key element to bring Italian mass public closer to “modernity” and “progress” by displaying technological objects as “national heroes” and putting “living science” on stage. (Canadelli 2017 and 2019). The museum only opened to the public in 1953 - symbolically with the gallery dedicated to Leonardo da Vinci - at a time when Milan was still partially destroyed by bombing but was leading the country's rebirth.

The conceptual framework underlying the founding collections and first exhibitions was encyclopaedic, based on the main sectors of industrial production and scientific disciplines; the historical approach was still nationalist and deterministic. The use of objects was mainly instrumental to the narrative.

What kind of research is needed today to deepen the knowledge of this legacy?

How to rethink traditional science and technology museum practices such as the acquisition of new objects for the collections?

How to explore new public narratives on science and technology by putting objects at the centre of critical reflection?

The Osservatorio sul Patrimonio Scientifico e Tecnologico of the Museo Nazionale Scienza e Tecnologia was created to encourage research on the history of the museum and its collections and on the social and cultural meaning of technological heritage in general, past and present, in collaboration with external researchers.

## **The Museum as a Lab? Following Radio Objects at Museo Nazionale Scienza e Tecnologia Leonardo da Vinci (Milano)**

**Roberta Spada<sup>1,2</sup>**

<sup>1</sup>Politecnico di Milano; <sup>2</sup>Museo Nazionale Scienza e Tecnologia Leonardo da Vinci

One of the core traditions of Science and Technology Studies are ethnographic studies on technologically dense environments and sites of construction of technoscientific knowledge, such as laboratories, tech companies, and operation rooms. For instance, these studies have shown how scientific and technological knowledge is crafted from a situation of disorder to one of order and control, made of articles and structured data, or a smooth technological chain ending in a black-boxed terminal, the only visible component of the infrastructure put in place.

What happens if we use these theoretical tools to investigate collection-based science and technology museums? In my contribution, I explore this possibility using my research on three radio objects conducted at Museo Nazionale Scienza e Tecnologia “Leonardo da Vinci” in Milan, Italy.

These museums are multi-layered organisations merging many professional cultures, such as curation and conservation, education, fundraising, marketing, facility management, and design. Most importantly, they are more-than-human places because they revolve around artefacts, *material culture*, to construct and publicly enact historical knowledge about science and technology. Following artefacts through archives, exhibitions, and their “museum life” can lead to understanding how curators, collection managers, and conservators have constructed such accounts, just as following the scientific objects in the lab led to understanding how scientists and technologists construct technoscience.

In my research, I have followed three radio artefacts from 1930s Italy and engaged in curatorial work on them. By integrating STS and curatorship, what emerged was the role artefacts have in shaping those narratives and in being shaped according to a curatorial vision. While curators can enact certain narratives about technoscience and conceal others, objects—a tangible witness of their own stories—have the power to unite communities or create contested epistemic spaces, elicit love, disgust, hate, nostalgia, or affection, and ultimately reinforce or challenge ideas about the history of technoscience.

## **Case study of a work in progress project for a modular, collaborative and open-source nano-museum**

**Diego Ariel Jarak<sup>1,2</sup>**

<sup>1</sup>La Rochelle University, France; <sup>2</sup>Centre de Recherche en Histoire Internationale et Atlantique (CRHIA)

The “nano-museum” is a participatory, transdisciplinary project that is designed to be deeply modular and capable of fitting in the territories where it is deployed. The project is part of the global emergence of new symbiotic models that transcend the borders of disciplines as well as the walls of institutions that used to retain a certain ownership of knowledge and culture.

Finding ways of reintegrating diverse audiences constitutes an essential issue, which takes us back to the very definition of the museum. Such deeply participative, transdisciplinary models are thriving, re-empowering citizens and re-connecting with individual and local specificities. The intention behind the “nano-museum” project is to contribute to this movement by documenting the very process of its making, and by proposing new symbiosis, new mediation approaches.

The “nano-museum” project directly stems from this global trend of decolonization and democratization of knowledge and culture. The project is rooted in a participatory approach. Instead of proposing an exhibition with a fixed scenography and mediation, it is designed by, with and for society.

The making process, design plans, as well as the modules - the artistic and scientific content of the “nano- museum” are meant to be shared. The “nano- museum” is not only an open-source project, it is also a collective project: indeed, digital platforms will be created in order to share the project log-book, pedagogic fabrication tutorials, as well as a catalogue gathering modules created by the university or by any association, school, individual or group of individuals wishing to take part in the project.

The project is an experimentation: the proposal and testing of a symbiotic, collective museal experience. In this communication we will present our field experience of the implementation of the project.

## **Sharing the Interests of the Museum in a Multidisciplinary Perspective: A Case of Participatory Active Collecting**

**Francesco Bonifacio<sup>1</sup>, Lavinia Gaia Girlando<sup>2</sup>**

<sup>1</sup>Università Cattolica del Sacro Cuore, Milan, Italy; <sup>2</sup>Museo Nazionale della Scienza e della Tecnologia Leonardo da Vinci, Milan, Italy

In recent years, the processes of digitization and platformization have transformed the modes of organizing production, work and everyday life in ambivalent ways. While the spread of digital technologies contributes to the creation of increasingly “technologically dense” work environments, we also observe the emergence of new jobs (e.g. digital labour, platform labour), where digital technologies constitute not only the material infrastructure of work, but more generally a distinct organizational pattern. The implications of these transformations on work and on workers are ambivalent. According to some scholars, digital platforms have provided vulnerable social groups with new, albeit fragmented, opportunities of income. Others relate digitization to some classic dynamics of capitalist development, in terms of labour process automation, workers deskilling and the construction of increasingly pervasive forms of algorithmic organizational control.

In this scenario, the project Collezione Attiva Partecipata activated by Museo Nazionale Scienza e Tecnologia Leonardo da Vinci aims to address the imbrications between digital technologies, new ways of work and new (or old) forms of inequalities, integrating interpretive and methodological approaches pertaining to social history, museology, sociology more generally, and STS. In particular, CAP aims at involving the citizens of the metropolitan city of Milan in the active process of creating knowledge and heritage about the never-stable connections between work and technology, taking into account those who personally experience (or do not experience) in different ways the current major changes driven by digitization processes. The project is currently in its initial stage, and some results will be presented at the conference. In particular, our contribution aims to critically question the role of social scientists and museologists in the process of constructing heritage and scientific knowledge.

## **Algocount: The Everyday Algorithms collection**

**Angeles Briones<sup>2</sup>, Simona Casonato<sup>4</sup>, Alessandro Gandini<sup>1</sup>, Beatrice Gobbo<sup>3</sup>, Silvia Keeling<sup>1</sup>, Michele Mauri<sup>2</sup>**

<sup>1</sup>University of Milan, Italy; <sup>2</sup>Politecnico di Milano; <sup>3</sup>University of Warwick; <sup>4</sup>Museo Nazionale Scienza e Tecnologia Leonardo da Vinci Milano

The Everyday Algorithms collection is one of the outputs of Algocount, an interdisciplinary research project bringing together researchers in sociology and information design with museum curators. Algocount investigated information recommendation paths on social media platforms in Italy and returned them as artifacts in a museum context during the closing dissemination event. By looking at algorithms as intangible objects part of cultural heritage, the interest was to study their influence and communicate it to the public through snapshots of them for preserving their role for future social studies. Using different research methodologies (mainly digital methods and focus groups), the digital traces of the behavior of specific algorithms within social media were transformed into physical artifacts and documents after a design process of remediation and translation from scientific research to communication with the public.

The collection consists of three artifacts. Inspired by tarots, a first one is a deck of illustrated cards based on the oral narratives of participants in focus groups. The cards visually describe participants’ vicissitudes and struggles with algorithmic glitches when using different social media platforms and digital technologies. The second one is a physical plastically parchment accessible by the public in museum settings. Indeed, users can explore a data visualisation of the interactions between a new Facebook subscriber and the platform’s News Feed by unrolling it. The third one is a postcard-sized guide for navigating social networks consciously and promoting greater awareness and knowledge of the intervention of algorithms in contemporary media based on the experiences made during the research. Each transforms the experience of impenetrable and ever-changing machines, like social media platforms, into tangible objects that can be used both for promoting reflection

among current users on the inner workings of such technologies and for documenting and preserving their experience over time.

## Panel 12 - Session 1: The interfaces that inform security knowledge and practice

*Time:* Thursday, 29/June/2023: 9:00am - 11:00am · *Location:* Aula Unione 1

*Session Chair:* Claudia Emilie Aanonsen

*Session Chair:* Rocco Bellanova

*Session Chair:* Georgios Glouftisios

**Topics:** Governance of and by data infrastructures; Sociotechnologies of (in)secure worlds to come; Algorithmic knowledge, media ecologies and artificial intelligence

**Keywords:** Interfaces, Security, Practices, (Critical) Security Studies, New Media Studies

When data analysts sit in front of a screen to identify a potential security threat, it is not only their user interface that is at play. There are many other interfaces that make hardware and software work together (Cramer & Fuller 2008). Besides, these interfaces also translate regulations, security visions and socio-technical controversies bringing together a heterogeneous set of public and private actors that design, use, operate and maintain them (Bellanova & de Goede 2022; Glouftisios 2021). STS and New Media scholarships generally understand interfaces as sites and processes of interaction between humans, hardware and software (Galloway 2012; Suchman 2006). Other approaches see interfaces as trade-zones where actors, knowledge and practices from different worlds meet and influence each other (Amicelle 2022; Barry 2006). We would like to foster the conversation about the promises and challenges of studying those interfaces that inform security knowledge and practice. We would like to ask how interfaces can be conceptualized through the lenses of STS and (Critical) Security Studies, what kinds of interfaces emerge in the wider field of security, what modes of power and ways of doing security they allow for, and how we can empirically study them. By foregrounding interfaces, we do not want to recycle just another buzzword but to explore their analytical potential to better make sense of security knowledge and practice. We also want to understand how the notions of interface and interfacing can enrich the conceptual exchanges between STS and (Critical) Security Studies (Bellanova et al. 2020), and thus how these notions relate to concepts such as 'assemblage/dispositif', 'security chains' and 'translation' (Hookway 2014; de Goede 2018; Pelizza 2021). Therefore, in response to the conference theme focusing on new worlds to come in the face of more-than-human challenges, our non-exhaustive list of potential themes for panel contributions includes:

- Border security and migration management. How databases shape practices of border control, and the management of migration and asylum.
- Cybersecurity. How algorithms shape the protection of 'critical' information infrastructures and how they mediate surveillance, digital forensics or the production of e-evidence.
- Intelligence. How 'covert' monitoring and surveillance infrastructures contribute to the production and dissemination of security intelligence and how to make such infrastructures public.
- Policing. How digital technologies implemented in 'smart' cities feed into the urbanisation of security and everyday policing work.
- Warfare. How semi-autonomous weapons systems shape contemporary warfare and what are their ethical, legal and socio-political implications.

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## **'Prove you are human': Interfaces for identity verification**

**Stefania Milan**

University of Amsterdam, Netherlands, The

Identity verification is increasingly delegated to digital tools. Examples include anti-cheating software used in universities to monitor remote examination, digital vaccination certificates, and digital identity systems. These tools generate data that result in real-time decision-making and/or monitoring, thus exercising regulatory power (hence "regulatory data infrastructure"). They take up functions that pertained almost exclusively to governmental agencies and public administrations. They empower an emerging mode of governance—"governance *by* data infrastructure"—that elevates regulatory data infrastructure to the preferred mode of governance of complexity. Paraphrasing Easterling (2016: 11), we can see interfaces of digital tools as "the overt point of contact and access" of governance by data infrastructure, making visible "the rules governing the space of everyday life".

Employing the walkthrough method (Light et al, 2018), this paper takes a critical look at the interfaces (or mock design) of three regulatory data infrastructures: the European Union *Digital COVID-19 Certificate*, the *Proctorio* software for remote examination, and the European Digital Identity Wallets. Comparing distinct systems of identity verification, including biometrics, the paper analyzes not only the features of the digital scaffolding, but also the embedded socio-cultural meanings. It thus contributes to our understanding of the emerging modes of power and ways of doing security through interface design as implemented by consumer identity verification systems.

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## **"Walking Through Walls" – An Exploration into Epistemic Ecologies of Operations**

**Erik Reichborn**

Norwegian Institute of International Affairs, NUPI, Norway

The aim of this paper is to move the ongoing debate between STS and CSS toward a radical empiricist approach that can traverse scales and 'walk through the walls', between micro, meso and macroprocesses. Mobilizing the concepts 'configurations', 'cognitive assemblages' and 'ecology of operations' the paper outlines a particular methodological sensitivity for better capturing the intimate relations between human-machine configurations and their systematic interaction with the environment in which they operate. While configurations allow for a focus on how particular imaginaries are inscribed into sociotechnical systems and cognitive assemblages help us understand how configurations interpret information in context and connect it with meaning, thinking in ecological terms allows for capturing the relational, generative and more-than performative nature of these epistemic operations. Understanding ecology as the sites of "intensities, synergies and symbiotic processes" (Puig de la Bellacasa, 2016: 53) and interactions through which configurations and the environment becomes together, such an approach allows us to better make connections between macro, meso and micro-processes and capture how these epistemic ecologies of operation function in cyclical interdependent ways.

## **AI at the Border: Rethinking socio-technical imaginaries and practices**

**Sarah, Caroline Perret**

King's College London, France

The European Union Agency for the Operational Management of Large-Scale IT Systems in the Area of Freedom, Security, and Justice (eu-LISA) has made artificial intelligence (AI) one of its key 'technical' tools to coordinate and make interoperable several European databases collecting and managing justice and internal security data, such as EURODAC, SIS II, and VIS. However, the issues and practices of border datafication are based on a very political conception of security that (re)produces certain discriminatory biases, as well as the power hierarchies and epistemological frameworks that underlie the phenomenon of migration. Building on STS, CCS, and Ignorance studies, this study seeks to explore the socio-technical modalities at work in the algorithmic management of EU border security and to expose the divergent understandings and imaginaries of the use of AI. Based on participant-observations, interviews, and reports in-depth reading, I investigate the imaginaries at work in eu-LISA as a site of socio-technical 'interface'. I argue that there is a need to rethink the socio-technical relations of AI use at borders in order to implement a more efficient, secure, and above all humane border governance for cross-borders, especially third-country nationals crossing the EU borders.

## **Making Pushbacks Public: Secrecy, Material Witnesses and Devices of Dis/appearance**



### **Georgios Glouftis**

University of Trento, Italy

In early 2021, the European Parliament established the Frontex Scrutiny Working Group (FSWG) with the purpose of monitoring all aspects of the functioning of the European Border and Coast Guard Agency (Frontex). During the first four months of its activities, the FSWG organised a series of public hearings and carried out a “fact-finding” investigation to gather information and evidence about pushbacks of would-be refugees at the Aegean Sea. By unpacking some of the central controversies that emerged during the public hearings and fact-finding investigation of the FSWG, I explore how secrecy was practised and strategically employed to obscure the responsibility of Frontex for the reported pushbacks, and how it was contested through the gathering and presentation of related evidence. This paper contributes to scholarly works at the intersection of critical security studies and secrecy research by forwarding an understanding of secrecy not as something hidden, pre-given and fixed but as being reiteratively performed in socio-technical practices. Specifically, I explain how secrecy and related controversies and struggles over making pushbacks public involve a variety of actors (politicians, security professionals, investigative journalist etc.) that enrol and interact with a heterogeneous setting of material devices and infrastructures, including digital, visual and archival traces of violence at sea, as well as databases and security interfaces used to record different kinds of security-relevant information. Research on secrecy’s performativity has attended predominantly to conventional domains of security, like counterterrorism, surveillance, espionage, and military affairs broadly conceived. Overall, my goal is to make some of the ideas and arguments developed in this literature speak to research on borders and migration.

### **Export of Biometric Technologies: the Politics of Datafied African Borders**

#### **Carolina Polito**

University LUISS Guido Carli, Italy

Since the 9/11 aftermath and the outburst of airport policing, scholars have increasingly explored the use of biometric technologies for border security. This datafication of borders works at the interface of the public-private sector and emerges as an increasingly opaque zone where powerful interests collide. Other than a mere site of interaction between humans, hardware, and software, this interface is a locus of negotiations where political and strategic interests are intermeshed with a logic of economic profit and technological efficiency.

The data-rich infrastructure-poor African continent is currently facing an unprecedented inflow of foreign investments in the biometric market. In fact, a continent-wide trait of the identity management industry lies in the quasi-absence of local contractors.

Focusing on the interface of the public-private sector in the roll-out of biometric technologies for border security in Africa, this article address why biometric technologies are being exported. The article looks at the politics of biometric technologies by illustrating the complex entanglement of different interests which are embodied in the design and working of these technological artifacts when exported to third countries. To do so, I conducted a case study of Thales-Gemalto, a leading French company in the biometric sector and exporter of biometric technologies, and of its relationship with the France government.

Preliminary findings suggest that state outsource their border control to foreign companies which financially benefit from these contracts. However, together with the economic return, strategic goals are fostered, such as that of migration control, through the key convergence of state-corporate interests.

### **Security Interfaces, Augmentation, Habitus**

#### **Francesco Ragazzi**

Leiden University, Netherlands, The

Interfaces of security technologies are the point of encounter between human operators, human programmers, and human database designers and annotators. These three social agents are embedded in specific social universes (security, computer science, data science) whose encounter is mediated by technological objects such as screens, graphical user interfaces (GUI), machine-specific controllers. While a lot has been written about the affordances of these technical and material objects, less is known about the relation between them and the social stuff they are constituted from and embedded in. In particular, little has been written about the incorporation of machine logics within social agents' practical logic, what we could defined as the emergence of the "augmented habitus". Based on preliminary field research with these three categories of actors, this paper aims at setting the bases for a sociological theory of interfaces which takes seriously both the affordances of socio-technical devices and the social effects on human agency and the social fields they are embedded in.

## Panel 40: Publish or perish reloaded: The matrix of contemporary scientific publishing facing institutional research arrangements and the marketization of academic environments

Time: Thursday, 29/June/2023: 9:00am - 11:00am · Location: Aula Unione 2

Session Chair: Stefano Crabu

Session Chair: Federico Neresini

**Topics:** The value of science, technology, innovation and research practices

**Keywords:** publish or perish; Open Access; academic piracy; Academic predatory practices; academic publishing oligopoly

The “publish or perish” (PP) aphorism – with its creeping necropolitics of knowledge – still informs the everyday work of academics. Although it appeared at the beginning of the last century, the PP principle still normatively orients the assessment of academics and researchers on the basis of their success in publishing, with an emphasis on productivity as potentially impacting the innovativeness, significance and social impact of scientific outcomes. Moreover, we can argue that this principle continues to act as a pivotal subjectivation device for the thousands of academic workers from both the Global South and Global North.

Despite its sharp relevance in shaping, reshuffling and igniting research trajectories, the PP phenomenon requires careful analysis. Hence, what now seems urgent and politically exigent is to initiate a lively debate for the purpose of theoretically and analytically grasping the conditions – political, economic, epistemological, institutional and technological – surrounding the culture of contemporary scientific publishing. Academic publishing is indeed a global techno-service industrial complex worth more than USD 19 billion. However, this market is highly concentrated, with few for-profit publishers exercising oligopolistic power in managing academic journals and generating substantial profits for publishers and high costs for public universities (e.g., cost of subscription to scientific journals). Thus, the current political economy of academic publishing potentially compromises the free access to academic scientific knowledge, essentially contradicting the mandate of many public policy schemes. Although digitalization and open access (OA) were intended as liberating forces for academics and research organizations, they appear to have somewhat contributed, alongside key university ranking indicators, to boosting the oligopoly of for-profit academic publishers and translating the digital platform culture within the academic publishing sector.

Within this scenario, it is also important to underline emerging forms of academic piracy, violations of intellectual property rights (e.g., the subject of editor lawsuits against Sci-Hub) and the emergence of “predatory publishers” associated with the potential decline in the academic quality of research. The aim of this track is to explore current scientific publishing practices and the related political, economic, epistemological, institutional and socio-technical arrangements surrounding the PP imperative.

We therefore encourage social scientists, STS scholars, policy scholars as well as practitioners in the academic publishing industry to submit theoretically, empirically and/or methodologically oriented contributions that aim to explore the following:

- The emergence and consolidation of the academic publishing oligopoly;

- Current OA policy implementation and related challenges in the context of the academic publishing oligopoly;
- Emerging forms of “academic piracy”;
- Academic predatory practices;
- The platformization of academic publishing and the use of metric, “alter metric” and scientometric indicators provided by digitalization;
- New business models associated with OA and emerging forms of self-organized open publishing;
- How (digital) citation index databases influence the academic publishing industry and scientific publishing practices;
- Gaps and inequalities between the Global South and Global North in accessing scientific publications and implementing OA policies.

### Gatekeeping in scientific publishing

**Federico Boem**

University of Twente, Netherlands, The

From the replication crisis to vaccine hesitancy, the scientific method is squarely in the spotlight. Traditional approaches to knowledge production and dissemination are undergoing intense scrutiny, well-established publishing methods are facing challenges including from new open-access journals, while ‘fake news’ advocates and conspiracy believers participate in popular discourse in the name of unbiased or balanced reporting. Academic publishing should be immune to these problems, at least in principle. Especially as academic publishing has come to represent the bastion of knowledge

production. Yet the replication crisis is just one example that illustrates how poor and fraudulent research practices can tarnish reputations, damage trust in scientific methods and their results, and bring a scientific discipline to its knees. In this paper, we will explore these issues in relation to the topic of gatekeeping since it is here that the promise and perils of self-governance and oversight come to the fore, but also here that improvements can be most swiftly made. We do this by considering the case of nanobiology. We end the paper with some recommendations for how to improve the practice of gatekeeping, including highlighting the essential role of interdisciplinary dialogue and engagement.

## **How publishing markets shape researchers' publishing strategies: A comparative analysis of History and Psychology**

**Jacqueline Sachse<sup>1</sup>, Felicitas Heßelmann<sup>1,2</sup>**

<sup>1</sup>Humboldt-Universität zu Berlin, Germany; <sup>2</sup>German Centre for Higher Education Research and Science Studies

The publish or perish imperative is one example of how the publishing system currently produces incentives for publication that are not directly related to research quality. Instead, research with positive results or topics fitting well with the zeitgeist are published preferentially, a phenomenon often called 'publication bias'.

This contribution aims at identifying field-specific causes and conditions of non-publication. It addresses the problem by comparing contemporary history, where single-author book publications are the most valued publication format, with clinical psychology, where primary research outputs are journal articles with multiple authors. Using qualitative interviews (n=21) with researchers from the two fields, this study aims to reconstruct structural factors from the field-specific publication cultures and economies that shape the publishing experiences and strategies of researchers.

Analyses highlight how researchers' publication practices are shaped by considerations of the respective publishing markets. Historians reported being conscious of the fact that publishers' main interest lies in publishing books expected to be successful in terms of sales figures. They thus prefer publications that support existing expectations while being reluctant to accept analytical perspectives unpopular within the scholarly community or to publish politically sensitive research topics. The publishing market in psychology is mainly organized around journals, and in many ways ruled by the impact factor which ties a journal's economic success to the academic success of its articles. Participants from psychology reported to expect high-impact journals to filter for high quality and to preferably submit to those journals. However, participants' conceptions of quality were more closely related to excellence and originality rather than methodological soundness, and appeared to be an adaptation to journals' economically motivated acceptance criteria.

In conclusion, this study sheds light on how commercial interests of publishers – despite differences in formats and business models – influence the way research is conducted, communicated and received.

## **Resisting individualistic productivity in the publishing domain: digitalisation and the creation of diffused archives of feelings inside academia**

**Anna Capretta**

Università degli Studi di Padova, Italy

In the publishing domain, an individualistic notion of productivity is fostered by the "publish or perish" (PP) aphorism. Among its side effects, this imperative leads to forms of self-censorship, which can have a great epistemological impact on published works and negatively influence their quality and significance. In order to get published, scholars may not include in their manuscripts some aspects of their research which could be labeled as unprofessional or of personal concern, even if these same aspects did have a relevant influence on their research work. In this contribution, I address the publishing practice of self-censorship by considering the case of the academic silence on episodes of sexual harassment and violence suffered by ethnographers while conducting fieldwork, relying on previous literature and on my personal experience. After considering the structural conditions which lie behind the PP phenomenon, I demonstrate how digitalisation in the publishing domain can foster collective forms of resistance to the imperative of individualistic productivity. In particular, I argue that open access (OA) and academic piracy play a relevant role in enabling scholars to find the few existing contributions on the issues which they have left out from their published works and which are still a taboo in the academic domain. In this sense, OA and academic piracy contribute to the creation of diffused archives of feelings inside academia, allowing for a sharing of knowledge and common experiences among researchers.

## **Are Diamonds forever? Measuring and discussing the durability of non-APC open access journals**

**Didier Tornay**

CNRS, France

Over the last 30 years, libraries and higher education and research institutions have experienced successive serial crises caused by the permanent increase in subscriptions to large publishers. The successive solutions of developing Big deals, gold open access journals, and transformative agreements have not provided any sustainability as Big legacy publishers keep on expanding while new OA commercial competitors (Frontiers in, MDPI) were very successful in extracting money from research communities and institutions.

Faced with these failures, solutions have been proposed and implemented for a long time, mainly in South America and Europe: open access journal platforms, with no direct cost for readers and authors. The best known and largest platforms (Redalyc, Scielo, OpenEdition, ...) are only the most visible part of a Diamond ecosystem comprising up to 30,000 journals (Bosman & al., 2021), with recent calls from diverse institutions to support them through a dedicated action plan (Ancion & al., 2022). Yet, despite their decades history, questions remain on their sustainability as they heavily rely on volunteering and community effort.

This OA Diamond journals population has been studied at different moments in time (Morison & al., 2015, Morrison & al. 2017; Frantsvag, 2019) but this communication is the first to tackle its dynamic at the journal level, rather than the evolution of total articles. Based on an analysis of the Directory of Open Access Journals (DOAJ) data retrieved from archives on more than 20,000 journals, it focuses on the survival rate of APC vs. non APC Journals, the (very small) rate of business model change - both ways - along with its case by case motives. It concludes that OA Diamond journals are very stable over the 6-year period for which data exist, despite the small-scale economy that currently characterises them. It could even be considered more stable than business models mostly based on monetary support (subscription and APC).

## **Publish, perish or... go public? On strategies of escaping the semi-peripheral academic capitalism and making the academic job meaningful**

**Przemysław Plucinski, Marta Kosińska**

Adam Mickiewicz University, Poland

Academic capitalism, implemented in the Anglo-Saxon academy decades ago, has now been installed in Central and Eastern European universities, including Poland. The pressure to function according to the rules of publishing oligopolies and the publish or perish (PP) regime, backed by arguments of global verification of scientific record and research integrity, is, of course, met with numerous counter-arguments. One speaks, for example, of a global division of academic labour, reinforcing rather than abolishing inequalities by, for example, entrenching the position of producers of theory and providers of case studies. This mimetic 'modernisation' obviously encounters local resistance. These responses can take the form of institutional responses ('Crisis Committee of the Polish Humanities') and individual strategies.

The empirical basis for the paper is the results from the research grant 'Social circuits of knowledge in academic humanities practices' funded by the Polish National Science Centre. The data used in the analysis contains (1) secondary data: reports from selected universities and ministerial evaluation documents; and (2) primary, qualitative data from 80 in-depth interviews with scholars.

Based on the data, the paper analyses various patterns of coping with PP mode in Polish academia. Most interesting among them are praxis-oriented strategies of 'going public' (in Patricia Collins' terms). These are activities of collaboration and co-productions of knowledge with cultural institutions and organisations and social movements operating in the social environments of the university; actions feeding these actors with academic knowledge and, on the other hand, feeding academic knowledge with context-wise, empirical knowledge from those collaborations. These practices are hardly visible by university evaluation systems in terms of PP logic. At the same time, they constitute a sharp opposition towards PP regimes, challenging the very ideas of public science and the social responsibility of academia.

## **Re-infrastructure "openness": How theoretical approaches help understand Open Access controversies**

**Elena Šimukovič**

ZHAW Zurich University of Applied Sciences, Switzerland

Since its inception some 20 years ago by the Budapest Open Access Initiative (BOAI), Open Access to scholarly literature has become a popular concept that rapidly catapulted onto the (European) science policy-making stage, such as with the announcement of the so-called "Plan S". Because research results reported in scientific publications are often paid for through public funding, suggests a common "tax-payer argument", broader societal groups, practitioners, and other scholars should have immediate and unrestricted access to them. In the end, by combining scholarly tradition of sharing research

results with technological possibilities of electronic publishing, the conventional system of subscription-based scientific journal publishing should be gradually replaced with free online access worldwide.

However, despite its general appeal, translating this vision into practice reveals a number of entangled and at times conflicting interests and goals of involved actors. Building on findings from my recently completed doctoral research, in this contribution I will highlight how the many controversies, ambivalences and paradoxes surrounding Open Access debates and initiatives can be illuminated through the lens of infrastructure studies and (re-)infrastructuring. In particular, by drawing lessons from related negotiations between Dutch universities and one of the biggest scientific publishers, Elsevier, I show that supposedly well-intended large scale initiatives to achieve 100% Open Access by a certain target year have so far mostly resulted in reinforcing power imbalances vis-à-vis oligopolistic commercial publishing giants. What is more, the popularisation of author-side fees such as Article Processing Charges (APCs) leads to a highly problematic shift from a *pay-to-read* to a *pay-to-say* principle. Taken together, this theoretical lens helps to address the dilemmas that Open Access designers are confronted with as well as the complicity of institutional and individual actors in the faltering state of affairs in the Open Access transition as initially envisioned by the BOAI.

## Panel 49: More than human decentered design: which competences, which methods, which tools for interesting worlds to come?

Time: Thursday, 29/June/2023: 9:00am - 11:00am · Location: Aula Unione 3

Session Chair: Micol Rispoli

Session Chair: Gianluca Burgio

Session Chair: Alvisè Mattozzi

Session Chair: Ramon Ernesto Rispoli

**Topics:** Ecological transitions and climate justice; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Methodological challenges in a more-than-human world; Everyday life and design of the mundane; Building alliances in public participation and engagement

**Keywords:** cosmopolitical design, more than human design, inventive methods, pedagogy, design anthropology

Since few years, an intense and systematic dialogue between design disciplines and social sciences has thrived. Such dialogue has happened, on the one hand, when design research has started to get interested in social science methodologies and, in particular, in the ethnographic method, and, on the other, when social sciences have started to get interested in the social role of artifacts in a systematic way, especially thanks to STS. Such dialogue has never been limited to a simple exchange between two disciplinary fields, where one took simply something from the other. In many cases such dialogue has contributed to transform both design and social sciences and to give way to various experimental practices, which have had an influence also on pedagogy.

More recently many STS scholars, designers and design researchers felt the necessity to further expand the notion of sociality, in order to include other beings besides artifacts, as a way to address present and future challenges and interest future worlds to come. As the general theme of the conference indeed say, today, the multiple eco-social crises we are experiencing highlight the fact that co-existence is not just a human issue, but rather something that engages all the beings (living ones or not living ones) that take part to the biosphere ecosystems.

Any design project cannot but be conceived interdependently participative: it is an activity of negotiations among multiple and heterogenous beings with different agencies. Because of that, design, emerged along the unfolding of modernity and its late and slow fading as designed itself around the human or, better, around various specific figures of the human, need to be redesigned: the very notion of project, its background and its modalities need to be redesigned.

Today some designers (architects, engineers, product-interaction-graphic-service-social-younameit designers) are trying to engage in this challenge, often starting from the pedagogical field. This panel intends to provide a stage, a place for reflection and discussion and a laboratory for further investigation and exploration of more-than-human design reflections, researches, projects, interventions and experimentations.

We invite papers, prototype presentations and performances, engaging, reflecting and discussing the following issues (among others)

- interspecies co-design;
- experiments in design and architecture pedagogy, addressing the more-than-human challenge;
- what competences and kinds of knowledge more-than-human designers need
- co-designing with neglected actors;
- dismantling modernity, embracing complexity in design;
- architectures of care in times of crisis;
- design anthropology and its reframing through inventive methods to investigate more-than-human worlds.

### Glocal Worm-ing - Earthworms as active agents to transform the web of place-based human-soil relations and ecologies

**Merve Bektas**

Merve Bektas, Italy

Fertile soil is currently being depleted faster than it can be renewed, a crisis referred to as *Peak Soil*. Soils are now on the list of environmental issues that need global care and caring for them entails caring for those who depend on them. Earthworms are one of the symbionts of soil life and are necessary for living soils.

Considering the urgency of creating new cultural aesthetics of soil care practices and expanding the notion of more-than-human sociality, *Glocal Worm-ing* investigates, through design, ways to nurture mutual human-soil relations together with earthworms and active citizen-participation in order to enhance multispecies co-existences in cities. The project seeks to provide emergent soil care practices in public spaces with earthworms. Earthworms as companion species to humans open

up the need of building relational networks by applying soil care practices in order to care for the Earth, each other, and other living beings.

The design research approaches include multispecies ethnography, participatory action research, and agonistic design through interventions, and workshops. A key design harvest of the project is the *Earthworm Manifesto* as a transformative storyline weaving relations of citizens with the world of the earthworms and the underground.

Now the project is in the exhibition at the *Naturmuseum Südtirol* from October 2022 until March 2023. The exhibition invites visitors to encounter earthworms as kins to humans, and it weaves the facts and fables (SF) to build other stories, relations, and other worlds to come.

*Glocal Worm-ing* as a case study intends to contribute to the STS by presenting how a long-lasting intimacy between earthworms and me as a designer is carried into the public sphere, and how it created a change of awareness on relational systems as the earthworm supported a chain of reaction in other realms.

## **Sustainable, Livable, and Compact: Negotiating the More-Than-Human Tradeoffs of Urban Consolidation Projects**

**Sebastian Bornschlegl, Cordula Kropp**

Cluster of Excellence Integrative Computational Design and Construction for Architecture (IntCDC), University of Stuttgart, Germany

Based on a focused literature review of urban planning research as well as examples from urban development projects employing principles of co-habitation by design, this paper conceptualizes the sustainability tradeoffs of densification and its implications for agents of urban transformation. Our focus lies on the interrelations between density and social sustainability (Dempsey, Brown, & Bramley, 2012; Neuman, 2005; Shirazi & Keivani, 2017) as well as the more-than-human concerns of urban naturecultures (Houston et al., 2018). As a reaction to the mode of ever-expanding urbanization (Brenner & Schmid, 2014) and resulting crises, urban consolidation and the ideal of the compact city have emerged as alternative visions of urban habitation (see The New Leipzig Charter). Densification measures, like infill and brownfield development, would serve demand and improve livability without sealing any more land. Sustainable urban design practices, like animal-aided design or simply the preservation of existing natural habitats, would further mitigate the hazardous effects of intensification on ecosystems.

However, our contribution shows that designers of the urban, like city planners and architects, are confronted with much more ambivalent realities of compaction. We identify conflict of goals not only between the different dimensions of sustainability, but also in between aspects of more-than-human social sustainability. Approaching the issue from the perspective of actor-network theory and urban political ecology (Angelo & Wachsmuth, 2015; Fariás, 2012; Keil, 2003), we conceptualize densification as a specific way of assembling the city. Our thesis is that it is a social project affecting heterogenous forms of agency and nature-culture relations by re-distributing species, resources, and privileges across space (McFarlane, 2020). The resulting uneven spatial development shapes the socio-ecological impact of urban development projects. In the presentation, we will outline which conflicts of goals need to be considered for making urban transformation an accessible and just practice rather than a privilege.

## **Architecture as a practice of mutualistic negotiation. On New-Territories' zoopolitics**

**Augusto Fabio Cerqua**

Università degli Studi di Napoli "Federico II", DiARC, Italy

When we talk about Anthropocene we cannot avoid to question the current conflictual relationship between humans and animal dwellings, to the extent that the anthropologist Anna Tsing, in her paper "A Threat to Holocene Resurgence Is a Threat to Livability", locates in the destruction of most of the *refugia* the transition from the Holocene. How can we stimulate to the revival of *refugia*, where ecosophical processes go to regenerate, to reconstitute a biodiversity resurgence of both human and nonhuman refugees? What is the relationship between zoopolitics and contemporary architectural practices and discourses? By zoopolitics we mean the government of the whole animal kingdom, including human. This essay, in the framework of STS, understands architecture as a zoopolitical technology for negotiating symbiotic mutualism between human and nonhuman animals. Taking as a starting point Peter Sloterdijk's *Rules for the Human Zoo*, in which he has shown that humanism is essentially a project of self-domestication, and going beyond notions of moral ecology, we will take as paradigms four projects by New-Territories, the polymorphous architectural organization founded by François Roche, in which new protocols of interspecies cohabitation and coexistence are experimented. These projects are related to the concept of response-ability developed by Donna Haraway, both the ability to respond to the other and to make the other able to respond, in an effort of defining the emergence of multispecies assemblages: with cows on the Swiss Alps (*Scrambled Flat*, 2001), with an albino buffalo among the rice paddles of Chiang Mai (*Hybrid Muscle*, 2003), with mosquitoes-borne West



Nile Fever virus in Trinidad (*Mosquitobottleneck*, 2003), with swiftlets in a Thai tropical environment (*MMYST*, 2015). In particular, *MMYST* offers some insight for how to reconstitute *refugia* and bring wildness back.

### **co-Ability Aligned arguments for the dissolution of a human “centre”**

**Renata Dezso**

Moholy-Nagy University of Art and Design, Budapest

To generate critical and new insights into our value system in human-centred societal challenges, the experimental approach of Research through Design and the power of critical disability studies explores philosophical and strategic possibilities to understand the concept of co-Ability. I introduce the term ‘co-Ability’ rooted in the critical approach of posthuman disability studies outlined by scholars such as Rosi Braidotti (2013). It serves as a broad umbrella term under which we can reconsider the potentials of various entities (biological and artificial) enhancing the shared competence rather than dwelling on the oppressive nature of human-centred norms. By analysing the literature review, this thesis addresses the reflective symmetry in key elements between disability studies and design approaches, questions the validity of a homogenous human need and reflects instead on how co-design can become a driving fuel for generating possibilities. Identifying how design helps to improve the experience of being human, and not necessarily the user experience of a disabled person in prosthesis design development, highlights the constraints of seeing a prosthesis as a process instead of a product. To investigate through personal values and situated concerns, the research settled on a case study prosthesis development with a discursive and self-reflective process. It actively contributed to a better understanding of embodied thoughts on relationships. With the methodological approach of the co-design framework, I point to the junctures where technology, bodies, and cultural theory intersect in a decentralised soft assembly in which disability, technology, and design act as equal partners in determining co-abled formations.

### **City regeneration, urban forests, former military areas, and controversial socio-nature: starting from some case studies.**

**Federico Montanari<sup>1</sup>, Giovanni Trentanovi<sup>2</sup>, Andrea Zinzani<sup>3</sup>**

<sup>1</sup>University of Modena-Reggio Emilia, Italy; <sup>2</sup>CNR, Firenze; <sup>3</sup>University of Bologna

The paper focuses on the processes of spontaneous renaturalization that give rise to what have been defined as “novel urban ecosystems” (Kowarik, 2011), complex socio-natural constructs (Smith, 1984; Swyngedouw, 1996; Castree, 2003), also often discussed within STS and ANT, because of their dual status, at once “natural” and “socio-techno-cultural” that often challenges (hence also the partial overlap with the concept of “brownfields”) this frontier; whose crucial role in addressing ecological and climate challenges within urban regeneration policies has not yet been sufficiently explored (Trentanovi, Campagnaro, Kowarik, Munafò, Semenzato, Sitzia, 2021). Such renaturalization processes typically invest urban and peri-urban areas where the original use has ceased - such as former industrial or military areas. Starting from a multidisciplinary approach, integrating perspectives and methods from the natural and social sciences, the article presents two case studies of former military areas (Piazza D’Armi in Milan and Prati di Caprara in Bologna), affected by significant renaturalization processes following the abandonment of their functions. Both sites are affected by the presence of socio-environmental movements of citizens who have recognized the common good value of these areas and the fundamental role they can play in countering the ecological and climate crisis; as well as by grassroots planning and co-design practices. These grassroots movements have opposed real estate regeneration projects in which state-owned public property and large private investors play a leading role, consistent with the provisions of urban planning and the vision of local governments (Zinzani & Curzi, 2020). The two case studies clearly show the controversial and complex nature of these urban socio-natures, the fundamental role of citizens in recognizing their strategic value in urban regeneration processes, and the obstacles faced by innovative bottom-up participatory processes. These can enrich comparative and transnational analysis with particular reference to the regeneration of former military areas

### **“Help!? My students created an evil AI”: on the irony of speculative methods and design fiction**

**Lina Rahm**

KTH Royal Institute of Technology, Sweden

This paper explores how the collaborative construction of speculative technological solutions can, rather than immediately challenging current paradigms, reveal an implicit acceptance of restricting imaginaries. In three design fiction workshops, a total of thirty-six teacher students were given the task to create an AI-powered technical solution to a self-identified and urgent ‘problem in education’. During these workshops, the design processes revealed several interesting ‘ironies’, relevant to both actual technical development as well as to speculative methods about technological futures. These ironies include for example a ubiquitous belief in techno-solutionism, an emergent culture of technology acceptance, a sensibility to an overall



structural capitalism that permeates technical development, and an 'ironic imitation' of the discourses and norms that are perceived as surrounding contemporary technology. These ironies are productive in illuminating power asymmetries, and thereby creating space for important failures, resistances, and disruptions.

Benefits and drawbacks of speculative methods in education research have, to a certain extent, been addressed previously. Mann et al. (2022) presents educational design fictions in general as "a generative method for informing and promoting discussion about the future direction of education" (p.323). Houlden & Veletsianos (2022) stress the importance of imaginaries of education that are built on optimism and hopeful futures. While I agree that a proactive envisioning of a desirable future is as important as reacting to (and dismantling) the more obstructive current realities and their extrapolations. To me, the cruel optimist perspectives in educational imaginaries are often fuelled by edtech solutions (e.g. Gulson & Witzemberger, 2022). As such, we may also ask ourselves, how we can practically contribute to STS by, using speculative methods, help participants to give an account that is still seen as valid, viable and valuable for their practices.

## **Turning on the Subtitle: Auto-subtitling as a practice of care**

### **Maryam Tatari**

Technical University of Munich, Germany

This article discusses the design and development behind auto-subtitling in Germany's Public Service Media online platform-ARD Mediathek-as a practice of care. As it is said to be designed by the people, for the people, ARD employs a "barrier-freedom" strategy for its online content recommender platform. This strategy has to ensure that ARD programs on Mediathek are accessible and understandable for all residents in Germany. With a feature like auto-subtitling, the text has to be available automatically, both on recorded and live content on the platform making the content comprehensible for some disabled users and non-native speakers. However, questions of inclusion and care remain relevant: Whose "dialect", "language", and "barriers" are taken care of? How is the practice of care shaping, respectively? Moreover, who is taking care of them?

Here, "care" -ing is a central concept to understanding various entanglements in the design and development of ARD Mediathek. The design and development of auto-subtitling as a practice of care criticizes the assemblage of the conventional/commercial content recommender platform and creates divergence and conflicts concerning the various images of the user. It brings up the frays behind rational/commercial accounts of the audience/user and their interaction with the content. It breaks down the "normal user" perception, undermines the "usual" software requirement collection and development procedures, and steps away from the centre-periphery dichotomy and standard language ideologies. Care as practice opens up the design to questions about multiple new user groups, their community-building practices, and their requisites.

In light of these questions, different accounts are collected from expert interviews with journalists, designers, and software engineers at ARD and online document collection on ARD web pages. The analysis will discuss auto-subtitling as a practice of care and show the socio-technical complexities behind alternative approaches to the design of digital public infrastructures.

## **Panel 8: Where Sustainable Plastic-transitions are going? Historical, Political and Social Lives of plastic consumption and waste**

*Time:* Thursday, 29/June/2023: 2:00pm - 4:00pm · *Location:* Aula B

*Session Chair:* François Dedieu

*Session Chair:* Stephanie Barral

*Session Chair:* Sebastien Dalgalarroondo

*Session Chair:* Tristan Fournier

*Session Chair:* Baptiste Monsaingeon

*Session Chair:* Benjamin Raimbault

**Topics:** Ecological transitions and climate justice; Heritage industry and the production of collective memory; Innovation imaginaries, practices and policies

**Keywords:** "transition"plastic"governance"

After the discovery in 1997 of the 7th continent of plastic in the oceans, a broad political consensus to reduce plastic consumption arose. Despite recent European and national regulations on plastic ban and recycle obligation, global plastic waste production continues to increase. Why does transition toward plastic waste reduction appear so hard to implement? So far, STS scholars have mainly studied how plastic waste become politicized. By considering waste material as a problem and a participant, "political material" process (Hawkins 2013) explains how waste politics takes different forms: mundane or controversial. Yet this perspective tends to focus only on the form of plastic policies and obscures the concrete effects of regulations on plastic waste reduction. The proposed panel seeks interdisciplinary papers able to grasp the deep historical, social, cultural and economic factors explaining why plastic sustainable transitions take different pathway: completed, halfway, or the status quo (Smith, Vos & Grin, 2010). In particular, the panel expects contributions in three (but no exclusive) researches directions. First, STS approaches studying the interplay of plastics technologies and social practices (Gabrys and alii, 2013, Evans and alii, 2020 notably) to highlight the conception and the (non) impacts of ecological regulations. In particular, how does plastic materiality (transparence and plasticity particularly) shape public regulations of plastic pollution, consumers habits, social imaginaries and social movements? Also, how do social networks and digital technologies shape these social practices? Second, contributions describing historical hegemony of plastics. Why and how did plastics become dominant technologies in different sectors (construction, food...)? Third, political economy approaches aim to understand how the relationships between private and public interests impact transitions pathways. Can private actors shape regulatory standards to make them less stringent? Does plastic industry brake sustainable transitions or favor plastic-alternative innovation? Do petro-chemical industries take advantage of non-restrictive regulations such as recycling obligations to subtly continue to produce polluting plastics?

### **Footfall and Phosphate, Plastics and Rain: On the Sensation and Materiality of Time on Christmas Island**

**Saskia Adelle Abrahms-Kavunenko**

University of Copenhagen, Denmark

The increasing speed of capitalism over the last seventy years has relied on material support, best exemplified by capitalism's own wunderkind material: plastics. Although an increasing number of plastics, since the mid 1950s onwards, have been made to be used and discarded as if they were essentially ephemeral, plastics have a materiality that stubbornly persists. On Christmas Island, an Australian external territory, temporal cycles are partly defined by the monthly arrivals of packaged food on ships and the bi-weekly arrival of planes carrying fresh food, locals, workers, tourists, and medicine. The predictable rhythms of the Gregorian calendar recede with the start of the rainy season, as planes become unable to land on a rainy days and ships can't dock during the seasonal swell. The Lunar calendar determines deep temporal connections for the local Chinese and Malay communities, including festivals that make offerings to the island's ancestors and to those trapped in the realm of the hungry ghosts. As the rainy season begins and following the cycles of the moon, the red crab migration changes life on the island by blocking roads, prompting care, and affecting the workings of the island's phosphate mine.

This paper will look at how people on Christmas Island perceive time in relation to the technologies and economies that plastics have co-produced. It will look specifically at how the movements of animals, people, and ancestors and ghosts are disrupted and supported by the use and presence of plastics. Engaging the ambivalences that many people have towards the plastics, I will look at how plastic items hitch rides on ocean currents, tie nations together through economic and material relations, and are embedded within religious traditions and cosmological understandings.

## The Future of Plastics and Circular Economy Contexts

**Marta Ferri**

Lancaster University Management School, United Kingdom

The plastic crisis has raised attention to the progressively increasing single-use plastic waste and the negative impact on natural ecosystems and human activities (UNEP 2018). Drawing upon Douglas' (1966) idea of pollution and the Actor-Network Theory approach (e.g., Callon 1986; Latour 1988, 1991, 2005; Law 1994, 2009), this research looks at the business-driven, member-based International Alliance for Sustainable Business (IASB) attempts to tackle plastic pollution. This study follows the material semiotic relationships (Law 1994, 2009) between single-use plastics, IASB, their members and circular economy ideas. Because plastics "misbehave", i.e., it is a "matter out of place" (Douglas 1966), "undisciplined", business-driven organisations try to put these materials back "in place", i.e., to "discipline" (Latour 1988, 1991) them by invoking certain circular economy definitions in line with their agendas.

The concept of "contexting" (Asdal and Moser 2012) is considered to navigate IASB's attempts to organise circular solutions to discipline plastics and help IASB members face issues related to the plastic crisis. Observing the interrelations between organisations' agendas (social values) and plastics material composition (material values) highlights ways of organising circular economy solutions, enacting future "disciplined" plastics, and the diverse notions of responsibility related to these. Thus, considering how and who invokes various circular economy contexts illuminates modes of making certain circular solutions prevalent – showing the contexting as a political activity (Ferri, Stowell and Whiteman 2023, *forthcoming*).

## "Of remains and aspirations in subaltern spaces: a small town of waste recycling in the Indian countryside"

**Rémi de Bercegol**

CNRS, France

Through the example a small town in Uttar Pradesh, India, this paper looks at the emergence of discard economies in subaltern spaces, often overlooked, far from metropolitan centers. Geographically remote in the countryside, economically devastated by the liberal reforms of the 1990s, socially marginalized and politically discriminated against by the Hindutva ideology, the local population (Muslim, uneducated, poor) could have fled to larger cities, like so many others rural migrants do, in hoping to find a better life to feed their families. But due to several factors that the analysis will demonstrate, local entrepreneurs saw an economic opportunity in some of the discarded materials and end-of-life products abandoned by the capitalist system. By managing to capture the flows of discarded materials and by reintegrating it into the regional economy, these local pioneers were able to move beyond the mere survival to which they seemed destined to generate income, which was spatially translated into the development of the overall town.

*For this panel, we will present the analysis related to the recycling of plastic waste: the circulation and flows of plastic materials, the local actors involved into the market, and its links with the international economy.* The biographic analysis of this secondary waste market in the periphery of metropolises allows us to highlight characteristic configurations that transform the territories where material flows take place, not without political controversies linked to the relocation of associated pollution, but also with inventiveness, flexibility and emulation in the recovery of the remains rejected by the dominant system.

## The material limits of circular economy in plastic recycling

**Dedieu François<sup>1</sup>, Barral stephanie<sup>2</sup>, Raimbault benjamin<sup>3</sup>**

<sup>1</sup>Inrae, France; <sup>2</sup>Inrae, France; <sup>3</sup>ESIEE France

New regulations and policies arise at national and international level, both banning specific plastic productions (such as plastic bags) and pushing for the integration of circular economy principles in the production. The literature on plastics policy is more interested in the influences of social mobilizations and the materiality of plastics on policy (Hawkins, 2013, Liboiron, 2016, Roberts, 2010, Vincent, 2013). But it pays little attention to the impacts of plastics reduction regulations on the industrial production sector. In this study, we explore the consequences of new French regulation of "polluters pay" principle on plastic production firms. We draw on STS and organization sociology approach to analyse how these regulatory changes lead to a major or limited transformation of industrial processes, and what are their consequences on the business models of the firms. In this paper, we highlight that while recycling may be increasing for industrial processes and despite the ban on specific products, the virgin-plastic overall production keeps increasing. In fact, while plastic production firms develop technological innovations aiming at integrating a % of recycled plastics in their products, there is a number of material limits to this. First, mechanical recycling can't apply to food plastics. Second, recycled plastics have a darker colour than petro-sourced ones, which severely limits their use in a number of final consumer-oriented products. Third, the "approvisionnement" of recycled plastics is costly and "waste never travels far away" to quote an interviewee. This has

important consequences on both the volumes of recycling integrated in the production and the price of recycled products. Looking at production charts of industries therefore reveals that

This study of circular economy and recycling innovation in the plastic industry highlights hindrances toward an ecological transition of the sector and calls for further analysis of flux to move the analysis forward.

### **How plastics pollute the scientific literature. The case of sanitary masks**

**Franck Cochoy, Guillaume Cabanac, Wendeline Swart**

Toulouse Jean Jaurès University, France

Since the 1970s, and more recently since the growing concerns about the impact of human activities on the transformation of the planet (Latour, 2017), innumerable works have focused on the proliferation of plastics, and notably their dissemination in oceans and food chains (e.g. Galgani et al, 2020). This said, we should not forget that if plastics pollute oceans and other places, it is because plastic pollution starts in the factories that produce them, and even in the research laboratories that develop them or implement them as part of other innovations.

Accordingly, we propose to look at plastic pollution upstream, through an examination of how plastic materials contaminate the scientific and engineering literatures. Specifically, we will do so based on the case of sanitary masks. Due to the Covid crisis, these devices have been considered vital and positive resources, at the risk of forgetting the polluting dangers associated with their mass spread in the environment – all the more so that many people believed that masks were made of paper instead of polypropylene (Cochoy et al., 2022).

Our aim is to trace how plastics have been embedded in the scientific and engineering development of facemasks from the early 20th century. We will conduct this research based on two sources: the Dimensions database, that collects and indexes scientific publications from all disciplines over the long period, and Google patents, a search engine that covers the patent literature globally.

The research rests on the perspectives of science and technology studies and scientometrics. It will unveil some specific rhetorical patterns that favor the unconscious diffusion of questionable materials (see the “or any other suitable material” clause in the patent literature), as well as the discreet but continuous spread of plastics in facemasks, at the risk of eliminating more sustainable alternatives (Strasser and Shlich, 2020).

### **Making of PVC Should Go on: The European Plastic Industry and the Ownership of a Transnational Health Problem**

**Valentin Thomas, Gwenola Le Naour**

European University Institute and Sciences Po Lyon

As historical work has shown, the plastics industry was forced in the early 1970s to reveal the carcinogenicity of vinyl chloride monomer (VCM), an essential compound in the production of polyvinyl chloride (PVC), the production of which had exploded since the 1950s. This presentation focuses on the efforts made by European plastics companies between the 1970s and 1990s to manage this crisis on the long terms, in shaping the definition of the problem in a certain way, and in trying to be a key contact for national and European public authorities on the VCM regulatory issues. This definitional work is twofold. On the one hand, it reduces the danger of VCM to an extremely rare occupational cancer that is now presented as under control. On the other hand, it rationalizes the increasing number of deaths among workers, which is nevertheless largely unpredictable given the latency periods of the disease. The presentation brings together work on the construction of public health problems and work in Science and Technology Studies (STS). We draw on fresh PVC industry archival material and interviews. In focusing on the effects of transnationality on the industrial definitional work, we show how manufacturers have used their global resources to create and spread a particular definition of the problem of VCM on a European scale and to prevent the cross-border diffusion of competing definitions. This ownership of the problem is nevertheless constantly challenged by competition between actors of the industry themselves and by social actors who try to shape competing definitions, including warning about the environmental consequences of plastic production.

## Panel 51: Agency: A Key Concept for a Political STS

*Time:* Thursday, 29/June/2023: 2:00pm - 4:00pm · *Location:* Aula C

*Session Chair:* Fava Giovanni

*Session Chair:* Giulia Gandolfi

*Session Chair:* Pietro Daniel Omodeo

*Session Chair:* Francesca Putignano

**Topics:** Health policies, governance and practices in a postpandemic era; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Methodological challenges in a more-than-human world; Technofeminism and interspecies solidarities; The value of science, technology, innovation and research practices

**Keywords:** STS, agency, Anthropocene, political epistemology, feminism, health

Agency is a central concept of contemporary debates surrounding science, technology and society. It became an established conceptual tool in the sociology and cultural studies in the late 1970s, often as a reworking of the Gramscian concept of praxis in opposition to structuralism. It then extended its field of application to the most diverse disciplinary areas, such as anthropology, philosophy, STS – this concept almost signalises a praxeological paradigm in the study, in their mutual and conflicting relationship, the forms of life and discourses of our time. The aim of the panel is to frame the concept of agency through a methodology that can be defined as "historical-political epistemology" or "Political STS." This approach aims to investigate the preconditions underlying epistemic formations understood as the product of collective actions. Science and scientific practices always represent the outcome of sedimented and historical social practices. So-called scientific practices are the outcome of the mediations between the socioeconomic, ideological-cultural and technical-informational spheres. On the one hand, historico-political epistemology attempts to investigate how science provides both the production and reproduction of social configurations; on the other, how the "ideological" efficacy of science modifies, reorients, and transforms social structures.

This panel attempts to reflect and eventually redefine agency from the aforementioned Political STS approach, in order to show that the various forms of agency should be framed within complex socio-historical structures that are modified by them while, in turn, affecting the former.

Examples of such entwined cultural dynamics, in the medical field, are the practices that defined and redefined illness thanks to feminist groups such from the Boston Women Health Collective up to the contemporary practices of reading imaging reports by women's groups gathered in the oncology units of British hospitals. Moreover, the concept of agency enables interesting connections between feminist reflections and subaltern approaches. Feminism contributes to the empowerment of marginalized subjects; hence, it pays great attention to the capacity of action and reaction, especially by those subjects that are crushed by power structures as the latter tend to limit and harm the agency of certain individuals over others. Finally, the concept of agency has a pivotal role in the debate concerning the Anthropocene. Many environmental thinkers claim that the Anthropocene should be read as the epoch in which human agency is confronted with non-human forms of action. An historical-political epistemology of agency in the Anthropocene should be able to link those discourses to the broader technological and social contest in which they interact and are structured.

The panel welcomes contributions that deal with the issue of agency according to the mentioned outlooks and with the following topics :

- genesis and development of the concept of agency;
- agency from the point of view of its political and epistemological effects;
- agency as counterpower in subaltern knowledge and practices;
- agency as an epistemological issue in new technologies studies;
- agency as fundamental background for biomedical fields;
- agency and the Anthropocene;
- the concept of agency and new historical materialisms.

### Digital design tools - novel interfaces to material agency or techno-capitalist control?

**Cordula Kropp, Kathrin Braun**

University of Stuttgart, Germany

*Agency* is an important concept to broaden the understandings of activity vis-à-vis living beings, IT or materials. In this paper, we examine human-material-relationships in modern societies, specifically the use of building materials and its current transformation in the context of environmental crisis, resource crisis, digitalization and automation. We adopt a historical-political epistemology (Omodeo 2020) that allows us to understand how technoscientific objects and their agency are constituted under particular historical, social and political conditions.

Humanity has become the dominant force in shaping planetary materialities (Elhacham et al. 2020) in the Anthropocene and materials for the built environment, i.e. concrete and aggregates for buildings and infrastructures, account for the largest share thereof. The environmental damage caused by the extraction of materials from the habitats of the earth has only recently become a matter of public concern. Before, the industrial use of 'inert matter' was considered a triumph of modern construction, enabling the rapid, robust production of built environments, independent of local conditions. Today, resource scarcity and climate impacts have raised awareness of the action and reaction capacity of the earth's systems and materials (Ingold 2007; Latour 2017) and sparked interest in bio-based building materials and their 'regenerative' capabilities. Simultaneously, computational technologies serve as a catalyst to advance designer's conception of materiality (Menges 2012) and sensitize, e.g., for the co-agency of timber in design and construction (Wood et al. 2016, 2020).

The paper discusses the potential of such digital interfaces in design processes to acknowledge material agency (Ingold 2013; Picon 2020, Bennett 2010): Will computational design initiate a fundamental change in social-material relations in architecture and construction (Boeva et al. 2022) or is it too intricately enrolled in objectifying modes of knowledge production in extractive capitalism (Büsse 2020; Kropp et al. 2022; Picon 2020)?

### **Thinking With, For a Multispecies Reproductive Justices Platform.**

**Antonia Anna Ferrante**

Université de Liège, Belgium

My presentation is a part of my contribute to The Body Societal, a ERC research project dealing with cattle genomic. More in particular I want to focus on the question: With breeding technologies in mind, is it possible to develop a reflection on multispecies reproductive justice?

Nichole Shukin gave us the tools to see that the Marxian analysis of formal subsumption overlooked subaltern reproductive bodies and labor and the reproductive resources of animals. Compared to the Toni Negri's ontology of immaterial labour, the animal has a more than material body, because it is its very life that represents value. Feminist scientists and scholars as Sarah Franklin and Adele Clarke drove our attention on reproductive technologies, animating, re-manipulative, responsive capacity of life harnessed as a form of bio-labour in contemporary economies.

Reproductive justice refers to a feminist and anti-racist perspective that has highlighted how some bodies are subjugated by the reproductive imperative – preventing access to contraceptive practices and abortion – and others are still violently deprived of this possibility, through exclusion from welfare, technologies of reproduction and actual sterilization. The debate on the need for a "reproductive degrowth" for ecological sustainability and neo-Malthusian resurgence dealing with the global overpopulation has placed this perspective at the center of the theoretical and political debate.

Exploring this transdisciplinary field with the tools of cultural studies I aim at developing the possibility of widening this perspective beyond the human and by interrogating the breeding technologies (and politics) and the material-semiotic body of the cow I will develop a multispecies perspective for reproductive justice: which bodies should reproduce? Which ones must be excluded from reproduction? To what end? What role does animal agency play? What is consent when one is outside of language, understood as the ability that performs the Human?

### **Reproductive agency and family continuity: A qualitative study of women's in vitro fertilisation (IVF) motivations in China**

**Tianqi Huang**

University of Cambridge, United Kingdom

Recently, China has become an "ultra-low-fertility society", as evidenced by the declining fertility rates and the emergence of a low-fertility culture. Many people express unwillingness to have (or to have more) children. Embedded in the complex political and social context, some infertile women seem to show strong child desire, which has motivated them to pursue in vitro fertilisation (IVF) treatment. This seems to be contrasting with the declining fertility trends. On the other hand, having children to carry on the family line is of great importance in the Chinese patriarchal structure, and thus women would face great pressure for having children from their families. This paper aims to answer the question of how women make a decision to pursue IVF, aiming at understanding women's agency in the pursuit of technologically assisted reproductive technology and in the patriarchal family structure.

Based on in-depth semi-structured interviews with 29 women undergoing IVF in China, this paper presents how women revisit their motivations for IVF to articulate the cultural dialogues that women assume and addresses how women re-imagine their reproductive futures throughout the uncertain IVF journey. I argue that women's motivations for IVF suggest ambivalent desires which include the desire to satisfy family members and themselves, to fulfil the reproductive obligation, and to pursue one's life goals, but that women's IVF experiences ambivalently serve as a catalyst for them to rethink their gender identity and reproductive futures.

My study suggests women's agency in reproductive decision-making as they are not wrapped up in the internalised gendered reproductive agenda, but women's change catalysed by IVF could not be overriding all the cultural assumptions they internalise. Women's IVF journeys suggest ambivalent reproductive values as they may constantly face struggles in figuring out what kind of reproductive futures they are pursuing.

### **Mobility and knowledge as agency: the role of young migrants' stories in grasping climate change**

**Anna Berti Suman<sup>1</sup>, Riikka Kaukonen Lindholm<sup>2</sup>**

<sup>1</sup>The European Commission Joint Research Centre, Italy; <sup>2</sup>The European Commission Joint Research Centre, Italy and University of Helsinki, Finland

Current mobility in Western societies are largely shaped by colonial power relations (Rosignoli 2022; Fröhlich 2017) and the rejection of 'the other', based on the differentiation of citizens from non-citizens, and of the other as 'victim' (humanitarian discourse) or 'threat' (security narrative). A 'mobility justice' lens of analysis can unveil how social inequalities shape, restrict, and criminalize mobility for certain bodies, while enabling it for others (Park and Pellow 2019, 396). This is very visible in how mobility of young Europeans is promoted as a value, whereas their peers coming from migrants' families witness daily restrictions to their free move. This contribution will start from this acknowledgement to identify and discuss avenues for (re)constructing a form of agency in particular for young migrants through (1) *mobility* and (2) *knowledge*. We start from a distinctive typology of young migrants: the children of climate-displaced people arriving in Europe. People forced to request asylum due to climate impacts currently lack a formal recognition under international law, which constitutes a further factor of vulnerability as often those people are classified as irregular migrants. This youth will likely be confronted with the discourses on climate change of their schoolmates (e.g. the Fridays for Future movements). We explore how this migrant youth can embrace their subjectivity, by sharing stories of the changing climate witnessed in their homeland, which can voice human and non-human concerns for the Anthropocene. We essentially disentangle the potential re-activation of disqualified knowledges (Foucault 1980, 81), which may open new subjectivities (Rosignoli 2022, 2) and trigger *agency through knowledge* and *through mobility* that becomes empowering and enfranchising. We argue that recognizing in different social and institutional fora such knowledge may reduce the worrisome gaps between migrant youth and locals, promote an inclusive climate education, and a shared understanding of this still blurred notion of climate refugees.

### **Green knowledge between ecocentrism and human claims**

**Anne Hoss**

Helmut Schmidt University, Germany

Since the 1970s, agency has increasingly come to the fore of discourses on science and technology. In this context, purposive individual or collective action on the part of various stakeholders has been considered in its potential for shaping societal developments, as well as STS itself. As agency always follows specific interests that are promoted amidst competing concerns and requirements, the question arises which goals and agitations are being prioritised in academic debates, and which ones remain marginalised. To address this question, the presentation aims to highlight goals and strategic approaches which stand out in Political STS and to relate them to ambitions that lack vocal advocates and assertive lobbies. In doing so, our focus is on claims that more-than-human needs must be prioritised to effectively address planetary crises. This idea has been actively advocated for a long time by, for instance, Latin American indigenous movements. At the same time, also some successes were achieved in promoting nature as a subject of rights.

The presentation seeks to examine to what extent agitations for more-than-human-needs are taken into account in Political STS discussions on ecological crisis management. At the same time, it will be argued that effectively prioritising non-human-needs is in tension with dominant anthropocentric, economic-growth and technology-based approaches to shaping societal futures. Based on this assumption, the significance of *non-anthropocentric* goals in STS discourses will be analysed in relation to currently prevailing interests and strategies. On that basis, the broader issue of agency and prioritising interests in science will be reconsidered.

### **Electricity futures seen by non-human, non living actants: the case of hydrogen**

**Iskender Gokalp<sup>1,2,3</sup>, Asli Ertan<sup>1</sup>**

<sup>1</sup>Middle East Technical University, Ankara, Turkey; <sup>2</sup>Tubitak-Marmara Research Center, Gebze, Turkey; <sup>3</sup>CNRS-ICARE, Orleans, France

Decarbonizing electricity generation is a sociotechnical transition imagined today, for around 2050, by several actors in many countries. They also accept that our world is experiencing several uncertainties, hindering setting up stable trajectories to reach the zero net carbon objectives in this short time frame. Besides, the needed technologies, methodologies etc. to unfold for this goal, are not mature yet. But, the promoters of this sociotechnical imagination have a joker: the hydrogen molecule,



which conversion to energy, including to electricity, is a zero carbon process generating only water. However, as electricity, hydrogen needs to be generated. The cleanest technology is water electrolysis that needs non-fossil electricity to avoid CO<sub>2</sub> emissions. Together with this generational interdependence, there are difficulties attached to the transport, storage and use of hydrogen because of its physico-chemical structure making it risky in terms of flammability and explosability. Human promoters of the hydrogen transition imagination are then trapped in several dead ends.

We analyze this situation by mobilizing two approaches. One is the screening of the FP7 and H2020 supported projects on energy and climate policies, to identify the degree of awareness of the potential role of hydrogen to improve EU energy governance to achieve decarbonization. The second approach takes support from the Actor Network Theory, to analyze the agency of the hydrogen molecule itself. Our knowledge on hydrogen technologies shows that H<sub>2</sub> may change its identity in several ways (by blending with natural gas, or transformed as ammonia, generated from fossil fuels by imposing CO<sub>2</sub> capture, used as fuel in gas turbines and fuel cells...) to offer potentialities. Hydrogen is a non-human, non-living actant, enabling new technologies and offering agency/affordance/potentiality to humans stuck in their sociotechnical imaginations. The hydrogen case is a perfect exemplar for STS studies to push forward the symmetry requirement of the ATN



## Panel 24: Questioning the material and infrastructural dimensions of social research: methods, tools and practices

*Time:* Thursday, 29/June/2023: 2:00pm - 4:00pm · *Location:* Aula D

*Session Chair:* Attila Bruni

*Session Chair:* Paolo Magaudda

**Topics:** Methodological challenges in a more-than-human world

**Keywords:** research practices, digital tools&methods, infrastructure, online ethnography

In the last decade, social research practices have intensely evolved. The increasing digitalization of everyday life (including the prominence of internet-based interactions and the proliferation of social media and digital platforms) led to the introduction of new digital tools, techniques and artefacts for data collection and analysis. At the same time, also the traditional material infrastructure of ethnographic and qualitative research (pen, notebook, camera, tape recorder) has been sided by new digital devices and technologies (smartphone, software for qualitative analysis, online data repositories).

While a reflexive turn in social research led to problematize the supposed neutrality of the researcher and of the accounts that s/he produces, the same cannot be said in reference to technologies, infrastructures and artifacts today adopted by researchers and research collectives. From a STS perspective, tools, artefacts and techniques are not just inert objects, but active elements in building the relationship with the field and in constructing research outcomes. New digital tools and methods (e.g. data mining, topic modelling, or sentiment analysis), together with the rhetoric that sustain them, require to be understood for their non-neutral role in producing knowledge, carefully inspecting their scripts and internal logic, as for any other technique, software, or epistemic object. As it is common in STS, the point is not whether digital tools are new or old, but how can they be configured to further develop social research and how do they configure social research itself. For instance, several new research tools basically rely on old forms of statistical analysis; and big data or so called 'naturally occurring data' are not 'natural' at all, as digital contents and actions are often highly formatted and standardized. This also applies to search engine query data (which very much depend on the way the search engine itself works), and to software for qualitative analysis (with their own internal logic) or online ethnographies (where the digital infrastructure set the possibilities of action and observation). In a few words, the current reshaping of digital methods, online ethnographic works and the data generated with these approaches raise much more questions and controversies that they aspire to solve:

Accordingly, main topics of interest of this panel include, but are not limited to:

- Technical and material infrastructures of social research in today's digital society;
- challenges and changes in research practices since the adoption of digital-based research tools;
- materialities of digital ethnography, digital methods and software-based analysis;
- maintenance and repair practices in research infrastructures and artefacts of social research;
- challenges posed by platforms, social media and other internet-based environments to established methodologies in social sciences;
- technical standardization and interpretative situatedness in data collection and analysis.

### STS and the call for data donations: Investigating platforms with more-than-user data

**Peter Kahlert, Suzette Kahlert**

European University Viadrina, Germany

Data Donations make an interesting case for STS: people can donate their data, e.g. administrative or medical information, to support improvements of service, diagnostics, and more. Likewise, by becoming data donors, social media users can contribute to and benefit from the research on platforms they use, that platforms' recommendation systems, and other algorithmic decision-making agents.

Our talk discusses how STS themselves can use data donations as a method at the example of investigating YouTube with data donated for "DataSkop", a project funded by the German Federal Ministry for Education and Research. We claim that data donations can respond to several methodical challenges of social media research:

- a) As property and legal objects, platforms are regulated. It can be hard and illegal to collect social media data, especially when personal data is involved which is ethically delicate and usually protected. Hence, it might not be provided by platform APIs or access granted officially. Since users own their personal data, they can donate based on explicit consent - which in our case over 5000 donors have entrusted to us.
- b) Platforms are subject to frequent and inconsistent change by updates and developments in user culture - which are reciprocal. Data donation calls are short-term campaigns that allow for field-experiments and feature reenactable platform experiences.

c) Populations of social media are vast and data can be largely nominal, semantic, and qualitative (e.g. texts, images, videos). Using Grounded Theory-like iterations of quantitative evaluation, digital re-organization, and qualitative analysis, real user data enables further quantitative scrutiny and qualitative analyses of phenomena of concern, like misinformation and re-framings that are there but below statistical margins.

Donated user data is, at the same time, qualitatively and quantitatively rich, given and artificial, observational and experimental - depending on constructs of incidents and re-sampling capacities.

## **Discovery as a situated practice in Social Sciences and Humanities and the role of the GoTriple platform**

**Stefano De Paoli**

Abertay University, United Kingdom

Scholarly workflows are linear models which breakdown the scientific work into discrete chunks/phases, this is done for the identification/development of digital tools supporting each phase. Bosman and Kramer (2017) stated that a scholarly workflow includes: Discovery, Analysis, Writing, Publication, Outreach, and Assessment. During Discovery, researchers seek to locate and retrieve publications about their research topic. The information overload of digital publishing has however significantly increased the difficulties in locating relevant publications. The to-go discovery tools for most are google-scholar or Scopus/WoS. However, these are closed/proprietary and mostly promote English publications.

GoTriple - <https://www.gotriple.eu/> is a web-platform, funded by the H2020 Programme, created to support discovery for Social Sciences and Humanities (SSH). It promotes open science and supports discovery in 10 languages. To design GoTriple we conducted user research across Europe. One of our goals was to understand the current discovery practices of SSH scholars, for ensuring that GoTriple could support user needs. We sought to understand how SSH scholars use different digital tools for discovery and how these interact with one another. Data comprises 26 interviews with SSH scholars from different disciplines, plus 12 one-to-one artifact ecology mapping sessions.

We found that SSH discovery is not a linear process (differently from what scholarly workflows would imply), but a situated and rhizomatic practice. There is a lot of tinkering happening in the gaps between the use of different tools (e.g. for locating, retrieving, managing or annotating literature resources) and often researchers adopt serendipitous practices such as improvisation to locate/retrieve literature which is beyond paywalls. Finding publications in specific languages (e.g. in linguistics or historical research) is cumbersome and requires knowledge of very specific archives/databases and tacit knowledge about those. These findings, amongst others, have supported the GoTriple design, allowing to bring together different tools, which are otherwise dispersed and isolated.

## **Charlie don't surf: Using unconventional sources to assess the role of gaming houses**

**Alessandro Franzò**

University of Milan, Italy

Digital video games permeate our contemporary society, constantly raising the stakes in multiple sectors, from growing industries to emerging professions. This study tackles this last point by giving a first glance into the phenomenon of gaming houses inside the eSports environment (i.e., competitive gaming). Gaming houses are places where professional gamers live and play together, fusing their intimate and working spheres into one another. Although the gaming communities are nowadays quite accustomed to these houses, seeing them both as performance-enhancing tools and professionalising spaces, the literature on the topic still needs to be explored. As scholars have focused mainly on spectatorship or streaming practices, the duty of reviewing, criticising, and refining these work-life overlappings fell largely on gamers and fans. Therefore, this study took a methodological twist to allow for unconventional sources to be screened. The paper proposes an unorthodox systematic review that adapts the PRISMA protocol to raw knowledge from search engines and media platforms. Five different Internet sources were dredged to counter biases and balance the influence of algorithms. More than one thousand records emerged in multiple languages and formats. After deduplication and review processes, 194 were kept and used for the present study. The results highlighted the importance of the socio-materialities that constitute and sustain an environment where gamers mix leisure and working practices and the struggles that professionals undergo to keep some boundaries between different spheres of their lives. Specifically, the paper underscores the need to include new and unconventional methodologies in similar investigations, as well as how such a blended environment, where boundaries between off- and on-line dimensions are constantly re-negotiated, calls for careful attention from the researcher, who must fluidly follow the object of study along its shape-shifting.

## Follow the updates? Developing the Technograph as a methodological device to work with data from the Internet Archive

**Johannes Paßmann, Lisa Gerzen, Martina Schories**

Ruhr University Bochum, Germany

This presentation discusses the “Technograph”, a methodological device we are developing for analysing web archive data. It functions as a visual interface on top of data from the Internet Archive and is being developed as part of a project called “Historical Technography of Online Commenting”.

The historical web is considered part of a “technographic field”, i.e. a field strongly co-constituted by its technologies. The points of departure for researching such fields are, as a result, not – as in “ethnography” – an “ethnos”, but a technology.

The project reconstructs the historical development and spread of commenting technologies across the web via large web archive data samples. Of specific interest for the project, however, are updates because these might indicate – in a quite Latourian sense – controversies.

The Technograph helps us to develop and map technographic fields: it leads from ‘quantitative’ web archive data to ‘qualitative’ data from interviews and other sources that one might discover when following the updates. It also assists to produce update histories that structure subsequent interviews with web actors. As a result, these interviews can, rather than merely letting interviewees reproduce their biographisations, bring more actors, specifically commenting functions and their updates, into these interviews.

Thus, the Technograph points us to possible paths we can follow in order to reconstruct controversies around online commenting. It leads us to historical web actors, such as newspaper editors or software developers, who have been responsible for setting up and maintaining commenting technologies and sections. In many cases, they help understand past controversies around online commenting, and these controversies can help us to reconstruct past practices and their transformation.

The presentation wants to discuss the Technograph’s agency and its consequences for the development of research devices helping to develop technographic fields by defining whom, what and how to follow.

## Data quality in Digital Social Research. Discussing the need of reconceptualizing traditional biases

**Barbara Sena<sup>1</sup>, Angela Delli Paoli<sup>2</sup>, Maria Carmela Catone<sup>3</sup>**

<sup>1</sup>University of Bergamo, Italy; <sup>2</sup>University of Salerno, Italy; <sup>3</sup>University of Barcelona, Spain

Technological innovations create new opportunities and challenges for social research based on digital data. Digital data can be defined as natively digital traces intentionally or unintentionally left by internet users in their daily use of socio-technical systems. Although the use of such data is becoming increasingly popular, a variety of possible methodological pitfalls emerge that have yet to be addressed in literature.

Differently from traditional data, digital data can be considered as dynamic (vs static), natural (vs provoked and self-reported) and not designed (exist apart from collection). Their nature inverts the traditional research cycle starting from theory and deriving measurements; this is mainly due to the *availability bias* which drives towards defining measurement strategies from available data rather than from operationalizing theory.

Starting from this premise, this paper aims to gather evidence of data biases and methodological pitfalls unique to digital data which raise concerns about:

*Generalizability* - sampling is affected by the digital divide and digital discrimination (sampling biases deriving from procedures intentionally or accidentally discriminating against minorities or disadvantaged groups based on race, sexual orientation, etc.).

*Validity* - 1. The face-validity questions and the assumption that digital information can be treated as analogous to the non-digital equivalent (e.g. Facebook friends as similar to actual friends). 2. The construct validity question: the most easily available measure is not necessarily the most valid since online behavior may be driven by individual motivations but also by technological functionalities, community norms, etc.

*Reliability* - challenges derive from fake accounts and online identity strategies, which can include forms of self-presentation constructed to adhere to certain social standards, generating new forms of social desirability.

Through the critical analysis of these aspects, the paper will provide a reasoned overview as a basic guide for the establishment of new quality criteria of data in digital social research.

## **Soundscapes of uncertainty: Digital ethnography and multiple modes of listening with digital technologies during lockdown**

**Katja de Neergaard<sup>1</sup>, Maja de Neergaard<sup>2</sup>**

<sup>1</sup>The IT University of Copenhagen, Denmark; <sup>2</sup>Roskilde University

The pandemic disrupted everyday practices and intensified the ongoing digitalization of life at home. During this time, understanding what it means to live in a context co-constituted by digital technologies, also meant doing research through and with the digital. Furthermore, the pandemic inspired many researchers to engage in new ways of sharing data, creating new points of exchange between researchers and their empirical material. To examine how digital technologies both permeate everyday life, and reconfigure how we study it, this paper takes its point of departure in a digital, ethnographic archive. The archive comprises 250+ online observations and interviews conducted collaboratively by researchers during the first lockdown in Denmark in 2020. Firstly, the paper traces the challenges of conducting distributed, digital ethnography during a pandemic, paying particular attention to how digital research affects relations with participants and the sensory experience of doing ethnography. It shows how the text-based, digital archive structures engagement with research subjects and obscures affective responses and subtle uncertainties from the research material. Second, the paper experiments with producing soundscapes from the archive material to engage with embodied and tacit knowledge from both researchers and participants. This reveals how engaging with empirical material through different digital tools influence the outcome. The materiality of the digital archive and the music-production software both act upon the research process and allow for different modes of selection and connections within the empirical material. The paper contributes by suggesting that a combination of artistic research practices and digital ethnography enables multiple modes of listening; both to how participants articulate their experiences, as well as to the way digital technologies structure how we can listen to ethnographic material.

## **Writing Choreographies – A group-autoethnography of post-digital epistemic practices**

**Andrea Schikowitz, Esther Dessewffy, Bao-Chau Pham, Kathleen Gregory, Sarah R Davies, Ariadne Avkiran, Fredy Mora-Gamez, Constatin Holmer**

University of Vienna, Austria

Writing is ubiquitous in all stages of (STS) research, and constitutive of analysis and knowledge production. It can thus be regarded as an epistemic practice rather than as a mere documentation of prior epistemic work. Answering recent calls to apply the analytical sensibilities of STS to our own epistemic practices (Kuznetsov, 2019; Lippert, 2021), we draw on a group-autoethnography for analysing how our writing choreographies are performative of knowledge, identities and community. In this paper, we explore how writing as an epistemic practice is enacted through aligning and coordinating heterogeneous material elements (bodies, furniture, digital platforms, software tools, paper notebooks, infrastructure, etc.). We mobilise the sensitising concept of 'choreographies' (Cussins/Thompson, 1998, 2005) for analysing the dynamic, spatio-temporal ordering which achieves alignment through aesthetic and affective patterns and rhythms, and which permeates imagined boundaries between the inside and the outside of 'the text' and 'the mind'.

In post-digital writing, which is always already inseparably entangled with diverse digital practices, tools, and infrastructures, and which is increasingly collaborative, agency is constituted and negotiated through arranging and skilfully navigating different spaces, atmospheres and materialities of writing. We further develop the concept of writing choreographies by paying attention to the practices and politics of aesthetics in knowledge production. Aesthetic ordering includes intuitive and creative moves and allows for individual and collective agency. Simultaneously, aesthetics can be disciplining and impose judgement and in- and exclusions based on established norms of 'taste'. In conclusion, we reflect upon the relation of current dynamics of increasing output pressure and the related urge to make writing more efficient and productive, and the role of creativity, identity and care in our writing.

## Panel 12 - Session 2: The interfaces that inform security knowledge and practice

*Time:* Thursday, 29/June/2023: 2:00pm - 4:00pm · *Location:* Aula Unione 1

*Session Chair:* Claudia Emilie Aanonsen

*Session Chair:* Rocco Bellanova

*Session Chair:* Georgios Glouftisios

**Topics:** Governance of and by data infrastructures; Sociotechnologies of (in)secure worlds to come; Algorithmic knowledge, media ecologies and artificial intelligence

**Keywords:** Interfaces, Security, Practices, (Critical) Security Studies, New Media Studies

When data analysts sit in front of a screen to identify a potential security threat, it is not only their user interface that is at play. There are many other interfaces that make hardware and software work together (Cramer & Fuller 2008). Besides, these interfaces also translate regulations, security visions and socio-technical controversies bringing together a heterogeneous set of public and private actors that design, use, operate and maintain them (Bellanova & de Goede 2022; Glouftisios 2021). STS and New Media scholarships generally understand interfaces as sites and processes of interaction between humans, hardware and software (Galloway 2012; Suchman 2006). Other approaches see interfaces as trade-zones where actors, knowledge and practices from different worlds meet and influence each other (Amicelle 2022; Barry 2006). We would like to foster the conversation about the promises and challenges of studying those interfaces that inform security knowledge and practice. We would like to ask how interfaces can be conceptualized through the lenses of STS and (Critical) Security Studies, what kinds of interfaces emerge in the wider field of security, what modes of power and ways of doing security they allow for, and how we can empirically study them. By foregrounding interfaces, we do not want to recycle just another buzzword but to explore their analytical potential to better make sense of security knowledge and practice. We also want to understand how the notions of interface and interfacing can enrich the conceptual exchanges between STS and (Critical) Security Studies (Bellanova et al. 2020), and thus how these notions relate to concepts such as 'assemblage/dispositif', 'security chains' and 'translation' (Hookway 2014; de Goede 2018; Pelizza 2021). Therefore, in response to the conference theme focusing on new worlds to come in the face of more-than-human challenges, our non-exhaustive list of potential themes for panel contributions includes:

- Border security and migration management. How databases shape practices of border control, and the management of migration and asylum.
- Cybersecurity. How algorithms shape the protection of 'critical' information infrastructures and how they mediate surveillance, digital forensics or the production of e-evidence.
- Intelligence. How 'covert' monitoring and surveillance infrastructures contribute to the production and dissemination of security intelligence and how to make such infrastructures public.
- Policing. How digital technologies implemented in 'smart' cities feed into the urbanisation of security and everyday policing work.
- Warfare. How semi-autonomous weapons systems shape contemporary warfare and what are their ethical, legal and socio-political implications.

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## Militarism's phantasmatic interfaces

**Lucy Suchman**

Lancaster University, UK

Technopolitical imaginaries of command and control are premised on an infrastructure of data integration in which the interface conjoins, and affords privileged access to, warfighting's world. As one prominent example, the United States Joint All Domain Command and Control (JADC2) initiative promises to 'allow U.S. forces from all services ... to sense, make sense and act upon a vast array of data and information ... fusing and analyzing the data with the help of machine learning and artificial intelligence and providing warfighters with preferred options at speeds not seen before.' Projects like this one imagine a closed world of objective situations mediated through seamless interfaces, informed by constantly updated translations from sensors, to data, to 'actionable intelligence.'

This paper considers the case of the so-called 'sensor to shooter' interface as that trope circulates within the policy discourses, research and development projects, and media renderings of the United States military and its allies. In alliance with the aims of this panel, my project is to question how the figure of the interface is constituted and what it enables, including the erasure of its own noncoherence. Beginning with elision of the irremediable lacunae across machine sensing, data production, and institutional action, the aim is to destabilise the logics through which technomilitarism perpetuates its imaginary of rational and controllable state violence, while obscuring its senseless and ungovernable injuries.

## An analysis of identity management system interfaces using data matching software.

**Wouter Van Rossem**

University of Twente, The Netherlands

The interface layer of identity management systems increasingly uses *data matching* technologies to connect and investigate identity data for border security and migration management. For example, data matching technologies can identify potential identity fraud by linking identities across national and international policing systems or flag potentially risky travellers by comparing flight passengers' data to terrorist watch lists. However, STS and (Critical) Security Studies need to pay more attention to how these technical components interface between systems, subjects, and organizations to mediate border security and migration management practices. This paper proposes empirically analyzing such interfaces by sampling moments in the long-term development of specialized software and its integration with systems and infrastructures. The investigation makes two contributions using data gathered during fieldwork at an IT vendor for data matching software. First, the analysis employs SCOT's concept of "interpretative flexibility" to identify notable moments when the meanings of identification practices and technologies are challenged, changed, or closed down. Following the interpretive flexibility of the software allows one to see how technical workings evolved with the securitization of migration and border control, such as adding matching functionalities based on the transcription and transliteration of Arabic and Asian names. Second, infrastructure studies' concept of "gateways" spotlights moments when software systems and infrastructures intersect. Gateway moments make it possible to see the "infrastructural compromises" (Dijstelbloem, 2021) necessary when adapting globally honed technologies to new settings. For example, when the software was integrated with an EU system, infrastructural compromises were made to allow backward compatibility with MS systems. Together, these findings shed light on the many interactions of various — and otherwise under-the-radar actors, such as software vendors — in co-constructing sociotechnical problems and solutions of identification in border security and migration management.

## Interfaces of Cybersecurity Valuation

**Claudia Emilie Aanonsen**

Norwegian Institute of International Affairs (NUPI), Norway

Today, in various contexts, risk-based security governance operates to mitigate system vulnerabilities that emerge from ostensibly inevitable modernization processes. Since the Cold War, national security strategies have flourished, embracing risk-based techniques to tackle potential dangers to the well-being of collective life. As critical scholars of security have argued, these dangers arise due to increased dependence on objects that are fundamental to the function of vital systems and infrastructures (Aradau et. al., 2008; Aradau, 2010; Collier and Lakoff, 2014). This article explores security governance driven by modelling and calculating mitigation based on imagined future scenarios. Specifically, it looks at 'cybersecurity' as a concept and strategy that has taken part in setting the agenda for security governance at the intersection of 'technological innovations and changing geopolitical conditions' (Hansen and Nissenbaum, 2009, p. 1155). Studying the interfaces that connect humans and technologies can make better sense of how cybersecurity knowledge emerges from the sociotechnical practices of risk-based security governance. Bridging CSS and STS, this article empirically explores processes of *valuation* at the interface in a variety of contexts (ranging from public sector to private companies) where decisions are made on *what needs securing, and how*. It finds that the interplay between sociotechnical practices of valuation are enabled and constrained by the financialized logic of calculating risk, and modernization imaginaries shaped by contemporary security governance.

## **Interfaces and Adaptation: Unsettling Imaginaries, Subjectivities and Risk Distribution through the reconfiguration of infrastructural relations**

**Nathaniel O'Grady**

University of Manchester, United Kingdom

Earlier work conceptualised interfaces as a set of surfaces that operated as sites of encounter between heterogeneous more-than-human agencies whose ongoing negotiation resulted in the coproduction of different knowledges. And from this premise, various critical lines of inquiry took flight: How does the configuration of relations within these interfaces produce particular forms of knowledge over others? In what ways does the enrolment of agents within interfaces speak to their broader mobilisation within security apparatuses? Where do we situate interfaces in amongst socio-technical assemblages through which our present and futures are governed? In this paper, I draw on conceptualisations of interface to make sense of emergent forms of infrastructural adaptation that have arisen in recent times to attend to the effects of climate-change induced emergencies. Ranging from early warning systems to the introduction of clean air zones, these adaptation strategies bear distinct spatial-temporalities, addressing the security problem of climate-change induced emergencies as both a risk of the future and as a background condition inscribed in events that constitute the present. But in either case, the paper uses the notion of interface to elucidate how the material shifts adaptation engenders reverberate through the broader processual relations performed between actors within more-than-human infrastructural milieux. In so doing, adaptation paves the way for extending our understanding of security politics at the interface in three different ways; showing first how adaptation unsettles security imaginaries within communities, second how adaptation reshapes political subjectivities formed in relation to the material world and third how adaptation redistributes risk.

## **Feminism at the Interfaces. Ethico-political challenges and potentials in data-driven criminal investigations**

**Paula Helm<sup>1</sup>, Benjamin Lipp<sup>2</sup>, Roser Pujadas<sup>3</sup>**

<sup>1</sup>University of Amsterdam, Netherlands, The; <sup>2</sup>Cornell University, United States of America; <sup>3</sup>London School of Economics, United Kingdom

Criminal investigations are increasingly supported by machine-based processing of heterogeneous mass data. This means that human and machine agencies become mediated by a multitude of interfaces. In this contribution, we explore ways of theorizing and doing interfaces beyond their technocentric meaning to capture the range of social and ethico-political concerns involved in the design and use of security interfaces. In doing so, our approach combines theoretical reflection and active participation in the process of developing interfaces, especially at the intersection of criminal investigation, Big Data analytics, and security ethics.

Interfaces have been studied for a long time in STS, e.g., user interfaces (Cirucci 2017; Halpern 2015; Suchman 2007), software interfaces (Pujadas/Venters 2023; Pujadas et al. 2020), or brain-computer interfaces (Mauldin 2013). More recently, there are also attempts to rethink the notion of interface as a concept in its own right to understand human-machine relations (Lipp/Dickel 2022). In conversation with new materialist and feminist approaches, such efforts have proposed to understand *interfacing* as a process of "becoming-with-other" (Haraway 2008), where disparate entities are continuously rendered available for one another. In correspondence with such theoretical efforts, we furthermore discuss the following, methodological questions: To what extent is it possible (and fruitful!) to translate feminist theories into actual interface design? How could and how should an STS-informed interface look like?

We will discuss these questions through a case study that addresses the ethico-political challenges and potentials associated with supporting complex criminal investigations through the machine-based processing of heterogeneous mass data (Helm/Hagendorff 2021). We will present several socio-technical solutions in which we see the potential to integrate feminist epistemologies and their corresponding ethico-political concerns into interface design. These include various forms of visual analytics combined with active learning approaches and provenance graphs (Fischer/Keim/Helm 2022).

## **Securing with Amorphous Membranes: Narrativity and De-Perimeterisation in Information Security**

**Daniele Pizio**

University of Warwick, United Kingdom

Over the past 10 years, the 'Zero Trust' security model – a blueprint of design principles contesting the adequacy of digital firewalls for protecting corporate environments – has taken hold. Its roots lie in 'deperimeterisation': an approach to cybersecurity, developed in early the 2000's by a group of CISO known as Jericho Forum, that displaced perimeter defence and advocated for securing individual items of information. However, rather than a set of technical measures,

deperimeterisation was devised as a semantic intervention in the narrative programme of cybersecurity, aimed at capturing the imagination of industry decision-makers and embodying corporate needs in digital security products.

Working with the Jericho Forum historical archives, and drawing on theories of material agency, textual agency and narrativity (Latour 1996, Cooren 2004, Greimas 1993), this paper examines securing as a narrative programme, asking 'what does a cybersecurity model do?' and 'how are security technologies modalised as making-possible securing?'. The analysis builds upon recent advances in security studies that draw on narratology to examine processes of securitisation (Wibben 2011, Subotić 2016). However, rather than focusing on acts of storytelling, we use narrativity theory to investigate the formulation of 'significant actions' (Robichaud 2002) that redefine what it means to secure information systems.

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## Panel 5: 'Outbreak': Science, governance, and responding otherwise to challenges to come

*Time:* Thursday, 29/June/2023: 2:00pm - 4:00pm · *Location:* Aula Unione 2

*Session Chair:* Kari Lancaster

*Session Chair:* Tim Rhodes

**Topics:** Health policies, governance and practices in a postpandemic era

**Keywords:** Outbreak, health, pandemics, governance, temporality

Outbreaks and outbreak science are key concerns in light of Covid-19. How 'outbreaks' are thought about and materialised through scientific practices and technological solutions shapes what is possible in the governance of crisis, health, and populations, with profound social and material repercussions. There is growing investment in new methods and infrastructures of knowledge coordination to prepare for threats to come, and to improve epidemic preparedness and emergency response. The fast changing field of outbreak science is developing and testing new technologies of detection, prediction and projection, and creating new platforms to coordinate data on outbreaks as evidence for decision-making. But whether configured as crises, emergencies or aberrations subject to routine risk management, 'outbreaks' are not neutral. Outbreaks are dynamic forms of anticipatory governance which through their evidence-making constitute problems and responses in particular ways, especially in their temporal relations (Anderson, 2021; Lakoff, 2019; Lancaster & Rhodes, forthcoming; Rhodes & Lancaster, 2019). What are the effects of framing and foreseeing 'outbreaks' in this mode? What ways of knowing and doing preparedness and response do the practices and infrastructures of outbreak science open up and foreclose through their promise of fast, actionable information in situations of uncertainty? How can we think about evidencing outbreaks otherwise?

In this panel, we trace how configurations of 'outbreak' are problematised and govern, through scientific practices. Looking across different forms of outbreak in relation to health – from viruses and diseases, and other hazards – the panel considers the rationalities and effects of outbreak imaginaries, and their entanglements with science, policy and publics. In addition to tracing how different scientific technologies enact outbreak – such as methods of early warning, detection, surveillance, modelling and projection – we ask what outbreak makes absent or obscures, especially in relation to the long and slow emergence of health concerns (Lancaster & Rhodes, forthcoming). In doing so, the panel deliberates on how outbreak science might be made otherwise (Stengers, 2018). We invite papers which aim to open up alternative modes of problematising outbreak, which emphasise complex ecological and more-than-human relations of health, disease and crisis (Anderson, 2021; Hinchliffe et al., 2021; Wigen et al., 2022). Through this critical engagement, together we consider the politics involved in the production, coordination and governance of the real that is constituted as 'outbreak', stimulating inter-national, inter-species and inter-generational justice perspectives in this post-pandemic era and for the challenges to come.

### Early warnings and slow deaths: A sociology of overdose outbreak

**Tim Rhodes<sup>1,2</sup>, Kari Lancaster<sup>2</sup>**

<sup>1</sup>London School of Hygiene & Tropical Medicine, United Kingdom; <sup>2</sup>University of New South Wales

**Background** Early warning is a form of anticipatory governance which promises preparedness and rapid response to outbreaks. In this paper, we treat early warning as an event in which outbreak 'comes to be'. Our focus is early warning in relation to drug outbreaks, and specifically, opioid overdose. Our overall aim is to trace how early warnings and configurations of outbreak problematise and govern. By this we mean to ask, what does the configuration of outbreak *do*? What does it mean to enact a problem as outbreak? And by enacting a problem as outbreak, how does this problem get *seen* and *governed*?

**Analysis** Looking specifically at the science of early warning in outbreaks of opioid overdose, we consider the promise and pitfalls of prediction as anticipatory governance. Our analysis shows how the configuration of outbreak as a time-bound rupture rooted in a rapid reflex response, as well as the short-term and proximal focus of prediction, makes temporal as well as ecological 'cuts' in the slow violence of outbreak's long-term evolution. We draw on Rob Nixon's notion of 'slow violence' to re-assemble outbreak in 'long view'. This helps locate opioid overdose outbreak in long-term processes of deindustrialisation and pharmaceuticalisation in a half-century 'war on drugs'.

We also identify signs of movement in practices of early warning in the drugs field; shifts which potentiate detection and projection opening-up 'beyond substances', as well as 'beyond the proximal' and 'beyond the local'. This prompts us to speculate that early warning might *extend its focal point*—looking into a longer past and longer future, as well as *expand its field of vision*—looking more broadly, and more ecologically.

**Conclusion** Outbreak might be transformed from an immediate and short-term rapid reflex response, towards a 'long-view', making visible how outbreaks evolve in relation to slow pasts and situated ecologies.

## **Evidence-making 'outbreak': The emergence of outbreak science in the governance of global health**

**Kari Lancaster<sup>1</sup>, Tim Rhodes<sup>1,2</sup>**

<sup>1</sup>University of New South Wales, Australia; <sup>2</sup>London School of Hygiene and Tropical Medicine

Outbreak science proposes to improve epidemic preparedness and emergency response. There is growing investment in the development of new methods, networks and infrastructures of knowledge coordination to prepare for threats to come. But what are the effects of framing and foreseeing 'outbreaks' in this mode? What ways of knowing and doing preparedness and response does outbreak science open up and foreclose through its promise of fast, actionable information in situations of uncertainty? How can we think about evidencing outbreaks otherwise? Taking 'outbreak science' as a form of proposal, we consider how 'outbreak' is made governable through its evidencing, with profound, and unevenly distributed, social and material repercussions. We focus on one problematisation intrinsic to outbreak science, that is, the need for speed. We argue that constituting 'outbreak' as a problem to be managed with immediacy and speed delimits alternative problematisations, obscuring the long-enduring temporalities and more complex ecological relations of disease. We suggest 'slow dis-ease' and 'perpetual care' as alternative modes of problematising outbreak. There is a practical difference made possible by making time for slow dis-ease, a time that is currently lost by the rapid, anticipation and event-based focus of outbreak science.

## **COVID-19 in Italy: a new culture of healthcare for future preparedness**

**Chiara Bodini, Martina Consoloni, Ivo Quaranta**

Centre for International and Intercultural Health (CSI), University of Bologna, Italy

Italy was the first Western country hit by the COVID-19 pandemic, with tremendous impact. Several factors contributed to this, many still under investigation, including macroeconomic flows of goods and people, environmental and social conditions, a weakened national health system (NHS) and severe unpreparedness for a pandemic which resulted in governance failures.

As a "limit situation", the pandemic made explicit the impact of market-oriented reforms in undermining the capacity of the NHS to perform its biopolitical duties of health protection and promotion. It also made explicit the cultural values informing national health policy: the pandemic was mainly dealt with at the hospital level, with an infective and virologic approach rather than a public health one. Although it was mainly through lockdown, i.e. people's social behavior, that the virus spread began to be contained, the NHS did not act through its community-based local articulations. Rather, lockdown was a top-down measure, without consideration of the social conditions of its lived experience.

We will explore these elements through the results of a two years mixed-method action-research project carried out in Bologna on the relationship between socio-economic inequalities and health. Our results indicate the need for a radical rethinking of the concepts and practices of pandemic preparedness, based on a global health approach capable of acting locally by eliciting meaningful community participation, rooted in a broader health concept that legitimizes forms of knowledge not strictly bound to the biomedical field.

Our contribution addresses the concept of "interest" as well as our commitment to building and maintaining an inter-institutional infrastructure for monitoring health inequalities: not only as a needed basis for future preparedness, but also as a ground to transform welfare policies with the aim of having an impact on the social determination of such inequalities.

## **The Covid-19 Policy-informing Network of Hong Kong**

**Rachel Zicheng Yang**

University of Sydney, Australia

The Covid-19 pandemic offers invaluable empirical sources for research across different disciplines and geographical sites. As interventions are enacted by national and local governments through public health policies, the pandemic can especially serve as a case study to examine epidemiology and disease-control measures by governments, contributing to the field of Science, Technology and Society (STS). My paper will focus on Hong Kong—often considered an isolated site of STS—to examine its Covid-19 non-pharmaceutical interventions and policies. To understand how the Covid-19 policy-making process operated in Hong Kong, I ask in this paper how the outbreak was informed by bio-scientific practices, especially biological and statistical evidence; what infrastructural technologies (e.g., disease modellings, contact tracing applications and machine learning) constituted its policy-informing network and its disaster risk deduction? From a materialist perspective, I understand the policy-informing mechanism as a network system, and make use of document analysis (including government documents and the bio-scientific literature) and interviews (including with policymakers, disease modellers and health experts). I demonstrate how a postcolonial framework enables a closer examination of the history of epidemiology in Hong Kong and compare the current pandemic to those of Hong Kong's past (including SARS and influenza). What emerges is

a tenuous relationship between current health systems and Hong Kong's colonial past where ecological thinking in disease control played an important role.

### **The Online Narrations of China's Covid-19 Outbreak after the Elimination of 'Zero-Covid' Policy**

**Xu Liu**

Goldsmiths, University of London, United Kingdom

In this paper, I reflect on the massive Covid-19 outbreak in China after the government suddenly abolished its strict control measures named the 'Zero-Covid' policy (清零政策) at the end of 2022. In particular, I examine how the vast emergence of narrations related to Covid-19 symptoms amongst Chinese social media's trending and keyword searching constituted the reconstruction and re-recognition of the pandemic. I conduct a case study about major Chinese internet platforms' 'outbreak index' (疫情指数) during this period, examining such platforms' methodologies of presenting and summarising Covid-related narrations. Meanwhile, I interviewed residents in several major cities, where the infection peak was reached in December 2022, to analyse how individuals recognised and navigated the outbreak after the sudden shift of China's Covid-19 policy. During this period, the uncertainty of Covid-19 transmission became viral, as the National Health Committee (国家卫健委, the highest authority of health affairs) cancelled most of the regular PCR tests and eliminated the reporting of asymptomatic infections. Under such a background, online narrations of Covid-19 presented the individuals' struggle to gain more credible information about the speed and scope of transmissions. This time, unlike the 'Zero-Covid' period, when the government forcibly introduced strict infection surveillance and restrictions, the absence of the government's intervention and the information disclosure of the outbreak has contrasted with the public's massive curiosity and anxiety. The presentation of Covid-related online narrations through the 'outbreak index' showed that the government's authoritarian indoctrination of 'how the government scientifically managed the pandemic' went lost, and individuals were increasingly facing the uncertainty of how to take the 'self-care' during the outbreak.

### **The winged power of (mechanistic) time in outbreak science**

**Marsha Rosengarten**

Goldsmiths University of London, United Kingdom

Covid-19 has often been claimed as a wake-up call, suggesting that the increasing scale and intensity of infectious disease outbreaks are linked to a civilisation that Michel Foucault once described as 'divided against itself'. Neoliberal modes of governance and their upholding of capitalist methods of extraction and exploitation are wreaking planetary doom and, in the interim, amplifying the ever-present possibility of zoonotic outbreaks. Not surprisingly, all this is decided with time, both urgent and, paradoxically, as if it has no part in what becomes. Its conception as a continuous passage that can be divided into a series of points to determine the temporality of 'things' may be the par excellence of technologies. In outbreak science, its calculable homogeneous spaces of hours, days, weeks, months and years anchor the facts of surveillance, territorial mapping, evidence-making and the design of social and biological interventions. Yet as Covid-19 has shown us, although we surely didn't need reminding, the antecedent events that result in an 'outbreak' or those that become its unfinished legacy do not necessarily play to the constancy of its mechanistic carving. In the words of the American Pragmatist William James, divisible time involves an omission in the connection between things: 'skipping the intermediaries as if by a divine winged power, and getting at the exact point we require without entanglement with any context.' Like any technology, whether mundane or highly sophisticated, the ubiquitous conception of time I refer to in this paper is enabling. But to be so, it must circumscribe modes of thought and practice. Hence, I ask whether holding outbreaks to an unquestioned technology of time may leave us short-changed in how, as the organisers of this panel propose, we might begin to think about evidencing outbreaks otherwise.

## Panel 23: Unpacking the entanglements of governance with technoscience: is it an 'interesting' challenge in addressing good governance?

*Time:* Thursday, 29/June/2023: 2:00pm - 4:00pm · *Location:* Aula Unione 3

*Session Chair:* Anwasha Chakraborty

*Session Chair:* Alice Fubini

**Topics:** Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Technoscientific promises, imaginaries and expectations; Governance of and by data infrastructures; Innovation imaginaries, practices and policies; Ethics, innovation and responsibility in technoscience

**Keywords:** good governance, sociotechnical imaginaries, responsible institutions, technological affordances, ethics and technology

The world is facing existential challenges of such a magnitude that conversations around them have become part of our everyday lives. Problems as wide-ranging and complex as long-drawn conflicts and the possibility of nuclear war, global climate change and related catastrophes, weakening democratic institutions and the rise of authoritarianism, and large-scale corruption leading to misallocation of resources which in turn exacerbates multidimensional poverty: all these issues already threaten the efforts of sustained peace and human well-being as attempted in the long 20th century. At the heart of all these problems lies the core issue of ensuring good governance, a desirable condition for the world(s) to come, based on fostering the following (but not limited to) elements: robust institutions, transparency and accountability, less corruption, and peace and justice in all sections of the society.

This panel aims to address the issue of good governance looking at the “interesting” role that technologies might play within the process. Some scholars frame this issue looking at the development of e-governance tools and the improvement of governance metrics, especially in countries of the global south (Haque and Pathrannarakul 2013; Juiz et al. 2014; Malik et al. 2014; Saidi and Yared 2003). Others consider the challenging role played by the introduction of artificial intelligence to governance processes (eg. Ulnicane et al., 2021). Technoscientific innovations to address present-day problems have been on the rise with governments, public and private institutions, civil society and the general public all treating such innovations as the panacea (Pfothenhauer et al. 2019; Pfothenhauer and Jasanoff 2017). However, we argue that technological innovations (re)present an “interesting challenge” in themselves that may (or may not) foster good governance and may even raise additional challenges related to unintended consequences resulting from use.

A major goal of this panel is to unpack various aspects of the entanglements of technoscience with governance, considering that the pursuit of better governance requires more than human solutions, but at the same time more human collaborations at different levels as technologies might foster alliances between a variety of human actors as a way to address the crucial problems of today and the near future.

In particular, these are some of the questions which the panel seeks to interrogate:

- What kind of agency does technology lend to institutions, governments, organisations, civil society and members of the public to ensure better governance?
- Are there intrinsic affordances of technology which can be designed by different groups of actors? Do certain affordances come to the fore only through use of technological tools?
- What instances of technoscientific innovations do we find in the area of governance? Do we see instances of co-production of technologies by different actors (both top-down and bottom-up)?
- What are the sociotechnical imaginaries of good governance at local, national and international levels of institutions, organisations and actors? Are they always within neoliberal frameworks?
- Can technology lead to more ethical and responsible institutions? Are those technologies inherently ethical themselves?
- (How) can technology manage controversies arising from unintended consequences of its use?

### **Innovative, but feeble: civil society's action and its consequences for political financing in Uruguay**

**Fernanda Odilla<sup>1</sup>, Germán Bidegain<sup>2</sup>**

<sup>1</sup>University of Bologna, Italy; <sup>2</sup>Universidad de la República, Uruguay

This paper provides a closer look at the role of civic action to improve transparency and curb corruption in political financing, by analyzing the cases of “¿Quién paga?” (Who pays) and Finpol that emerged in Uruguay. These two civil society initiatives struggled to map and digitalize open information on funding received by Uruguayan political parties and politicians in the 2009 and 2014 elections, respectively, and to present their findings on interactive online platforms. Although very similar, the initiatives are independent and were developed by different actors funded by international organizations. The paper adopts the concept of “chaining mechanisms”, that allows tracking the connection between different waves of collective actions and outcomes that may materialize in changes only later. Methodologically, the paper relies on qualitative analysis based on

semi-structured interviews with activists, academics, journalists, and developers responsible for the two initiatives and public officials involved with political finance regulation. Our findings raise serious concerns that go beyond the already known lack of human and technical resources of electoral authorities to detect illicit political donations and spending in Uruguay. Empirical data suggest how feeble oversight initiatives from civil society, one of the pillars of democracy, can be no matter how innovative they are. Both “Quién Paga?” and “Finpol” did not manage to attract ordinary citizens to use their tools neither promoted any remarkable outcome in terms of public policy. Despite being considered the cleanest country, with the longest democratic history in Latin America, Uruguay offers open data but faces very weak control mechanisms regarding campaign financing, which undoubtedly generate opportunities for corruption. This paper argues that transparency is insufficient in itself to reduce corruption and needs to be complemented by other types of policies, from digital solutions to report and disclosure information such as political finance reports to effective oversight mechanisms.

## **The platformization of the public sector: opportunities and pitfalls for governance**

**Michele Veneziano**

University of Bologna, Italy

Despite the great attention that in the last years has been posed on platformization processes, the great majority of the studies focused on the role of private platform companies. These studies generally depicted public entities (especially regulators, and policy-makers) as the ones in charge of governing the platform ecosystem. Much less attention has been posed to public entities as platform owners, despite the increasing use and importance of platforms as strategies of governance.

In Italy, the digital transformation of the public sector saw the blossoming of several platforms providing enabling functionalities (e.g., payments, identification, etc.) on which central and local public entities can build their processes and services. These platforms are assuming a growing centrality in the governance of digital transformation, but still little is known about the implications and peculiarities of implementing digital platforms in the public sector.

Taking Italy as a case study, this work has three objectives: first, it aims at discussing the differences and similarities between public- and private-owned platforms, suggesting that despite the similar organizational logic that characterized them, they differ in the type of value that they aim at generating.

Second, it discusses the role of private platforms in the platformization of the public sector in Italy, emphasizing how they generally tend to operate at the infrastructural level, and the associated risks in terms of accountability and privacy.

Lastly, it discusses the implications of the platformization of the public sector in terms of power. Platformization, in fact, triggers (but does not suffice for) a process of centralization of the public sector that, if not rightly governed, might collide with fundamental principles of administrative organization and democratic order such as the separation of powers and administrative decentralization that aim at realizing the effective participation of the community in the exercise and care of public interests.

## **How to govern nuclear waste over the next few hundred years?**

**Sophie Kuppler, Peter Hocke, Dirk Scheer**

Karlsruhe Institute of Technology (KIT), Germany

Nuclear waste disposal is a task that will keep us and coming generations busy for a few decades up to several centuries. In Germany, for example, identification of a site is planned for sometime between 2046 and 2068. The first containers could then be emplaced between 2066 and 2088. Due to the toxicity of the waste, but also the incredibly long time spans for which it is supposed to be kept safe and secure, "good" technology governance is demanded in the process of identifying a suitable site for a repository, building, operating, closing and monitoring it in many countries. This includes criteria such as transparency, fairness, justice, public participation and evidence-based policy-making. Due to the long time-frames some of those involve challenges that reach far into the future: How to be transparent towards future generations, i.e. how to communicate our knowledge about the repository into the future? How to deal with the fact that today's state of the art with regard to safety might be outdated once the construction starts (but construction plans might not be easily adaptable)? What can we do today to increase the probability that 300 years from now someone will be there to interpret and act upon monitoring data from the repository?

As part of the solution, technological fixes, such as information platforms, digital participatory methods, and the use of AI in identifying a suitable site for a repository are being tested and / or thought about. In this contribution, we will argue that robust institutions need more than technological fixes to be able to handle long-term tasks such as nuclear waste management, but also other long-term governance challenges. Rather, robust institutions need a working system of checks and balances as well as human and financial resources. Technoscientific developments can support this, but are no panacea.

## **How civil society organisations can 'afford' to discuss corruption: analysing three Indian digital initiatives**

**Anwasha Chakraborty**

University of Bologna, Italy

Experiences with the digital have reached a critical mass in Asian societies (Athique and Baulch 2019). From strategic policy pronouncements of national governments (Athique 2019) which seek to use information and communication technologies to uplift its poor, to cashless economies and boom in e-commerce platforms (Mader 2016; Mukhopadhyay 2016), to the design and use of digital technologies in efforts of collective action and everyday resistance (Mattelart 2015), transactions with the digital are manifold and varied. However, the design-end assumptions that lead to the materialisation of these digital interactions are less understood and studied. In this paper I unpack the development of participatory digital platforms created by collective actors (using three Indian civil society organisations, or CSOs, as case studies) which seek to improve governance and fight corruption through greater civic engagement. In particular, I focus on the affordances of the platforms which are inherent to their architecture and which creates a variety of possibilities for users to interact with and to create data on corruption.

The three Indian CSOs under scrutiny are Janaagraha (whose web-based platform, I Paid a Bribe, registers citizen complaints on corruption), Association for Democratic Reforms (with its open data repository and app providing information on electoral candidates) and CGNet Swara (a community radio initiative using Bluetooth technology to give voice to rural grievances). Primary data gathered from January 2021 to December 2022 include 15 in-depth interviews conducted with relevant stakeholders, public reports and social media data of the initiatives. Using constructivist grounded theory, the paper analyses the digital affordances and intended outcomes as envisioned by the initiatives. In doing so, the paper intends to show how design-end affordances can be a useful analytical tool to understand the role of civil society in fighting corruption.

## **Grassroots technologies and good governance: dynamics of diffusion from below of digital whistleblowing platforms in the anti-corruption arena**

**Alice Fubini**

University of Bologna, Italy

Starting from what Rose-Ackerman (2016) suggests about good governance, intended as “all types of institutional structures that promote both good substantive outcomes and public legitimacy”, this paper investigates how anti-corruption technologies for whistleblowers developed by grassroots actors may affect the public institutional actors who pursue good governance in the anti-corruption arena. Indeed key elements of good governance include transparency, integrity, accountability, and the absence of corruption and malfeasance. Adopting a qualitative research design based on Constructivist Grounded Theory, this study examines the diffusion of digital whistleblowing platforms in Spain, shedding light on how relationships among tech developers and Spanish civil society organizations have fostered the adoption of digital whistleblowing platforms by two regional anti-corruption agencies. The analysis rests on documents and semi-structured interviews conducted respectively with activists, developers, and public servants involved in the process. The main collective actors selected for this research are the Italian Hermes Center for Transparency and Digital Human Rights, which is involved in the development of GlobalLeaks, the open-source software for whistleblowing platforms. The activist project Xnet is the main civil society organization involved at the national level. The research involved also public officials from the anti-corruption agencies from both communities of Valencia (Agencia Valenciana Antifraude) and Catalunya (Oficina Antifrau de Catalunya). The findings suggest that the spread of whistleblowing platforms - and the consequent promotion of anti-corruption practices - relies on the existence of an “infrastructure” that is both technological and social. This anti-corruption infrastructure enables institutional actors, such as anti-corruption authorities, to curb and prevent corruption by recognizing an active role of organized civil society and by embracing technological innovations coming not only from top-down actors but also from below.

## **Imagining future relationships between AI, state and civil society**

**Ruby O'Connor**

Monash University, Australia

For over a decade, there has been increasing interest in the possibilities for Artificial Intelligence (AI) to facilitate, and/or improve governance practices. Recently, this interest has been extended through the publication of over fifty-nine National Artificial Intelligence Strategies around the world. These national strategies often set lofty, but admirable goals for how AI will enable sustainable, inclusive and supportive futures that contribute to society's wellbeing. Many claim AI will be revolutionary in this sphere. Yet AI is not simply a practical tool. It also functions as a performative concept with accompanying narratives that act as social mechanisms. Questions about why particular government imagined futures are seen as desirable, how AI is

purportedly meant to facilitate their realisation, and what this might mean for evolving relationships between state and civil society must be assessed through a lens that accounts for power and politics.

The European Union and the countries within it have been particularly prolific in producing AI strategies, accompanying documents and legal frameworks relating to AI design and use. Consequently, this is a fruitful area of study with implications for other nations just beginning to consider AI future(s). This paper contains a thematic analysis of national AI strategies developed by liberal democratic European Union (EU) countries and the United Kingdom (UK). Using a multi-level framework that draws on Gramscian ideology (Gramsci 1972/1947), socio-technical imaginaries (Beckert 2017; Jasanoff and Kim 2009), and the sociology of expectations (Borup et al. 2006), this paper works towards an understanding of how government interest in AI, far from constituting a revolution, actually serves to reproduce the status quo in governance and public service provision. Acknowledging this, we can begin to look at alternative uses for AI and how these might (re)imagine current state/civil society relationships in ways that are genuinely sustainable, inclusive and supportive.



## Panel 31: Global Pathogens, Local Pathologies: Toward a more than human understanding of biosecurity

*Time:* Thursday, 29/June/2023: 2:00pm - 4:00pm · *Location:* Sala Rossa

*Session Chair:* Michele Bandiera

*Session Chair:* Christian Colella

*Session Chair:* Chiara Vacirca

*Session Chair:* Lucilla Barchetta

*Session Chair:* Enrico Milazzo

*Session Chair:* Jasmine Pisapia

**Topics:** Ecological transitions and climate justice; Health policies, governance and practices in a postpandemic era; Sociomaterialities of conflict and peace; Technoscientific promises, imaginaries and expectations; Food networks and governance in postpandemic times

**Keywords:** Biosecurity. Agriculture. Livestock farming. Plants. Animals. More than human health

In an agricultural context the term “biosecurity” refers to practices that control the spread of disease both onto and within the farm (Dargatz et al., 2002), but in the ‘world-ecology’ of the plantationocene (Haraway 2016) and capitalocene (Moore 2015) plants, animals and pathogens travel quickly around the globe, often undermining any institutional attempts to control vegetal, animal and microbial life (Lorimer 2020). Biosecurity science and policies operate to safeguard crops, plants, and domesticated animals - as ‘productive forms of life’ (Bandiera 2020) - from the ‘infected life’ constituted by pests, vector species or wild animals (Cassidy 2019). This panel will focus on the modern biosecurity paradigm and its possible alternatives such as the ecological and relational understanding of human and non-human coexistence, intercepting the current STS debate around ecological reparation (Centemeri, 2021; Ghelfi e Papadopoulos 2022). Drawing inspiration from critical biosecurity studies (Lorimer 2013) and the scholarship focused on the spatial (Hinchliffe 2013, 2015; Barker, 2015) and the temporal aspects (Pellizzoni 2019, 2021) of governing non-human life, we have identified three thematic interrogations:

- Sanitation: How the socio-historical legacies of sanitation and immunity, which build on the epistemological division between spaces of health and sickness (Lynteris 2019), influence contemporary biosecurity/sanitation practices.
- Surveillance: What role technologies play in the implementation of sanitary and phytosanitary monitoring measures, in the proliferation of borderlines, topographies of control, and conservation-driven surveillance (Sandbrook et al. 2018). What is the connection between technologies of surveillance of pathological bodies with the control over marginalized humans (Browne 2015)?
- Standardization of practices: How and to what extent biosecurity regulations, homogenized zootechnical and agricultural modes of production, procedures, and spatial arrangements are historically linked with the global expansion of monocultural models (Uekotter 2011) and intensive livestock breeding (Shortall et al. 2016).

This panel will welcome both theoretical and empirically grounded contributions to current biosecurity practices and its alternatives such as non-anthropocentric approaches to the health of plants, animals and the environment, including but not limited to:

- Accounts on methods to trace topologies of infected networks, intensities and circulations (Hinchliffe et al. 2013) and the invisibility of ecological networks (Waage & Mumford 2008).
- The intra-active character of disease emergence (Reisman 2021) and technoscientific reframing of pathogenicity (Stengel et al. 2022).
- ‘One Health’, and similar technoscientific reframing of health beyond the human (Hinchliffe 2017)
- Emergent bottom up and/or institutional practices of ‘resilience’ such as agroecology, reforestation and rewilding.

The panel is also interested in contributions that analyze the epistemological and political effects of animal and plant diseases, especially regarding the relationship between scientific cultures, experts, institutions and organized publics (Colella et al. 2019), but also practices of care and ‘living with’ infected animal and vegetal bodies (Vacirca & Milazzo 2021) and emotional attachments with the latter (Gatti 2022).

### A Relational Approach To Pesticide Use: Farmers, Herbicides, Nutsedge, And The Weedy Path To Pesticide Use Reduction Objectives

**Lucia Arguelles, Hug March**

Universitat Oberta de Catalunya, Spain

As part of a research project aimed to untangle the political ecology of weeds in agriculture (Argüelles and March, 2022), in this empirical study involving in-depth interviews and multiple field visits to vegetable farmers and agricultural technicians



operating in El Maresme (Spain), we unravel the different relations that unfold as herbicide availability and effectiveness contracted in the last few decades.

Complementing traditional approaches to pesticide use that investigate farmers' decision-making and the structural factors conditioning farmers' roles as pesticide users, we propose a relational approach that recognizes the different actors, processes, and agential roles embedded in pesticide use (Guthman 2019, Darnhofer 2020). For that, we zoom in on the entangled relations between key actors of the agricultural assemblage such as those between farmers, herbicides, and weeds.

We show how relations between actors of the assemblage unfold as pesticide use and effectiveness contracted over the last decades in three different and connected events: the decrease of herbicide performance, the proliferation of undisciplined weeds, and finally, the diverse and unpredictable reactions of farmers.

This approach allows us to emphasize the role of different actors, their changes, and their reverberations, how they stand next to each other, and the unstable hierarchy among them. For example, nutsedge's rhizome-based reproduction makes this weed resistant to chemical weeding. This has reverberations in different actors below and above ground, breaking the hierarchy commonly assumed between farmer and weeds.

Our results show that the banning of herbicides and the emergence of a new weed ecology enacted different relations that moved farmers to adopt non-chemical methods. In this process, farmers' rationales and practices around weeds and weeding unfold as unpredictable, sometimes contradictory, and spatially and temporally variable.

## **The pathogen & the pig: Examining multiple enactments of biosecurity in livestock biotechnology research**

**Amy Clare**

Technical University of Munich, Germany

With the development of novel gene editing technologies, scientists have been researching various applications in livestock in an effort to tackle environmental, agricultural, or biomedical challenges. One area of research is xenotransplantation, where scientists genetically edit pigs to produce animals whose organs could be transplanted into humans. While xenotransplantation is positioned by scientists as a biomedical intervention, as a means of combating human organ donation shortages, the research object is still a pig: an animal with a history of being governed through livestock agricultural frameworks. In light of this, what happens when xenotransplantation scientists are faced with a pathogen that disrupts the coexistence of the pig as both a bioscientific research object and an animal categorized as livestock?

Through ethnographically examining xenotransplantation research in Germany, I've come to witness how African Swine Fever (ASF) brings to light competing understandings of biosecurity. ASF, a virus that kills pigs, has been shaped by my informants as "the biggest threat to the field" of xenotransplantation in Germany. It becomes shaped as threatening not necessarily because they imagine it will infect and harm their pigs, as they protect them through their own biosecurity protocols like pathogen-free facilities. Rather, this threat emerges due to how the German Federal Ministry of Food and Agriculture *governs* ASF and contaminated animals through (livestock) agricultural biosecurity regulations.

In this talk, I'll show how through the case of xenotransplantation and ASF, different *enactments of biosecurity* are performed when livestock animals become biotechnological research objects. I'll trace the tensions that emerge as scientists have to navigate their own bioscientific biosecurity measures, as well as livestock agricultural biosecurity measures. Through this, I bring into question: what does *biosecurity* come to mean (locally and globally) in an era of biotechnological research where livestock animals are increasingly entering laboratories?

## **The perceptions of farmers and veterinarians about bovine tuberculosis and its eradication policies. A case of stigmatization, mistrust and fatalism**

**Josep Espluga-Trenc<sup>1</sup>, Arantxa Capdevila<sup>2</sup>, Carlota Moragas-Fernández<sup>2</sup>**

<sup>1</sup>Universitat Autònoma de Barcelona, Spain; <sup>2</sup>Universitat Rovira i Virgili, Spain

This communication aims to show some results of a research on the perception of bovine tuberculosis (BTb) among a sample of farmers and veterinarians from Spain and France. BTb is a zoonotic infectious disease, with a very strict and regulated surveillance and eradication program (at the European level and in each member country). The appearance of a BTb outbreak implies the immobilization of the herd for a period of time and, if the infection is prolonged, the slaughter of all the animals, as well as a ban on exporting animals and meat from the affected territory.

The methodology combined the analysis of press news from both countries, a series of in-depth interviews with farmers (12) and veterinarians (8), and deliberative workshops (4) with the people interviewed.

The results show how the uncertainties derived from the diagnostic tests (false positives and false negatives) are a permanent source of mistrust and conflicts between farmers, veterinarians and official services, which affects the credibility of the eradication program and the effective rules compliance. In addition, both farmers and veterinarians know that when there is an outbreak they will be blamed by official services and stigmatized by other farmers and veterinarians. This leads both to attitudes of passivity and fatalism in the face of risk, as well as secrecy to avoid stigmatization. It is a process that is lived with a lot of loneliness, skepticism and mistrust.

In conclusion, it can be seen that the official BTb eradication program rests on theoretical assumptions that often do not occur in practice. In addition, it is a biosecurity program designed for intensive stabled livestock, while marginalizing and penalizing extensive livestock, something that in a context of combating climate change and the energy crisis means following a flawed logic.

## **Facing the coypu: science, rhetoric, and affection in the case of an alien invasive species**

### **Massimiliano Fanto**

University of Milan Bicocca, Italy

During an interview I have conducted with Martina, she once, very frustrated, told me: "*Giulio non porta malattie, sono tutte bugie quelle che dicono loro*". Giulio is a *Myocastor coypus*, and Martina's pet. She is just one of the various coypu owners I have met during my fieldwork, when I have been researching the social and cultural impacts of the presence of this invasive species in northwest Italy. Martina, as many others, has been struggling with both illegality and contempt due to her decision of adopting a coypu as a pet.

The coypu is considered one of the world's most dangerous invasive alien species. In Italy, the legal status of the coypu has been constantly changing to comply with European regulations, and now it is managed through "*Piano Nazionale di Gestione della Nutria*", which intends to provide a guideline for the management of the control or eradication of coypu colonies in Italy. Among the characteristics that validated its mass eradication – which are related to its environmental impacts — *de facto*, it seems noteworthy to consider the role of the species as a potential reservoir of diseases, in particular *leptospirosis*.

My intervention aims to spotlight the ambiguities behind the plan of control and eradication of the coypu. Anchoring to my ethnography fieldwork, I will juxtapose some alternative scientific opinions of the problematicity of the rodent — as well as to the proposal of a control method through sterilization (Chiozzi, Venturini 2008) — to an analysis of the rhetoric of political and popular culture on invasive species, and to the emotional ties which some of my interviewees have forged with coypu. I intend to energize to the entanglements that this species generates with social and political dimensions and highlight the clashes that have emerged when biosecurity culture encounters the reality of affection.

## **From The Vital to the Viral: An Epistemological Inquiry**

### **Alessandro Gelao**

Università degli Studi di Torino, Italy

The aim of this contribution is to take an epistemological approach to inquire the relation between the rising discourses on biosecurity, hastily brought back by the recent pandemic, and the historical embedding of this notion in the development of the concept of individuality: organismic, cultural, economic and systemic.

Historically, as observed by Thacker (Thaker, 2007) and Woodard (Woodard, 2012) the organism has always been the main unit, the observable and operational primum of scientific inquiry. One of the examples that will be concerned in this contribution will focus on the embedding of the Psychoanalytical concept of Ego and the The traditional view of the Immunitary System as «a defensive network against a hostile exterior world in which the immune individual rejects anything that is not "self.»» (Gilbert, 2012).

In spite of the towering amount of scientific evidences demanding for a complete reconfiguration of this traditional, almost mythological frame work, the pandemic showed that the main line of discourse has been inevitably dominated by an Us vs Them perspective in which the Virus, the microbial life that spans its network of infection (Woodard, 2012) has taken back its traditional seat as a representative for an objectified view in which Nature, in polar opposition with the human agentivity, is a passive, blind, harbinger of dissolution: an external obstacle to integrate or exterminate.

## **WaSH-ing AMR of its local specificities: making a global health object**

### **Esther Sophie Rottenburg**

London School of Hygiene and Tropical Medicine, United Kingdom

In this paper, I trace how researchers in global health employ tools relating to water, sanitation and hygiene (WaSH) in the making of evidence on anti-microbial resistance (AMR). AMR refers to bacteria and other microbes' resistance to anti-microbial agents, including antibiotics, which leads to drug-resistant infections. AMR is understood as a global issue, despite

its local contingency. As the colonization with (resistant) bacteria can occur across the human, animal and environmental spheres, AMR disrupts the boundaries of these three sectors. I show how WaSH data break down AMR into small units of analysis to be measured, assessed and intervened upon. Prevention of infection is commonly understood as the most effective way to decrease the likelihood of both occurrence and spread of resistant infections. The WaSH sector renders prevention tangible by proposing sanitation and cleanliness, disrupting chains of infection. In my ethnographic work with a transnational research collaboration working in between the United Kingdom, Uganda and Malawi, I found that WaSH served at once to make AMR knowable and intervenable on a local scale as well as as a global health object. Following from AMR's conception as a One Health issue, WaSH data stitch together human, animal and environmental spheres by highlighting the connecting bacterial pathways, e.g. the drinking of untreated water linking environmental and human spheres. At the same time WaSH data create windows through which those pathways can be interrupted, e.g. the treating of drinking water. Such a conceptualization of AMR shifts attention away from underlying factors that contribute to the presence of (resistant) bacteria, such as the social, historical and economic and thus depoliticize AMR into an issue that we can supposedly handle in our way of making global health.

## Panel 2: The more-than-human politics of urban inequalities

Time: Thursday, 29/June/2023: 4:30pm - 7:00pm · Location: Aula A

Session Chair: Rivke Jaffe

Session Chair: Francesca Pilo'

**Topics:** Sociomaterialities of conflict and peace; Postcolonial technoscientific futures; Sociotechnologies of (in)secure worlds to come; Right to and sociotechnical imaginaries of the city; Extractivist powers, imaginaries and asymmetries

**Keywords:** more-than-human politics; urban inequalities; power relations; cities; socio-technical transformations; inter-species relations

Cities emerge not only through relations between humans but also through their interactions with a range of non-human entities: from biophysical flows and animals to infrastructures and technological devices. These entities play a crucial intermediary role in producing and/or mitigating forms of urban inequality: socio-technical change, natural disasters and animal-human interactions, for instance, affect different urban populations in distinct ways. This panel seeks to further scholarship on urban inequalities through a more-than-human perspective that emphasizes the political role of non-human entities in mediating urban power relations and distributions of risks and resources, in different domains ranging from security and public health to energy and transportation. Connecting insights from science and technology studies (STS) and urban political ecology, the panel welcomes empirical case studies focusing on specific socio-technical transformations or inter-species relations that shed new light on the formation of urban inequalities. We approach urban inequalities as a political outcome emerging from the relations between human and non-human entities that have distinct if sometimes overlapping interests. What is the role of specific technologies, construction materials, animals, or viruses in forming inclusionary/exclusionary socio-technical imaginaries, solidarities, and political mobilizations? How do they feature in the everyday negotiation and imagination of current and future urban socio-political orders? How are the interests of different urban populations exacerbated or mitigated through the specific material-technological or biological affordances of such non-human actants? We invite papers that address these questions ethnographically and seek to include cases from cities across the world in order to diversify the geographies through which we theorize more-than-human politics of urban inequalities.

### From 'public security' to 'security publics': Juxtaposing assumptions of a homogenous urban public with sociomaterial security practices in Nairobi (Kenya)

**Francesco Colona**

Radboud University, Netherlands, The

In this presentation I examine three sociomaterial security provision practices in the urban context of Nairobi, Kenya. In the first two I show how material infrastructures and the geographical and spatial arrangement of urban mobility flows in two wealthy neighbourhoods of the city directly translate in economic and physical insecurity for those working in these same areas. In the third, I detail how some residents frame extrajudicial killings of suspected criminals at the hand of the police as providing security to the city, rather than recognizing these episodes as brutal instances of systematic insecurity for other fellow citizens. I juxtapose criminological and policing assumptions about 'security as a public good' with the socio-material reality of urban security provision in Nairobi (Kenya). In this paper, I bring together a material semiotics' tradition of treating technologies and materiality not as outside politics but as tools performing it, Chantal Mouffe's political theory (2005), and anthropological debates on citizenship. I offer a critical analysis of the universalist idea of 'security as public good'. I show it falls short of acknowledging the radical inequalities within and the diversity of 'the public' and how it works on an assumption of a fictitious homogeneous public. Instead, I propose the term of security publics as a tool to attend to the "public" not as an adjective to the security/good, but rather as the result of a sociomaterial collective *subject*-ivation process that unfolds through of security provision practices in the city.

### Overlooking the oyster: Planning, gentrification and the animal 'right to remain'

**Philip Hubbard**

King's College London, United Kingdom

Cultivated since at least Roman times, Oysters have a complex natural and social history in Whitstable, Kent (UK). In recent years, their agency has contributed to processes of urban gentrification in a number of ways: oysters are visceral objects whose affective qualities create hierarchies of taste and dis-taste through processes of desire and disgust; they have become a marker of class change that has positioned the 'local' within wider circuits of consumption; and they are labouring bodies that reconstitute the coastal ecosystem on which the town depends. Currently, however, local activists are resisting the gentrification and 'over-development' of the coast by seeking to remove the extensive array of oyster trestles on the foreshore. This has resulted in prolonged planning disputes in which oysters' 'right to remain' has remained unaddressed:

oysters have been both literally and metaphorically overlooked by residents and planners who instead have privileged questions of property and land-use. Outlining the consequences of this, I stress the importance of giving voice to 'silent things' in municipal planning processes.

### **Insurgent socio-technical transition: opportunities and tensions in creating energy communities in Rio de Janeiro's favelas**

**Francesca Pilo'**

Utrecht University, Netherlands, The

Decentralized energy systems are generally presented as an alternative to centralized grids, embedding the promise of more just systems. Democratization of electricity infrastructure management and increased autonomy from (top-down) centralized systems are some of the promises that support the imagination of an alternative electricity future in which citizens will play a central role. This presentation builds on an ethnographic study of a bottom-up initiative aiming to promote solar energy in favelas in Rio de Janeiro to discuss the potential and limits of these systems for materializing more progressive politics around electricity access and management in poor and stigmatized urban neighborhoods. It shows how this initiative develops a form of Insurgent Planning (IP) in which new forms of citizens' reappropriation and collective organization, new collaborations with the state, and new imaginations of the favelas as spaces of innovation (instead of violence) are developed. At the same time, its potential for progressive politics also depends on its relationship with the (smart) grid centralized system. While decentralized systems are generally presented as an alternative to centralized grid systems, I show how their relationship is crucial to understanding the socio-technical transition's promises, imaginaries, and material politics of decentralized systems. In particular, it considers the dependencies, tensions, and contradictions between the centralized (smart) grid and the decentralized system (solar installations). These include the aspiration to challenge the dominant (and unjust) centralized paradigm, the search for autonomy, and the need to maintain a 'good relationship' with the grid, which is crucial for the operationalization of this energy community. Thus, more broadly, this presentation discusses how the urban politics of socio-technical transition seems to revolve around the relationship between socio-technical systems instead of their opposition.

### **Who gains from the infrastructuring of a watershed landscape in Mumbai?**

**Shashank Deora, Pankaj Sekhsaria**

Indian institute of Technology Bombay, India

Mumbai is one of the most populous urban metropolises in Asia. Its urban expansion has transformed its erstwhile peripheral landscapes in many senses, affecting these landscapes and their relationships with human and non-human actors. In this research, we look at these transformations around one such watershed landscape hosting three major lakes of Mumbai – Tulsi, Vihar and Powai lakes. This work emerges through a combination of the review of literature – 'infrastructuring studies' literature in STS and the urbanisation literature – some archival work and the ongoing fieldwork on this landscape. We highlight some significant techno-ecological and socio-political infrastructuring processes around this landscape since the mid-nineteenth century when Vihar Lake was constructed as the first municipal piped drinking water supply scheme in South Asia. These infrastructuring processes transformed one part of the landscape into a wildlife preserve – Sanjay Gandhi National Park – within the city limits. In contrast, the other part of this landscape near Powai Lake has emerged as a prime suburb in Mumbai. Nevertheless, the infrastructuring around the entire watershed continues through actions such as new urban built-up, non-recognition/eviction of informal settlements, opening up of environmentally sensitive zones for commercial establishments, and non-compliance with rules for lake conservation. These actions facilitate a certain kind of land use on the watershed landscape. They privilege higher-income groups and corporate actors fulfilling their interests around the watershed while obstructing those of lower-income groups. It has also created a sharp division between the physical spaces set aside for human and non-human actors, wherein human actors are forbidden from entering the spaces reserved for non-human actors and vice-versa. We argue that to mitigate some of these inequities in urbanising landscapes, appreciating the interconnectedness of these landscapes and the actors inhabiting them with an explicit focus on the issues of inequity is critical.

### **Copper Cities: Opening the 'black box' of smart city sustainability discourses**

**Isabelle Boucher, Robert Marinov**

Concordia University, Canada

What is copper conducive of, both materially and conceptually, within the smart city? Recent studies show that the volume of copper used in smart city technologies is set for rapid growth. Yet, while scholars continue to unravel the many socio-political implications of the now-global smart city framework, the smart city, in both its imaginaries and concrete implementations, is

rarely questioned for the material impact of its component parts - the critical minerals and other resources required to deploy ubiquitous sensing, data analytics, and renewable energy infrastructures throughout the urban fabric. Beginning from this apparent disconnect, we focus on Montreal, a Canadian city that prides itself on its leadership in smart urbanism, as a case for exploring how smart cities are discursively positioned as revolutionary tools for both sustainability and governance, all while effectively masking - or discursively 'blackboxing' - the streams of pollution and resource extraction that underpin their construction. Using copper as an elemental focal point allows us to conceptualize the many overlapping materialities inherent within smart city governance. For example, 'smart' systems that enmesh artificially-intelligent machine agencies with socio-political relations also embed rural materialities into urban governance through resource exploitation and environmental toxification. These processes are often far from the view of urban residents and affect human and non-human lives alike. For instance, copper is extensively mined and smelted in the Province of Quebec and has historically been associated with disastrous environmental and health impacts in both urban and rural communities, including on the Island of Montreal itself. Drawing on STS methods and empirical discourse analysis, we argue that smart city frameworks, inscribed in histories of cybernetics and systems thinking, selectively re-define cities as 'sustainable closed systems' that mask these many material entanglements and the inequalities in health, environment, and governance that they engender.

### **Domesticating Wilderness. Two open fieldworks in Milan, between community reappropriation and financialization of green space**

**Laura Raccanelli, Jacopo Targa**

University of Milan Bicocca, Italy

Many studies have noted how today urban nature plays a key role in the construction of imaginaries and as something that easily fits within public-private governance. If cities ceased to be seen as natureless spaces and their multispecies complexity has been recognised, it is not always clear how the more-than-human urban variety and their politics are constructed and towards which goals.

Rather than assuming that this implicitly constitutes an alternative imaginary to the "neoliberal city", we illustrate urban natures complexity and their intermingling with citizens struggles over green spaces, and, at the same time, also with broader dynamics of financialization, gentrification and speculative development. Within these assemblages, nature's agency plays a relevant role - both in the way that it is enacted or described. The aim of our intervention is thus to understand the political and socio-economical role of wilderness in the city and its connections or disconnections with the ecological understanding of the urban space.

These questions are inquired through an ethnographic account of two spaces in Milan where urban green is mobilised, in a scenario where a dominant sustainable-green imaginary has become a financial product used for urban rent and as a driver for urban transformation. We will present the cases of Bosco la Goccia and Bosco della Musica, two formerly polluted meadows areas that underwent a process of rewilding, now at the centre of brand new regeneration projects. These constitute two toxic environments around which new imaginaries are being created and commodified. Focusing on the politics of visibility and existence of the more-than-human in the city, both in their aesthetic and ecological meanings, we will analyse the temporality of this projects, both historicizing their failures and contradictions and, at the same time, understanding these spaces as sites of resistance and reappropriation by residents and the green itself.

### **Stuck in the mobile: The practices and politics of mobility in platform-mediated food delivery**

**EI No**

University of Cambridge, United Kingdom

The proliferation of food delivery platforms is profoundly changing the way urbanites eat, work, and move. While the literature on these platforms and their workers focused on changing labour relations, platform workers do not merely represent a new type of labour; they likewise form a critical conduit in the urban logistics system. The platform-mediated food delivery can be conceptualised as a moving assemblage of humans and more-than-humans that forms a larger, if fluid infrastructure (Star and Ruhleder, 1996; Simone, 2004). With the expanding infrastructural power, food delivery platforms have emerged as a critical regulating system of urban mobility that generates and coordinates flow of people, food, and information. Platforms increasingly enact a form of governance by enabling a particular mode of circulation and movements that have social, economic, and political implications (Cresswell, 2006; Hannam et al., 2006; Sheller and Urry, 2006, 2016; cf. Massey 1994). This paper explores the practices and politics arising from the everyday infrastructural functioning of Baemin, the largest food delivery platform in South Korea. Building on STS-informed infrastructure studies and mobility studies, it seeks to uncover the power dynamics of mobility and immobility involved in creation of a ceaselessly flowing city through automated efficiency. A mobile ethnography in Seoul that combines a socio-material analysis of the Baemin rider app, smartphone GPS tracking of Baemin riders' delivery activities, and interviews with the riders captures the material traces of food delivery and digitally mediated interactions on the move. The paper firstly discusses the distinct technological

arrangements that Baemin utilises to transform ordinary urban dwellers into coordinated labour, thereby orchestrating mobility at the city level. It then delves into the forms of body discipline that Baemin riders experience on the move and the frictions, negotiations, and improvisations entailed in realising smooth-flowing, just-in-time food deliveries for customers.

### **Digital Twin City: interesting urban environments to come**

**Biagio Aragona, Mattia De Angelis**

Università di Napoli Federico II, Italy

Digital twins of smart cities are developing worldwide. These copies of urban environments require integrated and heterogeneous data, 3D modelling techniques, and GIS information or BIM models. Moreover, a network of sensors should be developed for the acquisition of spatial data (Lehtola, 2022).

The Digital Twin is not only about the physical and environmental components of the city, but also about developing complex detection systems that consider the activities taking place in the environment, and the complex network of interactions between multiple human and non-human actors in urban contexts.

Our contribution aims to critically understand the development of digital twins for smart cities through the lenses of critical algorithm studies (Gillespie, 2016, Aragona, 2022). We will present two cases of the application of digital twins in urban environments: the Helsinki district of Kalasatama, and the city of Zurich. Both aim at developing participation in urban spatial planning through open platforms. We will show that providing access to platforms and data does not actually mean implementing public participation in the digital twin, because not everyone has the capability to take advantage of digital participation (van Dijk, 2022). The result is inequality of access or exclusion for some categories of citizens and city users from the participatory decision-making process.

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## Panel 43: Social Innovation: Forms, Evidence, and Perspectives

*Time:* Thursday, 29/June/2023: 4:30pm - 7:00pm · *Location:* Aula B

*Session Chair:* José Francisco Romero-Muñoz

**Topics:** Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Innovation imaginaries, practices and policies; Ethics, innovation and responsibility in technoscience; The value of science, technology, innovation and research practices

**Keywords:** responsible innovation, social value, social collaboration, social change, community development

Social Innovation (SI) continues to gain importance as an alternative paradigm to other forms of innovation, focusing on generating social value and not just private value. The interest in SI can be seen in the growing academic literature of the last two decades. Likewise, it is included in various political speeches of international organizations such as the Organization for Economic Cooperation and Development, the United Nations, the European Commission, The World Economic Forum, among others. SI is often introduced as the most convenient paradigm to face the social, economic, political, and environmental challenges of the 21st century. Although certain academic literature presumes various positive experiences of SI, frequently, it is difficult to find clear conceptions about what it means with evidence that shows its existence and effectiveness. In general, when talking about SI, it is presented as an aspiration. Various criticisms are frequently mentioned in the available studies. It has been said that the body of literature is inconsistent, ambiguity persists in the term, and that it is not clear whether it should be considered as a phenomenon or a theoretical framework. Despite all, the current global context requires SI to reduce the problems that are common to everyone. Problems such as climate change, the eradication of poverty, gender equity, cannot be tackled without forms of social collaboration and innovation. In response to this outlook, through this open panel we invited STS scholars to join a discussion on SI. The STS analyze ways in which science and technology is constructed and distributed. Likewise, there are some efforts to promote cross-fertilization of STS and other studies on Innovation and Technology, for instance Hess, D. J., & Sovacool, B. K. (2020). Sociotechnical matters: Reviewing and integrating science and technology studies with energy social science. *Energy Research & Social Science*, 65, 101462. Our discussion aims at fostering cross-fertilization of such theoretical frameworks to explore cases that present construction and application of scientific-technological knowledge that clearly finds social benefits (one example is the case described in Stewart, H., & Watson, N. (2020). A sociotechnical history of the ultralightweight wheelchair: a vehicle of social change. *Science, Technology, & Human Values*, 45(6), 1195-1219.). In this way, contributions from various disciplinary fields will be welcome; specially those that present empirical research results that uncover evidence-based forms of social innovation.

### Examples of social innovation in history

**José Francisco Romero-Muñoz, Wietse De Vries Meijer**

Benemerita Universidad Autonoma De Puebla, Mexico

The current global context requires forms of innovation capable of reduce the problems that are common to everyone. Problems such as climate change, the eradication of poverty, gender equity, cannot be tackled without forms of social collaboration and innovation. In the last two decades, interest in social innovation has grown. Both in the academic literature and in the political discourses of various international organizations, social innovation has been highlighted as an alternative paradigm to other forms of innovation. Several perspectives suggest that social innovation can make it possible to generate social value and not just private value. Despite this, it is difficult to find clear conceptions about what social innovation means with evidence that shows its existence and effectiveness. In general, when talking about social innovation, it is presented as an aspiration. Various criticisms are frequently mentioned in the available studies. It has been said that ambiguity persists in the term, the body of literature is inconsistent, and that it is not clear whether it should be considered as a phenomenon or a theoretical framework. Although it is true that in the literature on social innovation there are not always clear examples that show how it works, it is possible to find successful cases when a historical perspective is used. The study that we present aims to select cases of social innovation with such a perspective, using the results of a systematic review of 572 research articles from the ESBCO database. We analyze historical cases that allow us to appreciate complete innovation cycles. Important lessons emerge from the analysis, especially on social participation for solving common problems. Likewise, the relationships between technological innovation and social innovation are highlighted, especially those related to processes of social adoption of technology and co-design of it.



## **The benefits of social innovation: A comparison of two Mexican communities**

**Lilia Verónica Gómez-Galeana, Wietse de Vries**

Benemérita Universidad Autónoma de Puebla, Mexico

### **The benefits of social innovation. A comparison of two Mexican communities**

Lilia Verónica Gómez-Galeana

Wietse de Vries

According to the literature, social innovation could accrue many benefits for community development. However, there are very few empirical studies to support this affirmation. To find out what the benefits or drawbacks of social innovation are, this project compares two rural communities in the state of Puebla, México.

Community 1 has been subject only to federal policies that seek to foster social and economic development. In contrast, community 2, in addition to public policies, has participated in several development projects that seek social innovation and involve outside actors like NGOs and the public state university. In both communities, we reviewed development indicators and interviewed key informants.

Our findings point to several benefits of social innovation in community 2. These include higher levels of participation in decision-making, better congruence between local needs and outside support, job creation (especially for women), and project sustainability (even when outside funding stops). Social innovation projects also seem to contribute to capacity-building and leadership when participants show abilities to advance new development initiatives and obtain outside support from different sources of funding. Additionally, community 2 offers better results in development indicators.

Community 1 has remained dependent on funding from the federal government and its assignment through state and local officials. Support is subject to local and national policymakers, operators, and political give and take, which excludes the population from the decision-making process or the elaboration of local initiatives. Development in this community, measured by indicators, has been less.

## **"Everything must change for everything to remain the same". On the social innovation vacuum within Polish humanities and social sciences**

**Marta Kosińska, Przemysław Plucinski**

Adam Mickiewicz University, Poland

In recent years, the legal framework for the organisation of Polish science has changed several times. Eventually, a multi-criteria evaluation of research units was introduced. One of the critical conditions for evaluation and funding became the so-called 'third criterion', i.e. the requirements for the university's cooperation with its 'social environments' in terms of social innovativeness (SI).

The paper offers an analysis of the SI practices of scholars against the background of structural conditions. It is based on the data from the research grant 'Social circuits of knowledge in academic humanities practices' funded by the Polish National Science Centre, which contains: (1) secondary data: statistical data; reports from selected universities, ministerial evaluation documents; and (2) primary, qualitative data from 80 in-depth interviews with scholars developing SI.

The research questions are: (1) do Polish universities measurably support SI? (2) what are the determinants of innovative collaborations with 'social environments'? (3) what factors determine success or failure in developing SI practices?

As the research is ongoing, we can refer to only preliminary results. We investigate the gap between ministerial expectations, university perspectives, and the experiences of individual researchers developing SI. We observe that the development of SI is neither prioritised (under the 'publish or perish' regime) nor highly evaluated by the university units (faculties have no tools to reward these activities). Through references to particular examples, we conclude that SI practices occur primarily within the institutions, the third sector or social movements external to the university. It is what we termed as the "social innovation vacuum". The SI outcomes are eventually ex-post appropriated by university units for reporting purposes. The effects of the ministerial requirements, decreeing the need to develop innovativeness, show that the di Lampedusa principle that 'everything must change for everything to remain the same' remains in force.

## **Emerging Medical Diagnostics Innovation System in India: Challenges to Deal Context-Specific Needs**

**Nidhi Singh**

Indian Institute of Science, India

The Indian healthcare system is characterised by very poor health indicators in the world. This is primarily because of severe poverty, existence of resource poor healthcare settings, staggering health infrastructure and orientation towards market driven research instead of social needs. In such a scenario, the study outlines trends in the development of emerging

advanced new healthcare technologies based on molecular and synthetic bio-technological approaches, identifying roles foresight and governance practices must play to enable their usage in addressing 'wicked' problems (e.g. import dependency, out of pocket expenditure, severe disease burden). The study explains the notion of emerging technologies, and their expected convergences, and considers both their potential and issues faced in the India context. Recent trends and emerging issues – such as slower, more problematic development and adoption than expected, and increasingly global competition to establish 'future industries' – are reviewed to identify a set of imperatives. These imperatives highlight emerging opportunities and challenges, focussing on how examining alternative futures and perspectives may help enable effective responses to emerging technologies. Finally, the study has suggested adopting a holistic framework of 'Socially Responsible Innovation System' that drives towards an effort to empower the healthcare system to direct and govern their system building activities for need-based technological developments. Hence, the study highlighted four major policy recommendation 1) providing equal opportunity to all participating stakeholders including 'social sectors' like civil societies, 2) Strengthening and driving the domestic healthcare financing system towards targeted based research and innovation, 3) Encouraging partnerships between academia-industry collaboration to boost translational research, 4) Implantation and utilization of the health technology assessment to aid in the facilitation of determining benefits, barriers, and risks, 5) Establishment of potential partnerships with developed countries, the relationship needs to be guided by the socioeconomic policies to solve the context specific problems of Indian healthcare system.

### **An Assessment of Fused Deposition Modelling Type 3D Printing Technology Explored Over Open Prosthetics and the Cases in Need of Accessible Prosthetics: Robotel Türkiye Case**

**Beyza Coskun, Mert Akol**

Middle East Technical University, Türkiye

Fused Deposition Modelling type 3-D printers are the most widely used ones in additive manufacturing. Affordability and accessibility play an important role in this fact. One of the areas of utilization of FDM is the Digital Humanitarian Context where civil society actors produce artifacts such as prosthetics for those in need free of charge. A well-known example of such a civil initiative is the E-Nabling the Future movement which produces mechanic hand and finger prostheses for children. Robotel Türkiye follows a similar path establishing an inclusive platform of volunteers, students, users, and experts. From the social point of view, Robotel is a unique case in Turkey where additive manufacturing technology is mainly promoted in the defense and civil aviation industry via high-tech methods and complex materials by policymakers. Although those politically prioritized sectors promise great economic and technological value-added, it is a question of concern whether such a normative approach facilitates the recognition and adoption of the technology in the wide public. Civil initiatives such as Robotel, on the other hand, may possess a greater potential for the technology to be diffused and adopted by enhancing coevolution and co-creation patterns. In this study, we have assessed the social, economic, technological, and political aspects of the technology Robotel to understand the adoption and diffusion patterns. Our findings indicate that Covid-19 pandemic was a milestone for FDM technology to become known and flourished. Although technology is disseminating in Turkey and social initiatives contribute to this fact, personal usage is somewhat limited compared to industrial use due to the current economic situation in the country. The study also shows that policy interest is insufficient, and public awareness regarding FDM technology is very limited.

### **Transitioning to botification of law: Opportunities and perils of digital social innovation in the practice of law**

**Alexander I. Stingl**

University of Galway, Ireland

The use of algorithms, AI, and bots is becoming ubiquitous in our daily lives, changing social spheres and cultural practices, including worlds of work. While "automation" has been an economic and social "engine of change" in many professions, not all of them have been subject of in-depth research nor have concrete consequences been addressed. In particular the change that legal practice is undergoing with the introduction of AI and bots has been addressed so far mostly by business consultants and media columnists, rather than captivated the "sociological imagination" of overly many social scientific researchers. But the "botification of law" is a significant transformatory process, given the fundamental nature of law for all political and social interaction. While business consultants draw a doom-and-gloom scenario for jobs in the legal profession, journalists are fascinated by bots that successfully take the bar exam or negate a parking ticket, writing sensationalist headlines. The real question is, however, what does the introduction of this technology actually mean for the practice of the law, for both the legal professional as well as for the client? How is the profession changing, and what are the innovative potentials of these new technological opportunities used (or misused) for. How are the experiences of clients improved, for example in removing obstacles to accessing legal services? The worlds of legal professional work, as well as the practices and interactions between legal professionals and clients are undergoing a transformation with botification as a digital-social innovative process. This presentation will address the botification of law as a social innovation in terms of opportunities it

generates (for example in terms of the accessibility of legal aid) as well as the emergence of perils (for example reinforcing pre-existing digital divides).

### **Social Innovation, sustainability and digital platforms: A critical reflection on emerging e-commerce**

**Alice Dal Gobbo, Francesca Forno, Maddalena Simeon**

Università di Trento, Italy

E-commerce has emerged as a powerful tool for reaching consumers, expanding the range, access, availability of products for people in urban and rural areas. Yet, the “platform economy” has been criticised on several fronts, particularly regarding sustainability. The energy- and resource-intensiveness of logistics, the cheap, de-skilled and precarious labour employed, the disembedding of the economy raise concerns around environmental and social justice, and the future of local-scale economies. Especially after Covid-19, it is clear that this model cannot be sidestepped, but might be reformed. This paper studies the case of a platform, emerging precisely in the post-pandemic context from a project of Social Innovation. The project is financed by the Trentino province (where it is based) and involves both private stakeholders and the University in the development of a “sustainable” platform for the e-commerce of local products. The platform aims at valorising the local territory and proposes to develop efficient algorithms to save on transport, it promises fair retribution and well working conditions, and claims to sustain local businesses (e.g. potentiating their rapport with clients, creating collection points in existing shops). Yet, its trajectory of development and establishment is not straightforward. Our ongoing research on what facilitates or hinders the emergence and consolidation of this SI draws on data from various sources both qualitative and quantitative, such as participant observation, focus groups and quantitative data on the platform’s clients and prospective members. Our preliminary conclusions reflect on the ambivalent destiny of sustainability concerns in the face of actual challenges. As the platform and its clients need to make business on a competitive market, the project’s objectives’ get negotiated, especially by sidestepping sustainability concerns in favour of profitability. Questions thus emerge as to the possibility of implementing innovations that promote practices of deep and holistic sustainability in contemporary capitalism.

### **Voice-Based Technology and Ageing: Infrastructures of Voice, Environments of Affect**

**Stina Hasse Jørgensen, Marie Ertner, Signe Yndigegn**

IT University of Copenhagen, Denmark

Voice-enabled technology has been celebrated as a breakthrough in eldercare. Mainstream discourses emphasize voice-based technology as practical assistants, and thus figure voice as a practical means to achieve certain ends. But there is more to voice interactions than merely distributing messages and articulating commands. Voice-based interactions create sonic environments, enact affect, identities, likes and dislikes.

In this presentation we will explore the phenomenon of voice-based technology in the smart-home. Through ethnographic interviews we study how older people use voice-based technologies and with what effects for their experiences of the affective environment in their homes. We combine the concept from Science and Technology Studies of infrastructure with a cultural anthropological view on voice. Based on this, we see voice-based interactions as infrastructures that link the realms of the technical, cultural and sociopolitical to the level of the individual, creating sites where shared discourses and values, affect, and aesthetics are made manifest in and contested through embodied and material practice.

The presentation makes audible interactions between voices, technologies, and homes, to exemplify some of the infrastructural and affective effects of voice-based technologies. We find that the use of voice-based technologies results in changes in the affective environments of the home, such as by creating uncertainty, harshness and intervening in cultural and temporal gestures and norms. Moreover, their ability to make voices travel beyond the material confines of the home, renders its boundaries more permeable, thus creating a sense of disempowerment both towards technology and the management of the privacy of the home. We propose the phenomenon of voice and voice-enabled technologies as an interesting topic for socio-gerontechnology research.

## Panel 35: The obsession with techno-futures in education

Time: Thursday, 29/June/2023: 4:30pm - 7:00pm · Location: Aula C

Session Chair: Paolo Landri

Session Chair: Leonardo Piromalli

Session Chair: Assunta Viteritti

**Topics:** Sociomaterial learning processes and/in digital worlds

**Keywords:** education, technology, acceleration, techno-future, time

Everything about technology in education seems to have happened already. Most notably since the COVID-19 pandemic, digital technology in the educational worlds appears as a new 'state of nature'—we only realize it exists when it fails (Bowker & Star, 1999). Just like Benjamin's Angel of History, education has lost its state of wise expectation as it is continually drifted across multiple techno-futures that narrow it down along obligatory passage points.

The social worlds of education are deeply intertwined with accelerating technological change today. Caught up in processes of interestment and enrolment (Callon, 1986), schools and universities are implicated in attempts at educational futures-making grounded in increasingly new, innovative, engaging, and seemingly essential data-intensive technologies. They are interested by narratives, imaginaries, and scientific perspectives that redefine the field, perimeter, boundaries, objects, subjects, and the very categories of analysis on education—what it is, what it will be, how it is done, who does it, and where it happens. Scenarios are thus constructed around the worlds of education that produce an ongoing presentification of technologically dense, perpetually looming, and ultimately speculative futures (Decuyper & Vanden Broeck, 2020).

Multiple labels encompass educational environments—platforms, virtual immersive environments, educational robotics, virtual learning, gamification, metaverse, machine learning—and draw them into increasingly incorporated frameworks that are pervaded by futuristic technologies which promise post-human—or 'super-human'—improvements and enhancements of educational processes. These technologically-driven acceleration processes produce effects on the practices of local educational actors. Schools and universities are indeed infiltrated by rapid and accelerated information and technology flows driven by the big players of the edtech market (Williamson & Komljenovic, 2022)—who pioneered the obsessive anticipation of imagined techno-futures—and transcalar policy networks and 'real-time' governing instruments (Williamson, 2016).

The future of education thus appears as a process of ongoing production which still risks running out of steam in the scope of a present obsessed with technological scenarios that anticipate, amplify, and enhance practices, environments, and teaching models (Sellar & Cole, 2017).

This track welcomes contributions interested in problematizing the obsession with techno-futures and acceleration in the fields of education. A space of reflection will thus be open for interrogating possible ways out to slow down the present of education without relinquishing the non-human and creative power of technology. Issues of interest include (but are not limited to):

- educational technology, educational environments and futuristic techno-utopias: vulnerabilities and perspectives;
- edtech markets and speculative futures-making;
- governing by techno-futuring: policy-making, governance, and policy networks;
- the tempos, rhythms, and hauntologies of techno-futures: present pasts, real-times, and problematic nostalgias;
- success and failure in techno-futurist educational acceleration: euphoric and apocalyptic educational scenarios in social worlds and pop culture;
- technological acceleration and (dis)empowerment effects on local educational practice;
- escape routes from technological obsession: cheating, gaming, desistance, resistance, rebellion, and the creative use of technology in educational practice.

### Unfolding Subjectivity in Education

**Camilla Barbanti**

University of Milan, Italy

The social worlds of education are deeply intertwined with accelerating technological change today. The perception of rapid and unexpected changes in the sociomaterial elements that enact pedagogical *dispositifs* (Foucault, 1980; Massa, 1986) (times, spaces, bodies, discourses) runs false myths in the educational field. These contradictions, if not taken seriously, hinder the opportunity for rethinking and repositioning of the Humanities, which is essential to provide scholars and practitioners with critical tools capable of coping with the high levels of technological mediation and the complex structure of the globalized world in which we are living and educating today. What subjectivity do we want to form these times and despite these times? What material-discursive devices do we choose to perform to this purpose? In the contribution I will explore the opportunity to overcome the myth of an abstract, universal and elitist subject, built on categories inherited from

Humanism. Such perceptions reiterate an anachronistic, if not deceptive, image of human beings as sovereign, as a measure of all things, as perfectly functional physical body modeled on the ideals of white masculinity, normality, youth and health (Braidotti, 2014). Answering these questions also requires moving away from an overly praised immateriality, for which everything is virtual flux and human beings can transcend themselves as they relate to machines and new technologies, aligned with transhumanist fantasy. Therefore, pedagogy, to respond to contemporary challenges, needs to re-think a theory of subjectivity that is both materialistic and relational, natural and cultural, so that education can collectively potentiate and provide of alternative becoming (Deleuze, 1999). There is thus an urgency in education for a vision of the subject worthy of the present: as an integrated corporeity and embodied subjectivity, located in precise places and effect of the concatenations of which it is a part and which it contributes to creating.

### **Posthuman ecologies in education. Reinventing transpecies alliances**

**Anna Saibene, Guendalina Cucuzza, Alessandro Ferrante**

UNIVERSITY OF MILANO-BICOCCA, Italy

What does it entail from an educational perspective to face the challenge of rethinking what it means to be human on a planet containing a multitude of other forms of life? How do we change the perception of the human in a more-than-human world, characterized by a dramatic climate crisis, rapid and intense technological, social, and cultural transformations and multiple processes of exclusion and discrimination of differences? What can be the contribution of pedagogy to build new connections between humans, the environment and non-human otherness?

The anthropocentric framework within which, still, Western pedagogical thought is rooted, appears unsuitable to address these questions, as it continues to perpetuate an anti-ecological vision which interprets the human as separate and opposed to the rest of nature. Instead, it is necessary in educational practices to proceed beyond the boundaries of the Ego and beyond human exceptionalism, placing at the center no longer a fixed and unitary identity, but rather the multiplicity of relationships that the subject weaves, the interconnections through which humans and non-humans hybridize in a process of *becoming-with*, whose outcome is never predefined.

The contemporary scenario, in brief, challenges pedagogy to adopt a posthumanist perspective to critically interrogate the possible educational implications of the ongoing changes. The high degree of bio-technological interaction and the multiple interconnections with an environment we pass through, but which equally passes through us, invite us to creative thinking to reinvent transpecies alliances. It means to abandoning an ideal of unitary subject to develop situated, embodied, plural and ecological thinking, capable of recognizing interconnectedness as a constitutive element of one's identity.

From these considerations, the paper explores the role of pedagogy in expanding the educational imaginary to support the emergence of posthuman subjectivities, promoting the encounter with differences that qualify the human being in his perpetual becoming *other*.

### **Creating a Culture of Participatory Innovation in Undergraduate Computer Science Education**

**Hana Takeda Darling-Wolf**

University of Toronto, Canada

How can technoscientific innovation be participatory, responsible, and reflexive, when it is not in the interest of software practitioners to make it so? Computer scientists tend to be presented as separate from other stakeholders in collaborative projects. While affected communities are viewed as having interests and needs, computer scientists are understood as neutral experts. This disconnect between computer scientists and the social context of affected communities results in attitudes of technological benevolence and technological determinism which typically fail to meet the needs of these communities (Warschauer & Ames, 2010; Williams, 2021). Why is it that software practitioners do not have the same stake in meeting the needs of affected communities? What are the interests and needs of computer scientists? Why is there not more support for reflexive and participatory projects in computer science (CS)? Due to the importance of education in reinforcing cultural norms (Passeron & Bourdieu, 1970), and its potential for leveraging change (Mayhew & Patitsas, 2021), this paper looks to CS education in order to address these questions.

For students to gain credibility in undergraduate CS programmes, they must perform passion and interest in the field (Breslin, 2018; Margolis & Fisher, 2002). But what is included in this definition of interest? Drawing on in-depth interviews with undergraduate CS students from a major Canadian university, this paper explores what kinds of student interests are rewarded — and unrewarded — within undergraduate CS settings. In particular, it highlights the failure of undergraduate CS to include interest in social justice, ethics, and the environment in normative definitions of passion for computing. In order to foster technoscientific innovation that is participatory, responsible, and reflexive, interest in these subjects must be rewarded in the same way as technical knowledge. Promoting alternative forms of innovation requires a cultural shift in the interests of software practitioners and the larger scientific community.

## **Fugitive practices in the more-than-digital university: ephemerality, seclusion, and co-presence.**

**Lesley Jane Gourlay**

University College London, United Kingdom

Addressing the theme of the obsession with techno-futures in education, this paper focuses on the suggested sub-theme of 'escape routes from technological obsession', examining ways in which the (alleged) full permeation of the digital throughout the university can be questioned. In doing so, I interrogate the increasingly influential term postdigital. Arguably, drawing on the foundational literature (Negroponte 1998), the genealogy of the term rests on the inseparability of the digital and analogue, that these are intertwined as one inseparable entity, and that the digital will only be noticed by its absence, not its presence. This paper explores the tensions inherent in these claims, arguing that the digital is theorised as ubiquitous but also occluded from direct view; resulting in the postdigital, in which the digital as a presence seems to be imagined as an entity outside of direct perception. Examining the concept of being intertwined and the nature of twine, I argue that this commonly-used metaphor is in fact flawed, and does not provide sufficient theoretical purchase on the nature of the relationship between the digital and analogue. I consider the concept of the network and Ingold's (2016) meshwork, arguing that neither of these concepts are adequate when seeking to capture the nature of the more-than-digital in the university. Discussing the radical prospectus presented by Webb (2018) and the associated Undercommoning Collective (2016), I argue for the importance of ephemerality, seclusion and copresence as fundamental elements of being and entanglement in the university; aspects of which, I contend, have hitherto been neglected in theories of the postdigital. I conclude by a discussion of the concept of the more-than-digital, proposing the notion of fugitive practices (Gourlay 2023) as a potentially generative concept with which to theorise the notion of 'escape routes' from the apparently closed labyrinth of techno-futurist fantasies in education.

## **Maintenance and educational orderings – making digital technology run smoothly in the case of pandemic education**

**Sara Mörtzell**

Umeå University and University of Gävle, Sweden

Digital technology repeatedly attracts and amplifies educational dichotomies by asking – does it work or not? In response and drawing on maintenance studies in STS (Denis, 2020; Denis et al., 2016; Jackson, 2016), this paper acknowledges technologies in education as never fully functioning nor fully broken and explores the notion of maintenance as a generative domain away from binary readings. Informed by ANT, specifically Mol (2008), the concern is with vulnerable technologies in educational practice, rather than taking vulnerability to be the deviant state from normalcy.

Reporting on ethnographic fieldwork with an upper secondary school in Sweden during Covid-19, empirical events are foregrounded in which the daily life of pandemic-technological education becomes maintained. By putting maintenance to work, easily neglected and overlooked educational practices are taken into account and mechanisms of maintenance are identified and introduced to STS. The findings address how theorizing maintenance practices in education challenges the dominance of breakdown binaries such as before-after and stasis-change. In that way, sociomaterial vulnerabilities invite us to resist one-sidedly looking for competence, use, and acceleration in the digital worlds of schools.

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## **Imagination as renewable resource for education**

**Alin Olteanu**

RWTH Aachen University, Germany

I propose construing imagination as a renewable resource and, as such, a guiding principle for education. This perspective allows rethinking educational programmes and policies in light of what students are taking interest in, as they undergo the educational process. This implies designing education in light of what students may imagine themselves becoming, instead of by policy-makers fixing "educational goals" that may miss out future opportunities. This is particularly the case in



contemporary societies where rapid change, as driven by new technologies, has become the only certainty. New literacies emerge as they are imagined by the future workforce.

To this end, I expand the notion of sociotechnical imaginary with an outlook on imagination as a cognitive and semiotic capacity. Science and technology studies have been concerned with imagination in regard to how sociotechnical infrastructures shape possible projections of the future. However, scholarship in this area tends to overlook the vast literature on imagination in philosophy and the cognitive sciences. In turn, the latter can also benefit from a technology-centered outlook.

Imagination was discussed plentifully in philosophy, deemed critical for education and development, but without proper consideration of the mind-technology question. Brought into this light, imagination must be seen as the mind's work to expand onto new environments.

Modern philosophy construed imagination in view of its mind/body dichotomy, as a purely mental act. The 20<sup>th</sup>-century linguistic turn inspired a language-dependent theory of imagination, whereby imagination proceeds in linguistic categories. These views dismiss the epistemological dimension of imagination to deliver possible futures and, also, the role of technology to shape the imagination. Recent studies on multimodal communication remark that imagination itself needs to be reimagined through contemporary technologies.

I conclude by explaining the implications for education of construing the capacity of humans and more-than-humans to imagine as a renewable resource.

## **The ChatGPT hype as a medium to popularize and jeopardize social debates about values and virtues in education.**

**Maximilian Roßmann, Aodhán Kelly**

Maastricht University, The Netherlands

After two months of intense debate about ChatGPT3 in the classroom, it seems unlikely that the structure and organization of education will disruptively change. The narratives and arguments were not entirely new, but OpenAI and ChatGPT3 provided props and thrilling playgrounds to make-believe different worlds and share fascinating stories, even without believing them themselves. This presentation examines functions and linguistic features of "futuristic communication" (Grunwald 2013) and make-believe (Roßmann 2021) to explain the motivation of hyping and the emergence of hype about ChatGPT3 in education and compares it to earlier debates about Wikipedia and MOOCs in education.

Hype and alarmism create hyperbolic levels of attention and expectations around issues and easily jeopardize health decisions, resources, and trust in science. 'Hyping' is overstating the certainty and relevance of facts and, thus, violates norms of science communication (Intemann 2020). Revealing and distinguishing different functions of future-oriented communication, however, allow us to explain what motivates unintentional and strategic pretense.

Most prominently, political economy studies suggested that many future-oriented practices do not aim to factually realize a project but instead manipulate the value of research assets (Birch 2017). The Sociology of Expectation highlights a coordination function, as stakeholders mutually observe and adjust their projected actions (Borup et al. 2006). Hermeneutic Technology Assessment (Grunwald 2020) understands visionary communication as a relevant medium for social debates about related values and virtues. And finally, the philosophy of imagination (Kind 2016) discusses how constraining the imagination allows learning.

The focus of this talk is on the theoretical development of our empirical approach to technology hype in education. We aim to illustrate how hype dynamics work and accelerate by attention patterns and linguistic features of an inverted 'Chinese whisper' effect that helps to spread the most extraordinary stories which then call for a sobering critique that maintains their topicality.

## **Making children robot-readable: exploring sociotechnical imaginaries and educational cares**

**Elin Sundström Sjödin, Lina Rahm**

Mälardalens University, Sweden

In this study, we explore the sociotechnical imaginaries, educational cares and rationales for reading books when a robot becomes a node within the traditional welfare system where public libraries, tech corporations, schools, children, and books meet in an endeavor to encourage and develop children's reading. Our material consists of observations, interviews and official web material.

In the analysis of our material, we make use of two STS-concepts: Sociotechnical imaginaries (Jasanoff 2015) and Matters of Care (Maria Puig de la Casa, 2011; 2017) 'Sociotechnical imaginaries have become an important trajectory in STS often crediting Jasanoff's seminal definition. Thinking instead with Flichy (2007), sociotechnical imaginaries differ from Jasanoff's definition slightly since sociotechnical imaginaries are not only supported and attainable via technological innovation, but

constitute integral parts of the materiality of technology (Flichy, 2007). Here we especially look at the labor of care needed to uphold the imaginary of the reading robot. Puig de la Bellacasa's (2011; 2017) concept Matters of care helps us explore what care looks like in the assemblage we investigate, who cares, and about what? What effects does care enact? How is Bibi cared for in order for the care takers to remain responsible for her becoming, her actions and her doings?

Our study shows how reading (with a robot) is enacted as a care practice, where caring for the children's reading and literature is displaced by care for the robot in care practises that uphold the enchantment of the robot (Natale, 2021) Caring for the robot has unexpected and unintended effects such as failures, disruptions, exclusions and even violence, which chafe with the aim of the project. Because, although the robot is designed as a care robot that is imagined to help children who struggle with reading, this is in fact the task that the robot might be absolutely



## Panel 41 - Session 2: More-than-human medicine? Unpacking the use of Artificial Intelligence (AI) technologies in healthcare settings

*Time:* Thursday, 29/June/2023: 4:30pm - 7:00pm · *Location:* Aula D

*Session Chair:* Manuela Perrotta

*Session Chair:* Alina Geampana

*Session Chair:* Francesco Miele

**Topics:** Health policies, governance and practices in a postpandemic era; Technoscientific promises, imaginaries and expectations; Algorithmic knowledge, media ecologies and artificial intelligence; Innovation imaginaries, practices and policies

**Keywords:** medicine, Artificial intelligence, algorithms, biomedical research, healthcare

During the past few years, the (potential) use of Artificial intelligence (AI) technologies in different medical fields has been at the forefront of public debates and conversations. The dominant narrative is imbued of over-optimistic expectations that see algorithmic technologies as able to resolve uncertainties surrounding medical diagnosis and treatment. Central to these narratives is an emphasis on the large amount of data such technologies can process and analyse. However, heightened expectations may often lead to disappointment. The purportedly value-neutral nature of algorithmic technologies has been sharply criticised by the STS literature emphasising their opacity and inscrutability. In addition, studies exploring the use of AI in medical practice have shown that complex dynamics are involved in the delegation of decision-making to algorithms and the reconfigurations needed for new technologies to become embedded in medical work.

Drawing on these premises, this panel aims to explore the multiple and interconnected ways in which AI and algorithmic technologies are contributing to transformations in healthcare and medical expertise. Therefore, we invite (empirical, theoretical, and/or methodological) contributions looking to unpack the use of AI technologies in healthcare practice. Contributions exploring the following topics are especially welcome:

- The integration of AI to support diagnosis and treatment
- The relationship between AI and biomedical research and innovation
- The regulation and governance of AI in biomedical research and innovation
- The tensions between the introduction of AI in medicine and evidence-based medicine
- Ethical issues arising from the introduction of AI in medical practice
- The role of AI in shaping expectations about the future of medicine
- Implications and consequences of popular narratives of AI systems as outperforming human expertise
- Engagement of patient groups in the development and use of AI in medicine
- Digital health technologies, data generation, and transparency of algorithms

### Computing the Mind. Quantifying Mental Health and the Transformation of the Clinic

**Katerina Sideri<sup>1</sup>, Niels van Dijk<sup>2</sup>**

<sup>1</sup>Panteion University, Athens, Greece.; <sup>2</sup>Free University Brussels (VUB), Belgium.

Recent developments in psychiatry have seen proposals to use digital technologies to measure and treat mental illness. Its vision of digital phenotyping aims to provide a precise and objective measurement of mental function of patients through remote wearable digital monitoring devices (RMTs) and algorithmic inferences thereof. In this article, we follow the work of a group of researchers of a major European consortium that has tried to test these claims and build a measurement tool. We aimed to investigate how the quantification of the mental health of patients is being envisioned and operationalized, how they expect RMTs to alter the therapeutic relationship between physicians and patients, how existing configurations of the clinic will have to be transformed, and what are the gains and losses when software mediates the communication of mental states and experience.

These nascent technologies may in the end only diffuse successfully, when they manage to satisfy the diverging interests of the different actors implied in the ecology of mental healthcare, such as: patients, physicians, regulators, pharma companies and healthcare managers. These pose multiple constrains for their possible introduction into the clinic and highlights the limits of these proposals. Important limits pertain to frictions about how much of clinical action is to be delegated from doctors to ICT systems, and how much of patient's self-reporting about their illness is to be delegated to algorithmic evaluations. This highlights the importance of underlying choices about how to configure the specific relations between humans and machines in the context of mental healthcare and on how to approach and treat mental illness within society.

## **The representation of old age between algorithms and quantification: the case of an Italian project for an elderly care platform**

**Flavia Atzori**

Università Politecnica delle Marche, Italy

The way we imagine and construct the idea of aging has an impact both on the social identity of the elderly and also on political decision-making.

Seniors in our society are often considered an "at risk" social group, characterized by frailty (Borges e Menezes, 2011; Heuberger, 2011; Warmoth et al., 2016) and vulnerability (Sanchini et al., 2022). Therefore, a preponderance of attention is paid to a social group that needs resources but at the same time is considered unproductive. For such scholars, old age is seen as a disease - or at least an undesirable condition - in need of treatment or at least improvement (Vincent, 2006). In this context, optimization and quantification can be considered forces in support of a biohacking vision of the aging human body (Cozza, 2022).

Many of the initiatives currently aimed at caring for the elderly are based upon using technological tools to monitor and consequently improve the state of health.

The interest underlying this contribution is in understanding how the condition of aging is imagined, portrayed and represented. This starts by observing the design of a web platform intended to improve the health of the elderly. This platform, named MOSAICO, is based on three major features: 1) study of an algorithm that evaluates the frailty risk condition of senior citizens 2) proposal of personalized social-health care solutions, and 3) use of a customized set of devices to constantly monitor certain health conditions.

The methodology involves observing different phases of the MOSAICO project's development and analyzing the semi-structured interviews conducted with the platform's first potential users and their caregivers.

## **Legitimacy of AI in mHealth diagnostic technology: an ethnographic exploration of an AI smartphone app for skin cancer diagnosis in medical practice**

**Sydney Evelyn Howe**

Erasmus University Rotterdam, Netherlands, The

As technology is integrated into healthcare delivery, questions related to the adoption, acceptance, implementation, and governance of these new technologies become increasingly urgent. Current models of technology adoption/acceptance and frameworks to guide governance and implementation of health technologies leave large gaps in practice and provide limited explanation of how and why certain technologies are adopted and others are not. In these discussions, the concept of legitimacy is omnipresent but often implicit and underdeveloped. Legitimacy in social science literature on health and technology remains conceptually abstract and empirically elusive, studied primarily through tangentially-related concepts such as "trust" or "reasonableness." There is no cohesive agreement about what legitimacy is or how it works across social science disciplines, despite a prolific volume of literature centering legitimacy. We use a conceptualization of legitimacy as social infrastructure (Howe et al., forthcoming) to explore the use of an artificial intelligence (AI) smartphone app for skin cancer diagnosis as AI-augmented medical care and triage. Legitimacy as social infrastructure allows us to bring the relational, material, semiotic, and network-based aspects of legitimacy into focus, conceptualizing legitimacy as an assemblage. Social infrastructure is a flexible and adaptable framework for working with legitimacy that can aid both academics and decision-makers by providing more coherent and holistic explanations for how and why new technologies are (not) embedded in healthcare practice. Through this lens, we ethnographically examine interactions among doctors, patients, researchers, and technology in healthcare settings in the Netherlands, including general practitioner offices and a hospital dermatology department. By operationalizing legitimacy in terms of social infrastructure, we can focus specifically on the relational and material aspects of legitimacy of AI for mHealth while maintaining a big picture perspective of the network and context into which this technology has been introduced.

## **Atypical Encounters/ Imagination of autism diagnosis, affective computing, and social robots**

**Eva Slesingerova**

Masaryk University, Czech Republic

The paper concentrates mainly on imaginative entanglements of autism spectre disorder (ASD) diagnosis, affective computing, and social robotics. One of the first and most important applications of social robotics and affective computing was socially assistive robots used for treating people with autism. Here, cultural imagery associated with the ASD diagnosis has become essentially interconnected with social robotic technologies (Richardson 2018). It is employed in scientific visions and knowledge production about emotionally assistive machines where affective computing is based on culturally produced interfaces, encounters between robots and people. In this context, trans-corporeal, computed social bodies and

embodiments, including various biosensors, programmed emotions, emotional algorithms, neurofeedback, measuring of cognitive entropy, or synthetic faces and skin have emerged. Regardless the effectivity or actual functioning of social robotics in ASD therapy and care – humanoid robots are imagined and supposed to fill the gaps or address the insecurities, unpredictability, and ambiguity in human social relations; they are envisioned as friends and companions or therapeutic support (Breazeal 2002). The paper critically analyses the interconnecting of humans and robots as a relation (Hookway 2014), as a human-machine symbiosis Licklider (1960), where networks of mechanisms, humans, metaphors, or synthetic bodies produce reconfigurations of specific social personhoods (Strathern 1995). Simultaneously focusing on the area of neurodiversity and cultures of autistic sociality, or critique of technological anthropomorphism (Solomon& Oochs 2010; Grinker 2015; Dumouchel&Damiano 2018) the paper shows how the otherness both of humans and machines is simplified and reduced stereotypically – machines as humans and humans as machines. Finally, taking advantage in analytical concept of humanness as dubious project as well as the displaced “place for the king” (Deleuze 1966/2014), the paper also contemplates human-machine interfaces as relations of the individuals – out of dualistic categories – and with considering their relationality as multiple, changeable, partible, in permanent flux.

## Panel 32: Big politics of small things

*Time:* Thursday, 29/June/2023: 4:30pm - 7:00pm · *Location:* Aula Unione 1

*Session Chair:* Andrzej Wojciech Nowak

*Session Chair:* Wiktoria Woźniak-Konieczka

**Topics:** Sociomaterialities of conflict and peace; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Technoscientific promises, imaginaries and expectations; Everyday life and design of the mundane; Postcolonial technoscientific futures; Sociotechnologies of (in)secure worlds to come; Technofeminism and interspecies solidarities; Innovation imaginaries, practices and policies; Ethics, innovation and responsibility in technoscience; Embodied identities, genders and interests; Building alliances in public participation and engagement

**Keywords:** small science, hegemony, ontological politics

Since the turn of the century, a concern with small ways of knowing and doing science has been noticeable. We want to draw attention to the revolutionary potential of the so-called small science within STS research and find examples of research and theoretical directions that reveal previously invisible hegemonic processes appropriating the spaces of technology. We aim to intentionally recognize the ontological politics embedded in practices, rituals, things, technologies, and artifacts to give them an emancipatory direction. We want to find examples of small science research that could help answer the question of how technologies are used to maintain political hegemony. Our goal is to show that small science in the area of STS allows us to detect unconscious hegemonic policies often and then take political action.

We raise the question: How can the so-called small science in STS research reveal various hegemonic actions that we are unaware of and seemingly imperceptible? One example is technofeminist research, which aims to discover and explain the usually unnoticed inequalities inherent in technological systems and find answers to how to combat them. This is an example of peripheral science that focuses not only on detecting excluding and violent processes, but also on reflecting on possible change, the potential of technology, and the need to take action, and is often associated with social activism.

We welcome contributions, both theoretical and empirical, that show how STS research helps to reveal political hegemony and political practices through which, for specific purposes, empty meanings are filled, and empty signifiers are defined. We are also interested in research showing how the political and hegemonic processes detected in the technological area can be re-used for positive ends.

### Trans-scalar research on embodiment of urban heat – going from big to small and hopefully back

#### Franciszek Chwałczyk

Adam Mickiewicz University in Poznań, Poland, Poland

Heat can severely affect health and due to physiological as well as socio-economic factors some groups – e.g. older adults - are more vulnerable than others. But it is not them that decide if official actions are undertaken. Heat might be a painfully lived through experiences mediated via their bodies to them, but it constitutes different objects to different groups. For climate scientists and epidemiologists they are quantifiable objects. For policy makers they are potential risks. As such, heat is not only epistemologically but also ontologically different. Navigating this multiplicity is a crucial challenge for adequate climate change adaptation.

This is one of results of ongoing project “Embodying Climate Change: Transdisciplinary Research on Urban Overheating (EmCliC)”. It aims to understand older adults' (over 65 years old) everyday experiences of summer heat in urban context. Our research takes place in Warsaw and Madrid and we employ a wide range of methods. This presentation focuses only on Warsaw and on policy analysis, focus groups and ethnography combined with sensors.

Two problems are discussed. 1) When, for whom and where it gets hot – or at what conditions heat warnings should be issued. It will be analysed through juxtaposing meteorological data and policy perspective (“big”) with preliminary results of our research: personal sensors data and older adults experience - knowledge (co-)created in ethnography. 2) Dual nature of air as a medium of exposure to heat and mean of adaptation. This part, based on focus groups data, will discuss paradox of practice of letting the (hot) air in – discouraged by most official recommendations but practiced by our participants. Base on that it is argued that more “big to small and back moves” are needed allowing to take into account different knowledges and rationalities of different sciences and people - in particular, local contexts.

## **Situating Scale in ANT – revisiting Boa Vista.**

**Andrzej Wojciech Nowak<sup>1</sup>, Christian Nold<sup>2</sup>**

<sup>1</sup>Adam Mickiewicz University, Faculty of Philosophy, Poland; <sup>2</sup>The Open University: Milton Keynes, Buckinghamshire, GB

In our paper, we re-examine Bruno Latour's 'Circulating Reference' case study (1999) from Boa Vista. The aim is to re-empiricise some of these classic ANT studies with the goal of culturally and politically situating Latour's contribution to ANT. Following Helen Verran's work on the measure, we will inquire about postcolonial entanglement at the micro level. We will question whether Latour replicates the politics of the scientists in the case study who took local matter and scaled it into universal knowledge. We will also explore what this case study tells us about how scale is handled within ANT and the politics of scaling towards the macro.

In discussing Latour's study, the philosopher Bryant enters into an argument with an anthropologist (Bryant, 2009) who suggests that Latour neglects to talk about how the scientists and local people interacted. Bryant defends Latour, suggesting his goal is just a parable about how scientific knowledge is made. We propose that there is indeed something myopic about the way Latour's case study avoids discussing other practices with an interest in whether a forest becomes a savanna. What other stories of pragmatic politics around habitat, livelihood and governance could be told with this study?

We will also unpack Latour's concept of 'folding' and examine the historical-political economy of the metric system (Alder 1995, Kula 1986), and how it has been folded into the famous pedocomparator used by the scientists in the case study. We will investigate the systemic politics of this artifact (Winner 1980) and why Latour avoids discussing them.

Re-empiricising this classic case study opens questions about the politics of methods in ANT: How and when do we decide to 'cut' the scaling process? Who and what can we leave out? How can we use these reflections to create a future ANT?

## **The agency of lithium. A mineralogical reading of natureculture assemblages (in the context of Colonial Capitalism)**

**Gioacchino Orsenigo**

Università degli Studi di Napoli L'Orientale, Italy

Lithium is the mineral of the century. It is believed to be both the key to overcome the ecological crisis and the source of an economic renaissance (Pitron 2018; Crawford 2021), even though the impact that mining has on populations and ecosystems is far from neutral (Whitmore 2021). Lithium has actually been present in the history of capitalism since much earlier: in the 1800s it was considered a cure for many different ills. In 1948 John Cade discovered its stabilizing power for bipolar disorders (Brown 2019). Some studies claim that its presence in urban groundwater decreases suicide rates (Sugawara et al. 2013). Lithium seems to be the panacea to cure all the pathological states of our age: ecological, economic, psychological crisis. A simple mineral is essential to sustain the capitalist form of life. How to think of this mineral-dependent relationship in the context of colonial capitalism? Terms such as Haraway's sympoiesis (Haraway 2016) do not seem sufficient since they have at their core a form of codependence between living things where lithium does not seem to need "life" to keep existing. As Povinelli suggests, there seems to be a disregard for the nonliving, which occurs because of an ontological assumption that makes *Life* the predominant ontological paradigm (Povinelli 2016). What kind of agency is that of minerals, and what kind of relationships is the human/mineral one? What kind of "cyborg" (Haraway 1991) are we if we think about ourselves starting from the mineral? Rearticulating the studies of Haraway (2016), Bennet (2010), and Povinelli (2016), we will ask whether there is a need for new categories to think the agency and relationality of minerals, without falling into biocentric forms of representation, and naturecultural assemblages, beyond the organism paradigm, with the goal of provincializing the hierarchy between living and nonliving.

## **Technofeminism - unveiling the invisible**

**Wiktoria Woźniak-Konieczka**

Adam Mickiewicz University, Poland

Mainstream science is not necessarily inclusive and generally has little space for studies in which less popular perspectives are adopted. The voices of the excluded or omitted in mainstream science can resonate outside the science center, what Rosi Braidotti calls "minor science". My thesis is that minor science gives space and the opportunity to express those who are invisible in the centre. A significant number of researchers are in a constant struggle for visibility, for example by entering into discussions with mainstream in order to be noticed and gain scientific recognition. The appearance of "the absent" can change a lot in science. Their power lies in showing alternative perspectives, different research methods, undermining what is considered stable. An example of such minor science is technofeminism.

Technofeminist researchers deal with many issues emerging at the confluence of feminism and technological change. They analyse the often overlooked gender inequalities inherent in technological systems and try to answer the question of how to combat them. They also analyse the potential of technology to improve the situation of marginalised people and social life in

general. The awareness with which Technofeminism does this offers science something completely new. Technofeminism is an example of a peripheral science that can bring incredibly useful input to science in general. In my paper, I want to emphasise the key importance of the minor science area and the value of research conducted in it, assuming that they are the driving force of science and their rhizomatous and multidirectional nature stimulates the development of science and creates new discursive practices.

## Panel 46: Looking at borders through an infrastructural lens

*Time:* Thursday, 29/June/2023: 4:30pm - 7:00pm · *Location:* Aula Unione 2

*Session Chair:* Timothy Raeymaekers

*Session Chair:* Noemi Bergesio

*Session Chair:* Annaclaudia Martini

**Topics:** Technoscientific promises, imaginaries and expectations; Governance of and by data infrastructures; Sociotechnologies of (in)secure worlds to come; Extractivist powers, imaginaries and asymmetries

**Keywords:** borders, infrastructures

In an era apparently characterised by the progressive dissolution of borders, scholars have been studying the ways in which borders are actually multiplying and deepening through space and time. The interdisciplinary field of Critical Border Studies has been pushing forward a “processual shift” in the study of borders, leading to the re-conceptualisation of borders as active processes and social practices of spatial differentiation and racialisation. More recently, academic contributions have been looking at biometric borders and at processes of data extraction and circulation, but also to the digital and physical infrastructures that play a role in facilitating, channelling and/or filtering human, non-human and more-than-human “flows”. As such, bordering processes have direct effects on the bodies of mobile subjects while becoming important devices for the extraction, elaboration, and management of biometric and biographical data of people on the move.

When focusing on the processes of borderwork, it becomes paramount to acknowledge the role of infrastructures in the creation, shifting, alignment and contestations of borders, and their direct effects on the bodies of people on the move. In this panel, we broadly conceptualise infrastructures as physical or digital networks that facilitate the flow of goods, people, or ideas and allow for their exchange over space (Larkin 2013: 328-329), which includes mobility infrastructures, such as vehicles and roads, bordering elements such as sediments, natural elements (rivers, mountains, etc.), and the propelling force of human movements, which itself contributes to shaping borders, as well as patterns and processes of circulation (Thomas, 2021).

A focus on bordering infrastructures has the potential to open a lens towards the study of the socio-material entanglements of border control. It may also encourage analyses of borders as embodied technoscientific and political intervention and extraction, and it may open up the emotional and affective relations between human and non-human forms of actorness, practices of activism and struggle that continuously re-negotiate borders. In this panel, we invite scholars to reflect on the ecological, affective, and socio-material dimensions of contemporary border work through an engagement with digital and physical infrastructure scholarship. Areas of interest involve, among others, biometrics and data mining, control and circulation, but also the dynamic interactions and relations between human and more-than-human elements as socio-material entanglements in which such multiplication of borders unfold and come to matter.

We prioritise panel contributions that focus on one or several of these dimensions:

- The human, non-human and more-than-human entanglements of contemporary border work;
- Affective border(ing) and the affective politics and assemblages involved in such entanglements;
- The socio-material and socio-ecological dimensions of contemporary border(ing) infrastructures;
- Border management through digital border infrastructures, biometric databases, and data mining;
- The relation between border(ing) infrastructures and bodies (embodied borderwork);
- Border infrastructures as sites of struggle and contestation;
- Methodological and ethical problems that can arise when conducting research on border infrastructures;
- The biopolitics and governmentality of border(ing) infrastructures.

### Governing migration through chaos: US immigration detention as a carceral infrastructure

**Ettore Asoni**

San Diego State University

This contribution will examine immigration detention and immigration law as infrastructures to govern the mobility of noncitizens within the United States. Prior to the Covid-19 pandemic, the United States was detaining an average of 50,000 immigrants per day, making its detention estate the largest in the world. The US has historically utilized immigration detention as the tip of the spear of its immigration system, thus relying on carceral techniques to coerce, control, and deter noncitizens attempting to enter the country.

Here, I analyze immigration detention as an infrastructure comprising people, capitals, technologies, and laws. By examining the complexities that are inherent to immigration detention and immigration law, I demonstrate how the system can hardly be interpreted as the outcome of a specific political design, as it constitutes a chaotic assemblage where conflicting interests and agents interact with one another with unpredictable results. An infrastructural focus highlights how the system does not



only or entirely work toward its official purpose, which is to facilitate removals from the United States. Instead, it consists in a more complex machine that governs migration through chaos and unpredictability, and which reinforces stratifications in US society across racial groups and social classes.

The contribution will briefly outline the characteristics of US immigration detention from a macro perspective, but it will especially focus on the Otay Mesa Detention Center (OMDC) in San Diego as a case study. OMDC is located next to the San Diego/Tijuana border crossing, and it has a significant importance for border control across this sector of the US-Mexico border. My analysis builds on my personal fieldwork and experience as an activist at this facility, in addition to secondary sources.

Finally, I will examine the current state of immigration detention after the first waves of the Covid-19 pandemic, when the detained population plummeted.

## **The (vernacular) re-configuration of border infrastructures at the Italy-Slovenia border**

**Noemi Bergesio**

Università di Bologna, Italy

The border between Italy and Slovenia has undergone many reconfigurations, while still maintaining a key role in the definition of the identity of the Italian city of Trieste. The historical reconfigurations of the border also relate to the history of migration, displacement and relations of borderlands populations and communities (see, among others: Ballinger 2010; Pupo 2022), as well as the role that Trieste has more recently assumed as part of the informal migration corridor of the Balkan Route (Minca and Collins 2020). Despite the dismantling of infrastructures of border control, the border between Italy and Slovenia is still very much present in the lives of Trieste's residents, informing the city's "geographies of absence" and its nostalgia for past grandeur (Minca 2009, 270), but also remaining an integral part in the residents' everyday social and commercial activities.

Throughout the years, the mountainous region that surrounds the city of Trieste, constellated by abandoned and dismissed border infrastructures, has witnessed the proliferation of commercial activities encouraging cross-border mobility. People from Slovenia, Italy and Croatia cross the border(s) in order to purchase cheaper goods or to carry out leisure activities - activities that I conceptualise as vernacular border practices. Applying an infrastructural lens to the study of border vernacular practices, this paper aims to discuss how the re-configuration of border infrastructures can allow for everyday encounters, that, I argue, have the potential for the co-construction of alternative border geographies in a city that still continues to construct its identity at and through 'its' border.

## **Economic assets and infectious spreaders: The case of meat factory migrant workers in the Netherlands**

**Alena Kamenshchikova**

Maastricht University, Netherlands, The

The question of mobility and immobility became central in Covid-19 policy debates. What actors are allowed and should be moved across geopolitical borders or what actors should not, to prevent the spread of infection? The advice by the European Union (EU) was clear - keep the mobility of goods and services unhindered by the Covid-19 border control policies. This implies that if persons cross a state border as labour migrants, they are seen to be economic assets and they are moved through the EU economic infrastructures that aim to ensure the free flow of services and goods in a situation of crisis. However, if persons move as family members, asylum seekers or undocumented migrants, they are understood to be potential spreaders of infections and their mobility is hindered by the public health border infrastructures. However, the distinction between economic and public health border infrastructures is challenged when questions of care, security and responsibility become entangled. According to the 2020 report by the European Centre for Disease Control and Prevention, the major clusters of Covid-19 infection were reported among labour migrants working in food production, including agriculture. Based on the analysis of public health and media reports as well as interviews with public health professionals in the Netherlands, in this paper, I will follow two large outbreaks of Covid-19 among two meat factories in the Netherlands in November-December 2020. The two outbreaks involved public health professionals across the Netherlands, Belgium and Germany, migrant workers from multiple EU countries and more than ten work-placement companies. Mapping the mobility of "assetized" (i.e. turned into assets) actors through public health infrastructures, this paper aims to elaborate on the economic pragmatism of the pandemic bordering work and search within it for spaces of care.

## Seawalls as bordering infrastructures

**Annaclaudia Martini**

University of Bologna, Italy

Since the 1960s, Japan started pouring concrete along its coasts, building massive seawalls and promoting the idea of securitization and of domesticating nature through technology. However, after the 2011 triple disaster, seawalls and concrete sea-defense, as borders that were given for granted and naturalized as invisible, suddenly became relevant again. Indeed, many in the communities believe people did not escape because walls – which were all overtopped and destroyed – made them feel safe. It became paramount to renegotiate their presence along the coastline as well as re-conceptualise the seawall as an affective, processual, and social practice which reconfigures the binomial of safety and risk in such an unstable environment.

While critical border studies usually look at the limits and trajectories of human (tres)passing, non-human elements can be as impactful not only in constructing borders (mountains, rivers, etc.) but in creating the necessity for borders. In this presentation, I look at how certain human and non-human elements are separated through bordering infrastructures, looking not at mobile human subjects crossing, but at the broken sociocultural patterns of the inhabitants of these communities, bordered against their will. In Japan, seawalls as borders do not separate two political entities -states- but two systems for qualifying nature. On the one hand, according to the Japanese government, the seawall as border is meant to keep the natural risk of tsunami at bay. On the other hand, however, local communities and detractors of this imposing concrete infrastructure bring forth the counter-discourse that risk is part and parcel of the sociocultural and religious life of coastal communities in rural Japan, and the Ocean is, indeed, not an adverse Other to be separated from, but the other side of the same coin that needs to be understood and lived with – even in its unpredictability.

## Naturalizing 'Black Spaces' in the Mediterranean: Towards a political ecology of bordering infrastructures

**Timothy Raeymaekers**

UNIBO, Italy

This paper introduces the terminology of border infrastructures as a way to enrich a multi-perspectival approach to territorial bordering processes that takes seriously their stratifying and racializing dynamics. Building on the analysis of migrant informal dwellings, or ghettos, which are increasingly constructed as naturalized 'black spaces' in the Mediterranean, my contribution is twofold. First, I call for more situated research into the multiple networks, connections and agencies involved in bordering processes, which often comprise complex interactions across 'formal' and 'informal', 'human' and 'more-than-human' boundaries. Second, I propose foregrounding the socio-materiality of borders-as-infrastructures by analysing how these actively reproduce a logic of separation in both a political and an ecological sense. The paper pushes forward a more immersive understanding and methodology of borders-as-infrastructures that is capable of unearthing the stratifying, racializing dimensions of contemporary borderwork across and within the confines of nation-state territoriality.

## State borders and islands on the Lower Danube

**Stelu Serban**

Institute for South East European Studies, Romania

The paper focuses on the topic of the Bulgarian-Romanian border area on the Danube. Drawn in 1908 by a bilateral agreement between the two countries, the border took as its landmark the thalweg line, that is, the middle of the river's waterway. The islands were then divided by this criterion, but after this date the newly emerged islands were no longer assigned, the problem being postponed. At present, this situation leads to troubles between the local population and the government authorities.

The paper is based on recent field research (2021-2022) in two areas on the Bulgarian bank of the Danube, near the towns of Belene and Tutrakan, as well as on research in the local and state archives. It is highlighted the agency of the river, which despite the massive technological intervention over the entire 20th century (the total embankment in the 1970s, the construction of two large hydropower plants, Iron Gates 1 and 2, the canalization for navigation) has almost entirely preserved its fortune of islands. Moreover, in areas such as the two mentioned, the agglomerations of islands have turned into local floodplains with the same ecological, social and economic functions as the floodplains before the total bend of the river. However, these local floodplains also integrate islands legally belonging to the neighboring state, so the border between the two states is difficult to identify and leads to the disagreements I was talking about above. Its administration by the authorities is done not through a bureaucratic act, but rather through a negotiation involving technological projects (primarily the maintenance of the fairway), environmental requirements as well as, last but not least, the practices and needs of local society.

## **The politics of border infrastructure in the Dominican-Haitian Borderland**

**Daniela Triml-Chiffard**

Philipps University Marburg, Germany

The approximately 380 km long border between Haiti and the Dominican Republic on the island of Hispaniola is largely defined by three rivers, the Rio Masacre in the north, the Rio Artebonito in the central part of the island and the Rio Pedernales in the south. These natural fluid elements give the borderline a special permeability because of the impossibility of complete control. The three rivers and their water levels have regulated flows of goods and people across the state borders since colonial times. Today, due to deforestation and changes in precipitation patterns caused by climate change, the border rivers are experiencing a steady decline in their water quantity. This slowly drying up of rivers facilitates the cross-border flow of goods and people. The border rivers and the people crossing them subtly challenge the Dominican Anti-Haitian border regime and generate political reactions. On 27.02.21, Dominican President Luis Abinader announced the construction of a border wall over 160 km long and with more than 170 vigilance towers between the two countries to better control the irregular flow of migrants and goods. In this announcement he argued that the construction project “will not interfere with the area *belonging* to the river” granting a 30-meter-wide protection zone to both sides of the river. Drawing on the data of my 6-months ethnographic field work in the Haitian-Dominican Borderland in this paper I will show how diverse infrastructures, technological, natural and social are simultaneously entangled in border work constantly challenging and renegotiating established border lines and border policies. Acknowledging the agency of natural entities such as rivers in border work broadens the understanding of the politics of infrastructure in general and of the politics of border infrastructure in particular.

## **Reception systems as infrastructures: Profiting from the objectification of asylum seekers**

**Lorenzo Vianelli**

UNIBO, Italy

The paper explores the infrastructural dimension of the reception of asylum seekers. It does so by examining the role of the physical infrastructures that enable the accommodation, distribution, and control of asylum seekers within reception systems, such as landing docks, hubs, transports, reception facilities, transit centres, and so on. Drawing on multi-sited qualitative data collected in Greece, Italy, Luxembourg and Sweden between 2015 and 2021, the paper emphasises the benefits that an infrastructural gaze can bring to the study of the reception of asylum seekers. Two main strengths of such an analytical approach are stressed. First, the emphasis on the infrastructural character of reception exposes the gradual transformation of reception systems into logistical chains in which technical matters of moving and accommodating asylum seekers as quickly as possible acquire primary importance. This transformation exposes a process of objectification underpinning reception practices through which asylum seekers are made passive and move around like objects. Second, an infrastructural gaze on reception also draws attention to the ways in which asylum seekers are turned into commodities that constitute a source of profits for several actors who are directly or indirectly involved in reception systems. By attending to the economic dimensions of reception, the emphasis on infrastructures sheds light on the overall value generated through reception systems and appropriated by a varied range of actors. The paper concludes by calling for a greater consideration of the key role of infrastructures in the study of the reception of asylum seekers.

## Panel 42: Revisiting identification and registration of humans and more-than-humans: long-term perspectives and implications

*Time:* Thursday, 29/June/2023: 4:30pm - 7:00pm · *Location:* Aula Unione 3

*Session Chair:* Chiara Loschi

*Session Chair:* Annalisa Pelizza

*Session Chair:* Paul Trauttmansdorff

Discussant: Sally Wyatt

**Topics:** Health policies, governance and practices in a postpandemic era; Technoscientific promises, imaginaries and expectations; Methodological challenges in a more-than-human world; Postcolonial technoscientific futures; Governance of and by data infrastructures; Sociotechnologies of (in)secure worlds to come

**Keywords:** registration, identification, infrastructure, *longue durée*, chain of translation

This panel aims to reflect on the long-term perspectives and implications of today's societies and their interest in identifying and registering human and more-than-human life. Practices of identification and registration shape the realms of human, artefact and animal mobility, policing, health and medicine, education, or the climate transition, to name a few. They are often rightly criticized as attempts at control and surveillance, but this criticism usually adopts a temporally punctual perspective and is less inclined to examine their long-term implications. Our panel suggests exploring, and discussing, the *longue-durée* of identification and registration.

Groebner's (2007) history of identification traces the imperative to "register everyone and everything" back to the sixteenth century in Europe. Authors like Carroll (2006) and Mukerj (2011) have highlighted a link between identification and registration and nation state formation. Mitchell (2002) has extended this argument to imperial and colonial ambitions. Establishing data systems and relying on more or less stabilized infrastructures, identification and registration enact new and old subjectivities, orders, knowledges, practices, and classifications as "spatial, temporal, or spatio-temporal segmentation[s] of the world" (Bowker and Star 2000, 10). Forms of monitoring and screening, information-sharing and categorization can become catalysts for new institutional orders and relationships (Andersson 2015). Kloppenburg and Van der Ploeg (2020) demonstrate how recent biometric techniques of identification are "producing and enacting [new] gender and ethnic classifications and identities" (p. 57). Pelizza (2021) has proposed to see registration and identification as a chain of translation which enacts specific subjects, enrolls stakeholders, and alters institutional orders. And yet today, identification and registration do not only concern humans, but also animals, artefacts, plants, commodities, and other heterogeneous assemblages (see Tsing 2015). What are, for example, the long-term consequences of the identification – the *reductio ad unum* – of novel inter-species viruses? And what novel orders may emerge in the long run?

The panel invites conceptual and empirical contributions that help shedding light onto long-term methodological perspectives and implications of processes and practices of (human and more-than-human) registers, databases, infrastructures, or other sociotechnical knowledge practices such as monitoring, screening, categorization, and selection (considering also critical events such as global epidemics recurrent in the history). We would like to engage with (the interaction between) past, present, and future genealogies, epistemologies and power relations, as well as conflicts, compromises, and ambiguities revolving around identification and registration.

This panel welcomes a broad range of papers that leverage genealogical and/or STS concepts and methods to explore, amongst others, the following themes:

- Genealogies of data systems and/or population registers
- Identification and registration in the realms of medicine, mobility, security, climate transition, citizenship, and others
- The coloniality of identification and registration systems
- Their consequences for power relations and geographies of responsibility
- Human and more-than-human population censuses, taxonomies, systematizations, and other technologies of knowledge-based governance
- Statistics and the production/circulation of numbers
- Futures and future-making practices and their governance implications
- The role of sciences and scientists in societies of identification and registration

### **"Ambiguation" between regulation and data practices**

**Chiara Loschi<sup>1</sup>, Annalisa Pelizza<sup>1,2</sup>**

<sup>1</sup>University of Bologna, Italy; <sup>2</sup>PI ERC Processing Citizenship

The European legal framework in migration and asylum domains determines what and whose knowledge about third country nationals is legitimate. Such epistemic harmonization and standardization effort is pursued, among others, by means of a rhetorical tactic that we call ambiguation. Ambiguation refers to the use in EU policy of generic labelling for institutional agencies and processes tackled with data production, exchange, use and evaluation, in order to keep the implementation of EU policy at national level pliable. Besides achieving standardization, ambiguation seems to support contingent administrative reorganization of tasks within member states. While ambiguity has been scrutinized as an inherent phenomena to EU regulations to ensure directives wide applicability (Anesa 2014), or investigated as a policy tool, in the form of a strategic 'institutional ambiguity' to manage and deter peoples' movements (Stel 2021), the present paper wishes to switch the focus to investigate how within a policy context characterized by ambiguation, data infrastructures can de facto shift EU/member states governance through definitions of what counts as relevant knowledge. They first shape composite actors, and, secondly, entail the production of non-knowledge and thus exclusion of some actors. In so doing, the paper suggests a sociomaterial framework to account for which and how many 'Europes' are enacted and legitimized through data infrastructures. It also aims to contribute to the investigation of knowledge-related material dimension of migration management and 'alterity processing' (Pelizza 2020).

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## Beyond biometrics: a speculative archival approach

**Soline Ballet, Anja Jelovšek**

University of Ghent

Biometrics within border control and migration governance contribute to a presumably all-encompassing infrastructure of registration and identification producing knowledge of people on the move. With biometric recognition technology, the face and fingertips become sites of bodily registration, which creates a shift from border to body control. Adopting faciality as a conceptual lens shows how this technology produces individualization on the one hand, and datafication on the other. Biometric data stored into databases is then instrumentalized for surveillance of people on the move. Critical scholarship aiming to tackle the logic and consequences of biometrics in border control usually emphasizes the omnipotence of this technology. However, a more temporal perspective on biometrics and the datafication of borders could point at their coloniality as a continuation of systems of registration and ordering. In parallel, recently, alternative bottom-up practices and imaginaries of and beyond biometric border systems have been conceptualized, highlighting the means of subversion of people on the move, yet missing a critical temporal lens. In this paper, we move away from how biometric databases systematize and objectify knowledge which then shapes subjects, their possibilities and futures. Instead, we see this as an epistemological opening to speculate on alternative imaginaries of borders and mobility. In the form of a speculative archival project, we unravel how attempts to prefiguratively organize alternative border knowledge through radical imagination are always entrenched with tensions.

## Datafication As Registration Of Plant Disease Knowledge

**Lucilla Barchetta**

Cà Foscari University of Venice/NICHE, Italy

The research explores datafication as a practice of registration of plant disease knowledge. The datafication of plant disease has two interrelated components: the creation of a trace that is recorded and circulated in the form of data and the re-use of such a trace in other knowledge-making processes. The study shows how the datafication of plant disease knowledge involves considering how mediated biosocialities, digital infrastructures of interdisciplinary collaborations and plant disease data conflate into one another, thereby influencing what accounts for registration and who accounts for registration.

The research draws from the author's experience as an ethnographer in a digital infrastructure of interdisciplinary collaboration set up online from the early phase of the SarsCov2 outbreak and continued to the present. In particular, it turns ethnographic attention to the collaborative efforts that brought together phytopathology scientists and data scientists to create a digital repository for plant disease detection.

The design and implementation of digital repositories require a complex process of data homogenization that often entails reconfigurations, adjustments in, and disputes over database structures, taxonomic codes, and semantic choices. Hence, homogenization is necessary to build digital platforms responsive to the needs and values of phytopathologists and data scientists. On the one hand, it enables a form of disciplinary historicity and reflexivity. Data homogenization requires

phytopathologists to review registration histories and make them understandable to data scientists. On the other hand, data homogenization rearticulates histories of registration by making databases of plant diseases machine-readable to computing and AI technologies.

This study examines what registration means in relation to the plant disease datafied environments, the digital infrastructure used to process data, and the institutions and scientific researchers involved in plant data work.

### **Frontex in Wonderland: Banal Securitization and Normalization in the Field of EUropean External(ized) Border Management**

**Eline Waerp**

Malmö University, Sweden

The dissertation delimits the 'field of EUropean external(ized) border management', which it takes as its unit of analysis. Asking how this field is enacted and through what logics, it provides a genealogy of the field from the creation of the European Border and Coast Guard agency (Frontex) in the early 2000s until today, including the discourses and practices comprising it and the actors promulgating them. The analysis demonstrates the coalescing of the seemingly conflicting discourses and practices of security, crisis and humanitarianism over time, and how Frontex draws on them in producing an ostensibly apolitical and technocratic 'border knowledge' which obscures alternative, de-securitized perspectives.

The theoretical framework, comprised of the Copenhagen and Paris school of security studies, allows for an exploration of how the process of securitization unfolds through discourses and practices in both spectacular and mundane ways. Critical discourse analysis of Frontex's annual risk analysis reports from 2010-2021 has been conducted, as well as interviews with Frontex and DG Home officials, border guards, and civil society representatives. The dissertation draws attention to the banal securitization and the normalization of securitization that has taken place in this field over the last two decades, along with how practitioners in this field negotiate their role in the (re)production of this securitized episteme.

### **Mapping microbial ecosystems: censing the unknown through molecules**

**Victor Secco**

Ca' Foscari University of Venice, Italy

Biology as a science has had for a long time a particular interest in taxonomy of life. The visible differences in shapes, sizes and comparative morphology of living organisms defines much of the system of classification in biosciences up to this day. With the development and increase use of genetic sequencing another possibility for systemising and accessing the diversity of life through molecules has become possible. Based on these new technologies scientists working with microorganisms have become interested in mapping the vastly unknown world of microbe diversity.

This paper is based on ongoing ethnographic research among bioscientists who are working in between laboratories and environments in an effort to map and identify microbial diversity in Europe. I follow these scientists in between laboratory and field practices to reflect on the steps and processes that map categories of microbes through metagenomic technologies. I explore how molecules and ecosystems are being related in practice in order to identify microbes and what are the expected consequences of such effort. I wonder what it means to map the microbiomes of environments and what are the possible long-term implications of such efforts mainly in relation to understandings of human and environmental health. Finally, I explore also the material and institutional infrastructures that allow for such exploratory projects of cataloguing and mapping to take place in the current context of science in Europe.

### **Performing how to live and dwell in the space: the Italian population registers in a long-term perspective**

**Enrico Gargiulo**

Università di Bologna, Italy

Population registers play a major role in Italy: introduced between 1862 and 1864, immediately after the Italian unification in 1861, they are meant to be statistical and administrative devices aimed at providing an accurate and dynamic picture of the population, and thereby allowing authorities to acquire information on its composition and the ways people are located and move within the territory. In the intentions of their designers, population registers were comparable to a "daily and perpetual census", through which to obtain an accurate "picture" of the population located in every municipality of the Italian state. Even though these devices are theoretically expected to merely register social reality without affecting it, they do have performative effects, which differ from those of other demographic devices such as censuses and are more explicitly political. First, population registers do not merely enumerate but turn the material relations between people and space into a formal act called registration, and produce a legal status called residency, which is the precondition for exercising many

rights. Second, despite their apparent inclusivity, population registers are structurally restricted to certain components of the population. Only some ways of dwelling and living in the space are considered legitimate, and only these are accepted legally and permit registration. Third, a conflict around the meanings and the purposes of population registers has marked the entire history of these devices. It has opposed those authorities that want to monitor and those that desire to establish administrative borders by selecting the “deserving” part of the population. In retracing the genealogy of the Italian population registers and by showing how their performative power is due to their specific legal form, this contribution seeks to shed light onto long-term methodological perspectives and implications of processes of registration, infrastructures, and sociotechnical knowledge practices of monitoring, categorization and selection.

### **Tagging the Whole World: Chipless RFID as an Invisible, Ubiquitous Infrastructure of Identification**

**Jasmin Troeger<sup>1</sup>, Daniel Erni<sup>2</sup>, Jutta Weber<sup>1</sup>**

<sup>1</sup>Media, Culture and Society, Faculty of Arts and Humanities, University of Paderborn, D-33098 Paderborn, Germany; <sup>2</sup>General and Theoretical Electrical Engineering (ATE), Faculty of Engineering, University of Duisburg-Essen, and CENIDE – Center for Nanointegration Duisburg- Essen, D-47048 Duisburg, Germany

The radical, ubiquitous digitalization of the physical world becomes possible with a new generation of printable, chipless RFID (radio frequency identification) tags. Billions of objects – from trees, parcels, chairs to every single page of a paper file – but also subjects (e.g. their teeth) can be easily tagged, classified, and rights of access defined. Physical processes are turned into trackable data. RFIDs thereby form an infrastructure of identification (Frith 2021). Bowker & Star (2000) showed early on how infrastructures of classification “sort things out”. The translation of people and objects into readable identities does not only changes their perception and self-understanding, but also transforms institutional, societal, and political orders (cf. Pelizza, 2021; Carrera & Hernanz, 2015) as well as knowledge, control and surveillance practices.

In our presentation, we want to discuss the theoretical background of our research project as well as the first empirical findings on chipless RFIDs as an infrastructure of identification and give a first glimpse into potential future settings therein.

### **The division of biometric work. Production chain and value making in election technologies from Kenya and Senegal.**

**Cecilia Passanti**

Université Paris Cité, France

Biometric identification systems for voter registration are a generic and travelling products. They are based on a complex chain of material and value production. Through the study of the biometrics production chain, interviews and ethnographic observations, the article traces the contours of the division of labor between the production of the technology and the production of the identification by the public administration. The article emphasizes the role of the field (understood as the public administration, civil servants, and data) in the production of technology and proposes a more circular reading of value production. The article contributes to the understanding of public administration as a terrain of material, value, and technology production.



## Panel 45: Questioning institutional science and expertise supporting complementary, alternative, or refused knowledge

*Time:* Thursday, 29/June/2023: 4:30pm - 7:00pm · *Location:* Sala Rossa

*Session Chair:* Federico Neresini

*Session Chair:* Maria Carmela Agodi

*Session Chair:* Paolo Volonte

**Topics:** Health policies, governance and practices in a postpandemic era; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation

**Keywords:** refused knowledge, knowledge claims, challenging institutional science, expertise

Scientific communities and epistemic institutions seem to be under siege, as fake news and conspiracy theories are undermining the very “core set” of science. The COVID-19 pandemic has shown how this phenomenon is particularly relevant in biomedical domains and in the field of public health at large; at the same time, current cultural perspectives questioning the monopoly of science are strongly stigmatized by various academics and public commentators, supporting the idea that “anti-scientific” theories are irrational and dangerous and must be opposed in order to preserve public health, democracies, and the wellbeing of our societies.

These contemporary forms of contesting the epistemic legitimacy of technoscientific expertise have attracted the attention of STS scholars and related research fields, for example in order to analyze the intertwining between such social processes and democracy in the context of the so-called “post-truth era”, to study the crisis of technoscientific expertise to reflect on their possible overlapping with conspiracy theories as well as the political appropriations of these contestations by different and sometime opposing parts.

On this basis, the panel aims at exploring how the criticisms of scientific knowledge and expertise, especially during pandemic times, take the form of social worlds shaping and sharing what can be labelled as “refused knowledge” (RK), i.e. a body of knowledge partially or totally refused by institutional and scientific authorities.

We want to address how such criticisms give birth to social worlds composed by humans and non-humans, including (media) technologies as well as by segments of scientific communities and their opponents; how actors are enrolled within those social worlds and how parts of social worlds can be re-assembled to form a new one; how a social world can achieve temporary stability, shaping and sharing RK.

We therefore encourage STS scholars as well as social scientists in general to submit theoretically, empirically, and/or methodologically oriented contribution that aim at exploring:

- the assembling or re-assembling of groups, communities or movements that contrast scientific claims;
- arguments leveraged to support and spread RK, e.g. by linking the un-appropriateness of science to the conflicts of interest caused by the relationship with Big Pharma and the “establishment”;
- the role of such RK within the political arena and the public sphere at large;
- ways of contesting RK, e.g. by associating it to cognitive biases, ideologies, and interests;
- epistemological implications of mobilizing the “symmetry principle” to study RK claims and related social phenomena;
- the emergence, organization and practices of RK-based communities and how they are framed in the public sphere discourses;
- any other aspect deemed to be relevant for a better understanding of RK, RK-based social formations and their implications within the so-called post-truth era.

### Covid-19 and the Contentious Politics of Expertise. Scientific Controversies and Collective Actors in Italy and France

**Riccardo Emilio Chesta<sup>1</sup>, Damiano De Facci<sup>2</sup>**

<sup>1</sup>Scuola Normale Superiore, Italy; <sup>2</sup>Université Paris Dauphine, France

*In this paper we offer a comparison of the interaction dynamics between social mobilizations and expert controversies in the Covid-19 health crisis in Italy and France, by suggesting the relevance of approaches that looks at the link between two types of resources: those usually provided by socio-political organizations and those provided by scientific actors. The case selection is motivated by the similarity regarding the anti-contagion strategies and the diversity of social and political mobilizations contesting the governance of the pandemic.*

*In doing so, we look at the type of institutional organization put in place to face the rise of the Covid-19 pandemic and the specific configuration between political power and technical-scientific institutions. We analyze thus the interaction dynamics between critical actors within the civil society and scientific networks.*



*Based on a paired comparison developed through an intensive fieldwork Italy and France, we present some preliminary qualitative data based on a comparative media analysis, interviews with experts, members of scientific commissions, civil society representatives and participant observation.*

*We show how the presence of scientific resources in France triggered a counter-expertise that resulted into a high level of contention over health measures to contrast Covid-19. On the other hand, similar forms of opposition in Italy did not find similar resources that allowed the organization of scientific dissensus. The absence of critical experts with high symbolic capital favored fragmentation and isolation on the side of counter-expertise over health measures and consequently a low potential of collective mobilization.*

## **An Anatomy of Lost Trust: the HPV Vaccine Controversy in The Netherlands**

**Chris Hesselbein**

Politecnico di Milano, Italy

The invention of HPV vaccines, which prevent most cervical cancers (and several others), was initially hailed by medical experts and public health officials as a crucial health intervention. Their implementation in national immunisation programs has, however, been controversial and beset by public debate, the rejection of scientific expertise, and a loss of trust in public policy. This paper focuses on the controversy surrounding the introduction of the HPV vaccine in The Netherlands in 2008-2012 as it unfolded in the public domain. Although backed up by scientific consensus and recommended by the Dutch Health Council, the HPV vaccination campaign failed to meet half of its target goal after its start in 2009, and uptake has since remained relatively low.

Relying on publicly available primary sources, such as newspaper and journal articles, television programs, and parliamentary proceedings, I unravel and analyze, first, the socio-cultural conditions in which the Dutch public lost faith in the expert authority of both the Health Council and the Health Ministry, and second, the various scientific, economic, and political arguments that were marshalled against the introduction of the vaccine and their underpinning rationales. Rather than being a matter of irrational behaviour on the part of uninformed citizens who fell victim to misinformation and biased news reporting, or a failure of science communication on the part of public health officials, I argue that the failed HPV vaccination campaign is better understood as the result of justifiable suspicions about the overlapping/conflicting interests between scientific experts, pharmaceutical companies, and public institutions. As a result of this particular neoliberal entanglement of knowledge production and policy making, tensions arise (1) between vaccines as expert-backed and quasi-mandated collective goods or as individually-chosen and pseudo-voluntary commodities, and (2) between vaccine recipients as 'good' yet passive citizens or as critical yet active health consumers.

## **Redefining moral panics when the mediatic power changes: the case of refused knowledge communities during the COVID-19 pandemic**

**Anita Lavorgna<sup>1</sup>, Ester Massa<sup>2</sup>**

<sup>1</sup>Università di Bologna, Italy; <sup>2</sup>University of Winchester, UK

The COVID-19 pandemic, being a time of pervasive crisis and insecurity, has raised important societal reactions, which can be interpreted through the moral panic lens. For instance, recent research has shown how the media coverage of the pandemic had a role in promoting stigma and blaming, leading to the 'othering' of certain social groups such as refused knowledge communities. At the same time digital spaces and particularly social media platforms – as non-traditional media with the potential to subvert some of the features characterising moral panics – offer a new challenge to the concept of moral panic as traditionally intended: online, the relationships between moral entrepreneurs and folk devils can become much more complex and fluid, as digital affordances create shifts in the distribution of mediatic power. Hence, the same refused knowledge communities have been creating medical misinformation and accusing a range of different, reverse folk devils (e.g., those with technoscientific expertise) of criminal and deviant acts. This turnabout has important implications for the hold of the concept of moral panic, as it questions the societal consensus that is (yet implicitly) at its basis, and evidences the emergence of new moral entrepreneurs, whose voice is enabled and amplified online. By relying on a digital passive ethnography carried out on Italian-speaking digital fields, we will discuss how the notion of moral panic can still be useful as a critical tool and organising framework, confirming its continuing practical and heuristic value to understand how fear and transgression are mobilized once we widen and tighten the focus of analysis, redefining moral panics' traditional parameters in light of the increasingly complex and contradictory nature of powers in society.

## **Victims of epistemic injustice or misinformation spreaders? The autistic community as a refused knowledge community**

**Eleonora Marocchini**

Institute for Globally Distributed Open Research and Education (IGDORE), Italy

According to the orthodox scientific community, autism is a neurodevelopmental disorder entailing deficits in social-emotional reciprocity, historically explained as due to an empathy impairment, and potentially severe behavioral symptoms that could be alleviated through behavioral therapy but not cured; for this reason, funding for autism research is often devoted to genetic research to investigate its causes and possibly develop prenatal screening tests. However, a growing community of (predominantly) autistic people opposes most of these claims and goals. Emerging from the complex social world of autistic advocates, it is composed of a wide variety of actors, characterized by epistemic disunity, including clinicians, researchers, educators, as well as people with lived experiences.

Depending on their background, individuals in this community elaborate their thoughts on social networks, blogs, popular books, or academic articles. These play a crucial role in the construction of epistemic authority of the community, which seems to be simultaneously striving towards inclusion within the institutionalized psychology domain and proposing alternative views of both the neuropsychological constructs involved and of autism as a condition.

In this contribution I would like to explore the possibility to conceive this community as a refused knowledge community (RKC). Reasons to do so would include (1) popular discourse on an alternative explanation of (autistic) empathy, “the double empathy problem”, proposed by an autistic researcher and hardly ever cited by researchers/clinicians expressing the dominant view; (2) online campaigns to stop studies on autism that might result in genetic data sharing or even prenatal testing (a recent case in point would be “Boycott Spectrum10K”); (3) the growing number of autistic-led accounts on social media, speaking against prominent autism scientists and ABA therapy. In sum, if analyzed with a symmetrical posture, this seems to emerge as a potential RKC both challenging legitimized knowledge and seeking acceptance within its domain.

## **Refused knowledge in the public sphere: comparing RKC's and laypeople's argumentative repertoires on the therapeutic properties of alkaline water**

**Luca Serafini, Maria Carmela Agodi, Ilenia Picardi**

University of Naples Federico II, Italy

This paper aims at investigating the argumentative repertoires mobilized to legitimate knowledge claims refused by institutional science. We configure the analysis of the communities that support the therapeutic properties of alkaline water as a case study of RKC, aiming at comparing their argumentative repertoires with those activated by laypeople, i.e. people who have only non-professional experience in matters related to health, well-being, and the use of health care service (Evans & Kotchetkova, 2009).

To this goal, an ethnographic research on alkaline water communities was carried out in the sixteen months from September 2019 to January 2021. The empirical base of the analysis comprises a textual and iconographic corpus taken from a plurality of offline and online spaces of promotion of alkaline water.

As a second step of our research, four focus groups on the alkaline water case were organized with laypeople between April and July 2022: two of them involved University students, whereas the other two involved participants between 30 and 70 years of age.

The main findings indicate that the argumentative repertoires activated within this RKC often correspond to those mobilized in the wider public sphere. Specifically, a multiplicity of argumentative repertoires was identified both in the ethnographic research and in the focus groups, which show how both members of this RKC and people unfamiliar with the topic of alkaline water are open to adhering to this body of knowledge in specific situations. These findings allow us to place the present work in the wake of STS theories that interpret the spread of refused knowledge in the public discourse not in terms of an irrational drift fueled by specific communities, but as the effects of a more complex reconfiguration of the bonds and social networks within which knowledge is formed and acquires legitimacy (Lynch, 2017; Harambam, 2020).

## **Scientific Mimicry and Patchworking storytelling in the discursive ecosystem of Italian Stop 5G Refused Knowledge Communities (RKC)**

**Simone Tosoni**

Università Cattolica di Milano, Italy

The proposed paper focuses on the Italian Stop 5G RKC to investigate the practices through which it coconstructs, stabilize and sometimes radically transforms its main narratives and shared beliefs. Drawing on the Social Worlds Framework (SWF), it interrogates these practices as socially situated within the broader arena of contestation of official science. To do so, it adopts an ecological perspective on the digital sphere, which constitutes a key – and, during the pandemic crisis, virtually

unique - site and resource for these practices. In particular, it will show how, during the pandemic crisis, the Stop 5G RKC switched its discursive practices of construction of shared beliefs from what can be defined a “scientific mimicry” approach - based on a rigid definition of borders and an accurate selection of sources and knowledge authorities regarded as scientific - to what can be defined a “patchworking” approach - based instead on the combination of different and sometimes colliding discursive sources in a single new narrative. As it will be shown, patchworking not rarely entails a wider logic of syncretism, blending different beliefs into an ordered body of knowledge, merging more or less controversial pieces of scientific knowledge, folklore, new age spirituality, and conspirationism. The conclusive remarks will address the relationships between RKC’s discursive practices, their forms of organization, and the forms of structuration of the broader arena to which the social world of the RKC participates.

## **Bodies by other means. Challenging biomedical gaze within Refused Knowledge Communities**

**Barbara Morsello, Stefano Crabu**

University of Padova, Italy

This contribution aims at examining how two Italian communities (i.e., the Free-vax community and the New Germanic Medicine community) relying on knowledge refused by institutional science are engaged in counteracting current biomedicalization processes. Analytically speaking, we provide an understanding of the how the concerned communities develop knowledge claims aimed at respecifying human living body, and under which conditions the living body can be managed for care and well-being purposes outside the epistemic borders of biomedicine. Indeed, biomedicine identify a powerful dispositif in the socio-technical shaping of the human. In this regard, the current prevailing biomedicalization processes accounts for many of the biopolitical signature of western countries. At the same time, the development of so-called alternative scientific and medical facts about human bodies and health issues remains a relevant phenomenon in contemporary societies. Drawing on a web ethnography (January 2020 – December 2021), the contribution shows how refused knowledge-based communities, in addressing health and illness issues, shall no longer focus only on the biological dimension of diseases. Instead, they try to shape a refused model of healing and caring where both the psychological, social and biological dimensions of health, illness and wellbeing are strictly entangled. Within their perspective, the immune system plays an important discursive role for criticizing biomedicalization processes. Hence, this contribution highlights the epistemic games between refused and biomedical knowledge in the discursive enactment of the immune system by analyzing two main focal points of the RKC: 1) the conceptual redefinition of the “immune system”; 2) the discourses mobilize for orienting everyday practices for managing the “immune system”. The analysis of these focal points allows to unveil how refused knowledge-based communities question the biomedicalization of the human body, thus redefining the epistemic and material boundaries of biomedical interventions.

## **Expectations of unvaccinated health workers in Greece and the question of trust: a qualitative study of vaccine hesitancy**

**Katerina Sideri, Chanania Eleni**

Panteion University Athens Greece, Greece

The reasons for which people remain unvaccinated, especially health workers, are complex. In Greece 2 percent of health workers (around 7,000) remain unvaccinated, despite the fact that for this group vaccination against COVID-19 is mandatory. In April 2022, the Greek health minister explained that suspension of the workers in question was ‘entirely their choice’ and health professionals who do not believe in vaccines ‘do not believe in their own science.’ Although policy circles around the world often link vaccine hesitancy to ignorance of science or misinformation, various recently published qualitative studies (Paul et al., 2022) show that vaccine hesitancy is the result of a combination of factors, including distrust towards elites and the system of innovation and distrust towards government. In a similar spirit, Hilgartner, Benjamin Hurlbut, and Jasanoff (2021) warn that ‘Labeling dissent as “anti-science” is ‘bad social science and bad politics’. In this paper, we take the view that people draw upon personal associations to enact and express civic concern with an issue (Wynne 1992), the enactment of public concern involves the articulation of threats to actors’ way of life, personal values, relationships, lived experiences, broader societal values and institutional structures (Paul et al., 2022; Bijker 2017). We have conducted 27 in depth interviews with unvaccinated Greek health workers and we are in the process of conducting 20 more interviews. We have so far found that rather than a question of believing in ‘facts’ vaccine hesitancy reflects deep distrust towards those charged with the making of decisions and pharmaceutical companies and that emotions (rather than rational thinking) play a crucial role in the formation of attitudes and the making of decisions. We particularly address the question of effectiveness of mandatory vaccination of health workers and whether such top down regulatory measures further polarize society, to finally discuss alternative approaches.

## **Disentangling epistemic enrolment structures in refused knowledge communities: a mixed-method analysis of social worlds legitimising refused medical knowledge during the COVID-19 pandemic**

**Ilenia Picardi, Marco Serino**

University of Naples Federico II, Italy

This work aims at providing an understanding of the social configurations with which Refused Knowledge Communities (RKC) attribute credibility to knowledge about healthcare and wellbeing. The study focuses on the processes of meaning-making and epistemic enrolment within social worlds where human and non-human actors build, maintain, and legitimize given forms of knowledge refused by institutional science. To this aim, we analyze, separately and comparatively, the alkaline community, which promotes consumption of alkaline water and food as a health practice, and the followers of the Five Biological Laws (5BL), a system of knowledge that purports to be able to cure cancer and many other diseases. Relying on the theoretical and methodological frameworks of Social Network Analysis (SNA) and Social Worlds (SWs), we study the narratives emerging from a digital ethnography conducted between January 2020 and December 2021, identifying in each observed SW a two-mode network made of linkages between claims of refused knowledge and actors that sustain these claims. Through a combination of qualitative analysis and network-analytic techniques, we examine the epistemic structures within the SWs of alkaline water and 5BL, attempting to reveal: a) the core claims of refused knowledge; b) the enrolment pursued by advocates of refused knowledge – who are the “entrepreneurs” of these SWs; and c) how these entrepreneurs position their claims of rejected knowledge versus institutional science. The clustering structure found within the online discursive universes we examined shows: 1) differentiated repertoires, which rely on specific types of enrolled actors used by entrepreneurs to finalize enrolment to the different contents of knowledge to which they want to give credibility; 2) the existence of boundary objects – including viruses – which are instrumental to the translation of meanings that recombine biomolecular repertoires with symbolic, social and political repertoires.

## **Panel 3: Sociotechnical assemblages and practices of crisis planning and preparation: Imaginaries of infrastructure breakdown and its governance**

*Time:* Friday, 30/June/2023: 9:00am - 10:30am · *Location:* Aula A

*Session Chair:* Silvia Rief

**Topics:** Technoscientific promises, imaginaries and expectations; Everyday life and design of the mundane; Sociotechnologies of (in)secure worlds to come

**Keywords:** imaginaries of crisis, preparedness, critical infrastructures

The multiple and compound crises the world has been facing in recent years have nourished growing concerns about possible and serious breakdown of large-scale critical infrastructures due to natural disasters, shortage of energy, droughts and water scarcity, war or terrorism. While states and public authorities are propping up the protection of critical infrastructures, individuals too are increasingly called upon to 'be prepared' for interruptions of energy, communication services or water provision, to name a few. This panel invites papers that explore how social actors at various levels and in different contexts imagine and gauge possible crisis scenarios and what measures they adopt to control such imagined possible futures. In line with the theme of the conference, contributors are invited to reflect on how the notion of "interest" is framed within imagined crisis scenarios and within the practices of 'preparation' by individuals or groups as well as within techno-scientific programs and policies for crisis-management. Possible themes and questions to be addressed are suggested below, but other subtopics are equally welcome:

### 1) Citizens, state and civil society

How do citizens and private households respond to narratives of crises and their imagined sociotechnical consequences? How do their practices of planning and preparation relate to public provisions for controlling possible crisis situations? Are the former expressions of trust or mistrust in the state's and public authorities' capacity to prepare for possible crises? Are the latter expressions of trust or mistrust in citizen's willingness to cooperate? How do 'prepping' practices at different levels evoke an orientation towards autarky vs. dependency? How are individual interests and needs for security related to, balanced with, or exclusive of, collective solidarity and collective interest? Comparative analyses of crisis management policies and governance might also focus on the representation of interest and solidarity.

### 2) Sociomaterialities of preparing

What visions and tools for technological governance of crisis situations are developed? What notions of interest are implicitly inscribed into communication and planning tools (e.g. the role of data and algorithms, simulation and forecasting, social media, apps, websites)? Papers might address the commercialization of 'preparedness' along with DIY and learning processes geared towards 'prepping': what markets and commodities have emerged that cater for 'prepping' needs and desires for autarky and security? What assemblages between markets, media, expert cultures and citizen cooperation have been created and how is "interest" configured in these networks?

### 3) Popular culture

Of interest would be (comparative) cultural analyses of how crisis scenarios due to infrastructure breakdown and their governance are depicted and discussed in films, documentaries, literature, magazines, podcasts and social media. What designs for securing or repairing the socio-technical normality of everyday life are presented in popular culture?

### 4) Social structure

A recent paper asked 'Is preparedness a discourse for the privileged?' (Blake Marlowe, Johnston 2017)? Which social groups are addressed by preparedness discourses and how are interests and needs of vulnerable groups identified and considered? How does social structure influence who prepares for crisis and who doesn't, and what practices of preparation social groups engage in?

## **Time, Space and Everyday Forms of Drinking Water Infrastructure: Study of a village in rural southern Bihar**

**Amit Kumar Srivastwa**

Ambedkar University Delhi, India

This study revolves around a village in the southernmost part of Bihar state in India. This region is filled with fluoride contamination in groundwater, which causes fluorosis disease among households. Fluorosis incidences affected generations, making people partially or entirely incapable of social and economic reproduction. In response, state, non-state and private enterprises intervened in this village to provide access to 'safe' drinking water. These twenty years of interventions introduced different technologies and infrastructures which governed the village's households as a development subject. However, narratives, observations, and government reports express that these policy-based technological interventions failed miserably due to poor operation, maintenance, and acceptance of the introduced infrastructures. In 2012, World Bank

intervened in the study village under the National Rural Drinking Water Program (NRDWP) to introduce a pipe-based drinking water supply system. This Public Private Partnership (PPP) model uses the 'demand model' to provide safe drinking water to households. However, this significantly large-scale project also performed and is performing inadequately.

This study examines the everyday life of drinking water services and how it shapes caste, temporal and spatial conditions, and state-society relationships. Further, this study explores the public imagination of power and corruption at the local level and how the materiality of drinking water and its infrastructure helps to create certain imaginations. This study uses a mix-method approach to understand these objectives. Through field-based observations, key respondents and in-depth interviews, and survey-based data, this study understands the formation of socio-spatial groups that differs based on space, identity, and their social relations with the local state. Finally, using frameworks of political ecology, STS, and anthropology of the state, this study argues that drinking water infrastructure, in the absence of the state, forms moral economies among the households and helps to accumulate capital.

## **Infrastructural Disassembling and the Fluid Dynamics of Power on the Klamath River**

**Aaron Gregory**

UC Berkeley, United States of America

While an established body of scholarship articulating the fields of STS and Critical Infrastructure Studies attends to design, installation, management and maintenance of infrastructure, fewer studies examine the emergent praxis of 'infrastructural disassembling'. This paper marks a significant contribution to this nascent body of critical scholarship, examining the recent decision by the United States' Federal Energy Regulatory Commission (FERC) to decommission four hydroelectric dams on the Klamath River in Northern California and Southern Oregon. The Klamath Dam Removal Project is championed as the largest dam removal project in the world, currently transforming the 460km river into a fluid terrain of negotiated power dynamics between state and tribal actors. Drawing upon the 'collaborative turn' in STS (Fariás 2017; Sismondo 2008), this paper explores the Klamath Dam Removal Project as an agonistic conjuncture in state-tribal relations, wherein the political problems of settler-colonial land theft, infrastructural ruination and ecological destruction are rendered technical through participatory planning and project management. Moreover, this paper argues that the praxis of infrastructural disassembling is ultimately beholden to a 'problem of interests' (Callon & Law, 1982), wherein competing claims to techno-scientific knowledge and political authority are continually contested at the levels of environmental governance and territorial sovereignty. The Klamath Dam Removal Project is revealed by this paper as a socio-technical apparatus that functions similarly to the hydroelectric dams it seeks to decommission: it is a project that transforms the flow of state and tribal interests into newly constituted regimes of political power.

## **Virus Government: A Postscript for a 21st-century Genealogy of the "Dusk Mask" as Biopolitical Technology**

**James Hay**

Institute of Communications Research; University of Illinois, United States of America

In a recent project, I considered how the biopolitical response from the United States to COVID-19 was born from a twenty-first century governmental rationality in the U.S. about public safety and social security as personally administered. My project offered a genealogy of "virus government" in the U.S., which considered what has and has not changed from the early governmental discourse about and technologization of a Homeland Security and its War on Terror. In part, my project performed this genealogy by examining the historical relation between the governmental utility attributed in the early Homeland Security prescriptions for dust masks (oddly misspelled in instructive material as "dusk masks") and the contradictions surrounding the COVID facemask as technology of personal governance. Through this genealogy, my project considered new contradictions and precarity of liberal subjectivity through the actor-networks of personalized COVID responsiveness and of the mask as a "liberal object"—enfolded in a *civil warfare* in the U.S. over masking, a Trumpian militant libertarianism, and the reinvention of Homeland Security for virus preparedness.

A substantial part of my project also examined how masking in the U.S. became interwoven with failed initiatives by Google and Apple to adapt their regime of self-tracking devices as a personalized, albeit highly disassembled, solution to COVID tracking.

My presentation for this conference revisits (as "postscript") these two developments, outlining some of the deepening historical contradictions of post-COVID preparedness rationales for Homeland Security, a War on Terror now, the digital technologies of personal governance, the technology of assembly and mobilization (the technological *assemblages* and actor-networks of "preparedness") adopted by a contemporaneous (Trump- and COVID-era) militant libertarianism, and the operations for *securing* citizens and a "homeland" from viral forms of domestic militancy, civil warfare, terrorism and hacktivism.

J Hay, "Virus Government. . .," *The Cultural Politics of COVID-19*, 2022.





## Panel 44: Exploring Promising Technologies in Neuroscience

*Time:* Friday, 30/June/2023: 9:00am - 10:30am · *Location:* Aula B

*Session Chair:* Barbara Morsello

**Topics:** Technoscientific promises, imaginaries and expectations; Innovation imaginaries, practices and policies

**Keywords:** neurotechnology, innovation, embodiment, promises, ai

The aim of the panel is to host empirical case studies and theoretical reflections on the technological promises, future visions, and expectations embodied in recent trend in neuroscience. The study of the brain is a powerful activity in providing new ways for understanding ourselves and societies, (Pickersgill and Cunningham-Burley et al 2011). Understanding the formation and mobilization of expectations is crucial to analyze emerging technology concerning biomedicine (van Lente, 1993) where knowledge is coproduced by new socio-technical relations (Hedgecoe, Martin 2003) among heterogenous actors. This is particularly true when it comes to neuroscience where, for example, artificial intelligence opens multiple scenarios and possibilities ranging from advanced diagnostics, treatment of certain diseases, as well as human enhancement. In this context, promises and imaginaries are fundamental feature to examine the “horizons of hope” where expectations of technoscientific actors arise (Robinson, Audétat et al 2021). There are, in fact, several “promising innovations” in neuroscience. Ai in neuroscience has a high potential in several fields: as a treatment for Parkinson disease, to control eating disorders or – potentially – to manage kids with ADHD and other compulsivity or movement disorders. Machines can assist human brain, when necessary, while neurostimulation uses electromagnetic approaches to affect the nervous system, but also research and innovation in mind-controlled robotics and intelligent prosthetics are growing. The emerging technology in neuroscience open up promising scenarios in biomedicine and beyond but also elicits fears and doubt by stakeholders, based in the idea that technology will replace the role of neurologists, of physicians or, more in general, of an idealized form of natural cognitions. An example can be the recent research on AI and deep brain stimulation that may enables a more personalized treatments by tracing and recording patients’ cerebral activity, however, it has been characterized by challenges and tensions among clinical teams and patients due to its “technical opacity” (Burrell 2016). In addition, neurotechnologies are often present in the popular culture, as the case of science fictions, cyborg imaginaries, thus giving rise to sometimes dystopian scenarios from which specific visions of the future emerge. Imaginaries related to neurotechnologies are interesting elements in understanding the frames in which innovation takes shape. Thus, exploring recent innovations in neurotechnology allows to examine the conflicts that shaped the arena of biomedical innovation over time; and to explore future scenarios of living with technologies.

Contributions may cover, but are not limited to, the following topics:

1. Emerging innovation in neuroscience and/or AI;
2. Biomedicine, neurological conditions and neurodiversity;
3. Controversies among stakeholders;
4. The role of patients and lays in shaping technological innovation;
5. Subjective experience and embodiment;
6. Implantable technology and closed-loop stimulation;
7. Brain-computer Interfaces;
8. Futures, promises and expectations of AI and neuroscience;
9. Science fiction on neurotechnology and cyborg imaginaries.

### Charismatic Neurotechnologies? The situation of deep brain stimulation

#### Tamara Pascale Schwertel

Johannes Gutenberg University Mainz, Germany

In my contribution I focus on deep brain stimulation as a technology and its charistatic effects on health care. In deep brain stimulation therapy, electrodes are implanted into the brain to permanently stimulate diseased brain regions. The technology is used for motorical disorders, but also for psychiatric diseases. Deep brain stimulation (DBS) is very controversial and has both supporters and opponents. To capture these tendencies in the field of neurosciences, I conceptualize DBS as charismatic because it triggers both nightmares and utopic visions of changing humanity. I ask in how far neurotechnologies can have a certain kind of charisma and how these charismatic relation influence actors in the field of neurosciences. For this I work with Adele Clarkes situational analysis, which is particularly concerned with collective actors and their knowledge production. I focus on neuroscience, neuroethics and patient organizations as important collective actors in DBS care to show how charisma affects these actors and illustrate the importance of charisma in the daily care of patients with DBS. Using ethnographic observations, interviews with actors involved and a historical analysis of the development of the therapy, I show how deep brain stimulation has always been accompanied by almost religious beliefs. Finally, I would like to discuss the importance of charisma as a concept for STS working in the field of neurosciences.

## **Assembling Neuro-Visions – Projecting trajectories through imaginaries, discursive repertoires and enrolment efforts.**

**Roberto Favalli**

University of Padua, Italy

In this work the notion of vision as “interessement device” and as “actor-world” are presented and discussed. Through these conceptualizations I aim to examine the relational, processual, and precarious way in which future-oriented visions participate in the articulation, extension and structuration of emerging technoscientific field. Thereby, I wish to contribute to discussions within STS about the co-enactment of technoscientific futures with novel socio-technical ensembles. These insights are described and discussed based on the case study of Brain-Computer Interfaces (BCIs), a cutting-edge field in neurotechnologies. While remaining mostly within labs, the field of BCIs is characterized by many imaginaries and promises around the possibility of directly connecting the human brain (CNS) with external devices without activating any muscle or peripheral nerve. The analysis is based on scientific texts and interviews with experts in the field. After describing two different visions - of connecting brains with devices - circulating among practitioners, different ways of explaining their persistence in the field are presented. Then, it is discussed how these visions participate in the restructuring of the technological field by assembling different innovation trajectories, together with the co-production of new imaginaries, the mobilisation of different discursive repertoires and the enrolment of different heterogeneous actors. In doing so, I attempt to problematize the concept of performativity, considering how visions are simultaneously produced by and productive of evolving socio-technical relations.

## **Attention as Value and Object of Knowledge: Current Neurotechnologies for Attention in Education (and Not Only)**

**Dimitra Kotouza**

University of Edinburgh, United Kingdom

Neurotechnology innovations in brain-computer interfaces, mobile brainsensing and neuroimaging are changing how human brains and behaviours are understood and acted upon (Pitts-Taylor 2016), while also catalyzing ambitions to condition brains for learning and productivity. Here, I examine the attention-targeting neurotechnologies currently in development (research funded by BitBrain) or marketed to schools, students and professionals (Muse, FocusCalm), which promise to improve attention and self-discipline, and to address ADHD symptoms. I focus on what conceptions of the learning brain the characteristics and function of these technologies, as well as the research on which they are based, presuppose. I argue that understandings of the role of attention in learning, as well as of the meanings of attention lapses, mind wandering and distraction, are narrowed in the process of their becoming variables to be measured and visualised via neuroimaging headsets, and controlled via training and/or haptic nudges. Such understandings are salient in the same context where rates of ADHD diagnoses and stimulant use have risen: one of learning measured by standardised testing as part of neoliberal methods of promoting school ‘accountability’ (Hinshaw, 2018) and of education governed in terms human capital and ‘brain capital’ outcomes (OECD and Smith et al., 2020), shaped by imaginaries of technologically enhanced economic productivity. Yet, another aspect of this context is the commodification of young people’s leisure-time attention, with many of the same neurotech companies providing ‘neuromarketing solutions’. I thus explore how ‘attention’ is shaped as an object of knowledge when both the training of self-control and the media ‘capture’ of attention has, or is imagined to have, economic value for neurotech companies, schools and states. This paper forms part of the Leverhulme Trust funded project ‘Biology, Data Science and the Making of Precision Education’ (PI: Ben Williamson; Co-Is: Jessica Pykett and Martyn Pickersgill).

## **“I never said ...I would ever become RoboCop!” Aligning expectations, promises and futures in Deep Brain Stimulation and AI.**

**Federico Neresini, Barbara Morsello**

University of Padova, Italy

The aim of the presentation is to analyze the technological promises, future visions, and expectations embodied in Deep Brain Stimulation (DBS) and AI technology. Understanding the formation and mobilization of expectations is crucial to analyze emerging technology concerning biomedicine (van Lente, 1993) where knowledge is coproduced by new socio-technical relations (Hedgecoe, Martin 2003). This qualitative case-study is part of the SYNCH project (Horizon 2020), whose objective is to combine DBS with AI to treat several diseases including Parkinson Disease (PD). To do so, interviews were conducted with the aim of understanding how the expectations of different stakeholders, i.e. neuroscientists, engineers, clinicians, entrepreneurs and patients can shape the future application of AI to DBS, but also the promises solicited by patients and the potential for clinical applications. So, the aims to examine 1) the role of expectations about DBS and AI in

the alignment of heterogeneous elements that shape technology and 2) the emerging “sociotechnical hopes” related to promising futures. Deep brain stimulation (DBS), however, is a technology with a high potential for biomedical innovation in several fields: as a treatment for Parkinson disease, to control eating disorders or – potentially – to manage kids with ADHD. Although the combination of DBS and AI enables a more personalized treatments by tracing and recording patients’ cerebral activity, however, it has been characterized by challenges and tensions among clinical teams and patients due to its “technical opacity” (Burrell 2016). Thus, exploring expectations allows to examine the conflicts that shaped DBS over time; but also, the promises on which future scenarios are based for both the treatment of PD patients and for biomedical applications, and finally to investigate the problem of trust in AI.

## Panel 6: The Sars-CoV-2 emergency narrative: A discursive-material approach

*Time:* Friday, 30/June/2023: 9:00am - 10:30am · *Location:* Aula C

*Session Chair:* Barbara Saracino

**Topics:** Health policies, governance and practices in a postpandemic era; The value of science, technology, innovation and research practices

**Keywords:** Pandemic, COVID-19, Emergency, Media Coverage

We propose to analyze the Sars-CoV-2 narrative based on the discursive-material model, already put to the test of the social shaping of European memories [Carpentier; *The European Assemblage*, 2021; Carpentier, Hroch, Cannizzaro, Miconi & Doudaki, *Bridging the Discursive and Material Dimensions of Europeanity and Europeanization*, 2022, in press]. We will bring in data from the Italian case, while asking for contributions coming from other countries. On the material side, we will analyze the spreading pattern of Sars-Cov-2, by drawing on biostatistics data, in one way; and in the other way, how the epidemic and the following political measures re-shaped the physical spaces of daily life. At the discursive level, we will study the coverage of the pandemic on the part of Italian mainstream media, with a focus on the use of the war metaphor for its framing.

More precisely, we will deal with:

- systematic reviews and meta-analyses of data related to virus transmission and hospitalizations, which unravel critical evidence: the selective nature of Sars-CoV-2 infection, actually putting at risk specific cohorts of people;
- the reshaping of physical milieu in the 2020-2022 biennium, with two categories put to question: the alleged de-materialization of human life, and the spatial dimension of discipline;
- content analysis of all prime-time TV news, broadcast from February 2020 to February 2021, with a focus on the use of the war metaphor for framing the pandemic.

The confirmed panelists will also bring in the findings coming from their participation to the Lack of Scientific Freedom initiative, jointly launched by the Oxford University Center for Evidence-based Medicine, and the Institute for Scientific Freedom in Copenhagen.

For what concerns the call for papers, possible topics to be included in the panel are:

- Systematic analyses of media narratives related to the Covid-19 emergency;
- State of public debate, with a focus on freedom of expression and scientific freedom;
- Distortions in public communication and public understanding of science, with a focus on role played by the so-called TV doctors or medical celebrities;
- Interpretations of the state of emergency and state of exception, related to the Sars-CoV-2 pandemic;
- Representation and reshaping of public spaces during the Sars-CoV-2 pandemic.

### The birth of digital epidemiology in South Korea

#### **Eun-Sung Kim**

Kyung Hee University, Korea, Republic of (South Korea)

The COVID-19 epidemiological investigation support system (EISS) is a digital epidemiological tool, which utilizes location data from cellular base stations, credit card transactions records, and QR code. It is a mass surveillance system that uses big data to track the entire infected population, featuring an extensive, automated, and speedy processing of data on personal location and the linkage of multiple databases from various governmental agencies. Based on the interviews of informants who have developed the Korean digital epidemiology systems, this paper explores the technical, infrastructural, social, and institutional factors that have shaped Korean digital epidemiology since the 2014 avian flu crisis and examines the essential conditions of big data for digital epidemiology. The main findings are as follows: The feasibility of EISS goes beyond the matter of privacy; it is closely connected to technological infrastructures such as a high density of cellular base stations and private cloud systems; people's behavior such as a high rate of smartphone and credit card usage; and new forms of governance and institutions for speedy data processing. The multiple database linkage would develop EISS into a big data surveillance system that enables the prediction of risk-prone groups in a more preemptive manner.

## **The dynamics of countermeasures and narratives during the Sars-Cov-2 pandemic: focusing on changes in social distancing policies for high-risk facilities**

**Saebyoul Yun**

University of Edinburgh (UK)

The South Korean government never chose a lock-down strategy to reduce the population's movements, but they collected extensive data to identify infected individuals and did implement complex social distancing rules and policies that were changed countless times. These changes caused a lot of confusion, in particular, in many public facilities which were designated as 'high-risk facilities' by the government such as cafés, restaurants, and gyms. The policies controlled business hours and even the beats of background music at gyms. Moreover, many news reports released provocative headlines that caused the public to panic about the risks of COVID-19, and these were enough to paralyse peoples' rationality in examining the appropriateness of the policies. Even worse, there were conflicting opinions between TV doctors and other experts. Thus, the changes, dynamics, and results in social distancing policies for public facilities should be examined and the following data would be reviewed: infection waves and statistics showing spreading patterns that affected the government's decision making, the headlines or reports from the main media outlets dealing with risks of COVID-19 and the changes in social distancing, opinions of medical celebrities, and other experts. All data will be collected through the official website of Korean statistics, COVID-19 information, daily policy briefings, and the five most popular media outlets in Korea. The experts' opinions that were rarely exposed will be collected from other resources including their publications. After collecting the data, it will be analysed using narrative analysis. The results will contribute to identifying how the public facilities were reshaped by rules and narratives (e.g. the level of social distancing or media reports), how media headlines, TV doctors, and other experts responded to such policies, whether they provided similar/different perspectives to each other, and which ones helped understand the situation from a scientific point of view.

## **Public narratives and black-boxed materialities of Sars-CoV-2 diagnostic tests: The Greek experience**

**Katerina Vlantoni, Athanasios Barlagiannis**

National and Kapodistrian University of Athens, Greece

We examine the ways the pandemic unfolded in Greece, by paying attention to the interplay of developing, implementing and communicating public health policies in the different phases of the pandemic (in terms of rates of viral transmissions and hospitalizations) from March 2020 until December 2022. During this period, we have examined the public debates surrounding the COVID-19 pandemic crisis by focusing on the ways testing is portrayed in its sociomedical appropriations. Our focus on testing comes by recognizing that in the contemporary pandemic different forms of testing and the discussions surrounding it have been ubiquitous, moving beyond the laboratory.[1] By attending to the technical variables and the design of testing technologies (through the associated medical/scientific discourse), we seek to retrieve social tradeoffs regarding the health policies promoted in times of emergency and scarcity of public funds.

Furthermore, we are interested in the following narratives. First, the narratives surrounding the role of testing during the crisis as well as the attempts to construct new, 'speedier' and 'more reliable' tests. Second, the news regarding the ongoing 'groundbreaking' biomedical research to advance epidemiological research and surveillance through the DNA analysis of samples in a specialized COVID-19 biobank put forward by major national research centers.

Our paper is empirically grounded in the medical and public discourse in order to address issues concerning the high-tech versus low-tech local responses to the pandemic. In addition, we explore the techno-optimistic discourse on the technoscientific interventions to 'combat' the crisis, by developing new tests and advancing biomedical knowledge on the COVID-19 epidemiology (in national endeavors). We juxtapose the techno-optimistic discourses during the crisis, by contextualizing technoscientific interventions in order to move beyond technocratic views and into the social grounding of technological choices.

## **Coronavirus, War and Parenting: On Missing Reflexivity of Everyday Practices of Doing Research**

**Artūrs Holjavins**

Maastricht University, Netherlands, The

Scientific knowledge is subjective, being co-produced in interactions between researchers, research participants, and research environments. Viewing the results of scientific research as contingent, however, does not absolve researchers from carefully examining different impacts that shape their projects, including impacts exerted by researchers themselves. Those not seeking objectivity strive to reflect on how their intellectual commitments and backgrounds come into the research process. It is particularly important considering that researchers wield power to direct knowledge production towards perceptions of the dominating social groups to which they often belong, reproducing entrenched prejudices and inequalities. In this regard, much scholarly attention has been paid to macro-categories of a researcher's background, like economic and

social class, gender, and race. Yet, much less attention has been paid so far to researchers' mundane everyday practices and personal life. They are usually put behind the brackets of what constitutes research and, therefore, remain hidden and silenced. I argue that these everyday practices are not least - if not more - important than the macro social statuses of researchers. I do so by reflecting on how major contextual developments like the 2022 Russian invasion in Ukraine and the COVID-19 pandemic, but also micro-level challenges like local suspicions towards a researcher from abroad and parenting obligations entangled in my experiences of ethnographic fieldwork on patient participation conducted in Russia in 2022. Drawing on auto-ethnography, I bring to the fore researchers' everyday practices and struggles. Specifically, I introduce the concept of researcher's "entanglements" to describe, review, and account for performative, situational here-and-now interactions, which have had a direct effect on me and, consequently, my ethnographic study.

## Panel 30: Algorithmic organizing and workers' well-being

*Time:* Friday, 30/June/2023: 9:00am - 10:30am · *Location:* Aula D

*Session Chair:* Paolo Rossi

*Session Chair:* Lia Tirabeni

**Topics:** Health policies, governance and practices in a postpandemic era; Working conditions and organizations interested in and by automation; Algorithmic knowledge, media ecologies and artificial intelligence

**Keywords:** Algorithm, control, organizing, well-being, workers

Contemporary organizations are increasingly adopting an 'algorithmic' logic for realizing artefacts, services and, more generally, different kinds of output [Giardullo and Miele 2020]. Algorithms take the form of procedures that support the elaboration of large amounts of data, and these processes affect a growing number of organizations' stakeholders, including their workers. In this frame, many authors already suggested the role of algorithms in fostering standardisation, normativity, capitalistic objectives, and rationality. Lash [2007, 71], for example, observed that algorithms figure as "pathways through which capitalist power works". Also, algorithms can embed rules of rationality, and are then characterised by inscrutability and normativity: they can be considered to participate in the political, ethical, or accountable [Ziewits, 2016], and are performative [Introna, 2016]. Further, while traditionally, algorithms have been mainly developed to improve production processes' effectiveness and flexibility (e.g., in smart automation practices), today algorithms are increasingly being developed and adopted for further enacting managerial control over workers. From this point of view, algorithms can be expressively devoted to tackling the issue of workers' well-being, that is monitoring their health status, promoting healthy lifestyles, and collecting data for the design of public health policies.

Workers' reactions to introducing this algorithmic control of their well-being can take different shapes. While some workers may accept these algorithms, benefitting from the support they supply for the control of health status, others may sharply reject them, claiming their refusal to what they consider an intrusion on their lifestyles. Likewise, different forms of appropriation can be observed, too, as workers can adapt these technologies to their needs and priorities [Bruni, Andrei and Tirabeni, 2022] deviating from the designers' intents.

The diffusion of algorithms and the emergence of an algorithmic paradigm for handling workers' well-being can be considered an instance of neo-taylorist entrepreneurial strategies. Likewise, the algorithmification of workers' well-being can contribute to the re-emergence of companies' paternalistic ambition to care for and control their employees. Still, algorithms can represent a trigger for the increasing commodification of healthcare assistance. Notwithstanding, if we accept the idea of the algorithm as a "sensitising concept" [Ziewits, 2016], then we allow more room for reflection and opportunities for resistance and, above all, for appropriation, that is an issue, this last, which normally goes unnoticed in the current debate [Miele and Tirabeni, 2020]. Starting from these considerations, the panel promotes a reflection on the implications of the algorithmic processes of organizing workers' health and well-being. Both theoretical and empirical contributions are welcome with a focus on (but not limited to):

- Algorithmic techniques of organizing and workers' health and well-being;
- Control and monitoring of workers' productivity through the algorithmification of well-being;
- Acceptance, resistance and appropriation of algorithmic practices of well-being promotion;
- Health and safety of workplace environments under algorithmic control;
- Institutional engagement and arrangements for the algorithmic control of workers' health and well-being;
- The enactment of control and surveillance through workers' well-being;
- Neo-taylorist and neo-paternalistic control of workers' well-being.

### Reconceptualizing algoactivism at the workplace.

#### **Francesco Miele**

University of Trieste, Italy

Over the last years, the circulation of algorithmic technologies into workplaces, capable of autonomously processing and analysing data produced by workers, has been at the centre of a wide interdisciplinary debate involving different branches of study, from social sciences to computer science and management studies. This intervention contributes to this debate, with the intention of addressing an aspect that has been under-theorised for the moment, that is the active role of workers in influencing the ways in which algorithmic technologies are embedded and used in contemporary organisations. This contribution tries to restore centrality to worker agency by investigating the dynamics of algoactivism. With this aim, the intervention presents and discusses some of the results emerging from empirical research carried out in two work organisations in northern Italy, which have been involved in a workplace health promotion project characterised by a strong technological component. The considered empirical case shows, first of all, how the workers' algoactivism consists in appropriating technology, adapting algorithmic technology to their own background of beliefs, to the representations



elaborated regarding the technology in the course of its use, as well as to the possibilities and constraints dictated by their own everyday life. On the other hand, it has been shown that workers' algo-activism also consists in shaping broader socio-organisational processes to monitor and manage their health conditions (also) thanks to technological support. The emerging organisational texture was, therefore, characterised by a continuous connection and overlap between health management, work activity, family obligations and mundane life, involving actors and spaces that go beyond the workplace alone.

## **The quest for certainty between Quantified Self and algorithmic management**

**Arianna Petrosino**

Università degli Studi di Napoli Federico II, Italy

Minimization of the share of uncertainty inherent in the utilization of human labor, in order to improve production efficiency (Braverman, 1974), has been at the core of the rationalization and alienation process (Braverman, 1974; Delfanti, 2021) and is still central to neo-tayloristic management strategies (Burrell & Fourcade, 2021). In order to close the gap between potential and actual results, workers' performance must be absolutely interchangeable and comparable, almost identical (Gorz, 1992; Casilli, 2020). Performance monitoring is therefore necessary to standardize and optimize them (Casilli, 2020). The availability of wearables for self-and-other-tracking in workplaces (Moore, 2018) gives a new impetus to this trend, increasing algorithmic management techniques within increasingly surveilled workplaces.

This contribute proposes a literature review on new surveillance (Marx, 2002) and dataveillance (Clarke, 1988) techniques within labor process, putting them in relationship to developments in Quantified Self (De Moya & Pallud, 2020; Moore & Robinson, 2016). In more detail, we will investigate the continuity and discontinuity in the use of self-tracking systems within and beyond the workplace, in order to show whether "certainty need" may be a key to pursue this analysis.

Wearable self-tracking technologies (WSTT) are in fact spreading beyond the production process, permeating both work time and leisure time (Tirabeni, 2020). In the context of the Quantified Self, the use of WSTT for well-being monitoring aims to achieve new forms of control over one's corporeal dimension and possibly, through it, over one's emotional and affective dimension (Moore & Robinson, 2016). Data collected by devices and sensors (Andrejevic & Burdon, 2016) are used in predictive mechanisms that seem to be designed again with the goal of achieving certainty: reducing risks (Burrell & Fourcade, 2021), pursuing safety (Aloisi & De Stefano, 2020) and improving the efficiency of everyday micro-tasks.

## **Engagement, Surveillance, and Wellness: The Ambient Politics of Quiet Quitting**

**Brendan Christopher Smith**

University of Toronto, Canada

Since the beginning of the COVID-19 pandemic and the rise of remote working, 'quiet quitting' has risen to prominence as a term that refers to a growing tendency for remote workers to distance their personal lives from their work lives, and minimize efforts to meet the expectations of their employment. At the same time, AI for monitoring workers and modulating their engagement at work has grown and developed as a technological cure to this pathologized condition. This paper follows Angela Xiao Wu's work related to the ambient politics of affective computing, which refers to a theoretical and methodological lens of analysis that attends to how social actors contest and negotiate over these technologies' deployment. How do these industrial partners identify quiet quitting as a problem, and how do they seek to solve it? What are the experiences of those who have confessed to quiet quitting, and how might these contend or conflict with the framings of employers, developers, business journalists, and industrial relations scholars?

Through a reading of relevant industrial relations literature, business journalism, anonymous worker confessions, and a set of AI developers implementing worker tracking solutions, this paper seeks to delimit how various social actors contest the emotional polysemy of quiet quitting as a technopathology, and the ethics of AI worker tracking solutions. Through an analysis of how the concepts of engagement, surveillance, and wellness become entangled as emotional universalities in this context, this paper aims to help inform future research projects on digital wellbeing in the workplace by means of examining its ambient politics.

## **Bounded well-being: designing algorithmic technologies for workers' well-being in corporate programs**

**Lia Titabeni<sup>1</sup>, Filippo Andrei<sup>2</sup>**

<sup>1</sup>University of Milano Bicocca, Italy; <sup>2</sup>University of Trento, Italy

The article contributes to the critical debate about the linkage between workers' well-being and work digitalisation and is grounded in the results of a qualitative study conducted in a large manufacturing firm. It focuses on the development of an algorithmic technology – a wearable device – for workers' well-being. Through the analytical concepts of 'translation' and 'inscription' taken from Actor-Network Theory, it examines how algorithmic technologies for workers' well-being are designed

in corporate programs. It shows how the end technology is the result of processes of inscription and translation made by the various actors involved in the design phases and embeds a concept of well-being that has been termed 'bounded'. The concept of 'bounded well-being' serves to highlight how well-being, when accomplished in an organisational context, becomes limited by constraints related to, from the one hand, the power relations that are ongoing established between the actors who contribute to the development of a certain well-being idea and channel it into the device; from the other hand, the contextual binds related to how work is organised and structured in a given organisational setting in which a well-being program is designed and then placed.

## Panel 47: Gender, sexuality, and digital media between challenges and reproduction of hegemony

*Time:* Friday, 30/June/2023: 9:00am - 10:30am · *Location:* Aula Unione 1

*Session Chair:* Cosimo Marco Scarcelli

*Session Chair:* Manolo Farci

**Topics:** Embodied identities, genders and interests

**Keywords:** Gender, Sexuality, Digital Media, feminist media studies

The connection between digital technologies, gender and sexuality has a long history and feminist theories of gender and technology have come a long way over the last forty years (Wajcman 2007; Burgess et al. 2016) and it represents a remarkable part of the interesting worlds to come because it is ambivalent from different points of view and because it shows important intertwinings between technology and society.

Indeed, if the approach of the second-wave feminism considered technology mainly as a reproduction of patriarchy, the 1990s scholars started to celebrate digital technologies as liberators for women. This gap between technophobia and technophilia has been filled by the recent feminist, media and STS scholars that produced an important number of studies that, in one hand, are more critical about technoscience and, in the other hand, are aware of its potential to open up new gender dynamics (Mowlabocus 2010; Light, Fletcher, & Adam 2008). Furthermore, the most recent studies focus on the mutual shaping of gender and technology, underlining how neither gender nor technology is taken to be pre-existing, nor is the relationship between them immutable (Van Doorn and Van Zoonen 2008; Krijnen and Van Bauwel 2022).

All these studies show that digital media could reproduce and reinforce the most conventional (and hegemonic) social logic connected to gender and sexuality, favouring some users at the expense of others (young people, women, non-binary people, LGBTQIA+ community, black people, etc.) (eg. Noble 2018), but that they can also help users to perform different gender identities and practices or challenging more conservative visions of gender and sexuality.

With this panel we want to question how gender and sexuality are constructed in media production and consumption identifying dominant ideas and discourses and how symbolic materials are outcomes of social arrangements that legitimize an essential social division. Understanding technology (and in this specific case, digital media) as producing meaning, subjectivity, and agency shaped by power relations and adopting a critical perspective of contemporary digital media, this panel invites scholars to analyse digital media affordances, grammars, platform politics and content, as well as their uses, appropriations and embodiment, in order to make sense of how they are shaping normativity and also challenging traditional gender practices and identities in a challenging and ambivalent world where, in the one hand, an issue connected to gender and sexuality seems to be even more visible compared to the past, but, in the other end, they are continuously under attack.

### How #MeToo and Fourth-Wave Feminism Opened Up New Gender Dynamics in Contemporary Film Narratives: The Case of the Biopic

**Katrijn Bekers**

University of Antwerp, Belgium

Regarding the centrality of hashtags, social media, and the internet, many scholars argue that technology is indispensable to the #MeToo movement and the broader fourth wave of feminism (FWF). My research project argues that another technology is also central to these movements: the digital medium of film. It advances the thesis that films contribute to discourses about #MeToo and FWF and are products of the sociocultural context of these feminist movements. My proposed paper specifically discusses how the underlying narrative structures of many post-#MeToo US biopics (2018-2022) heavily reflect the central notions of #MeToo and FWF.

It is generally agreed that FWF emerged in the 2010s and is characterized by intersectionality, empowerment, agency, collective activism against patriarchal abuses of power, and the use of technology for women to claim their voices. As part of FWF, the #MeToo movement – which emerged in 2017 – is more than a movement against sexual assault alone. Fundamentally, #MeToo is defined by women claiming their voices and agency, and fighting against testimonial, epistemic and hermeneutical injustice through solidarity, empathy, collaboration, and collectivity.

Inspired by a cultural studies approach and using the type 2 genre study method for narrative analysis as outlined by Jane Stokes (2002), I argue that these #MeToo and FWF attributes listed above define the plotlines of many contemporary biopics about women, which strongly differ from the plotlines of the majority of older biopics about women. In most of these older biopics, female protagonists are dominated by a rise-and-fall structure, and notions such as agency, empowerment, and collaboration are completely absent. As such, I demonstrate how a certain strand of contemporary films challenges conservative visions of women, exemplifying how the digital medium of film can display and open up new gender dynamics.

## **Gender wars: Reddit strikes back. Exploring the construction of gender and sexuality within the online masturbation and pornography abstinence subreddit r/NoFap.**

**Chiara Perin**

University of Milan, Italy

The present research explores how the growing practice of abstention from masturbation and pornography, known as NoFap, is constructed and negotiated in (mainly) homosocial Reddit subcultures and what are the meanings attached to it in relation to gender and sexuality. "NoFap" originates in the onomatopoeic slang term "fap" which stands for male masturbation, and it is broadly used to indicate the galaxy of digital spaces in which the practice of abstinence from pornography and masturbation is encouraged as a means to overcome porn addiction, porn overuse and compulsive sexual behavior. The headquarters of NoFap is the r/NoFap channel on Reddit, in which the number of members doubled from 477k in 2020 (Hartmann, 2020) to 1.1m in 2022 (r/NoFap, Dec 2022). The related conversations are dominated by "strongly heterosexual male tenor" tropes (Taylor and Jackson, 2018: 624) such as evolutionary narratives on gender and masculinity where men's sexual entitlement to women is an asset (Meenagh, 2020) and the heteronormative coital an imperative (McPhillips et al., 2001). Studying the meanings attached to the NoFap practice and the related subreddit reveals how powerful technologies are in the relentless process of construction of our identity and sexuality. Therefore, the analysis points to how the technical infrastructures and affordances of the Reddit platform, populated by geek subcultures and STEM interests, contribute to producing normative identities and spreading toxic technocultures rooted in retrograde ideas of gender, sexual identity, sexuality, and race (Massanari, 2015). The research is based on a digital ethnography in the main channel r/NoFap that approaches the field from a reflexive feminist standpoint and shows how conducting an ethnography in digital spaces can be a tricky and messy endeavor (Abidin and De Seta, 2020) because of the complex ecology of the digital, impacted by models, algorithms and metadata (Hine, 2020).

## **Youth and gendered online landscapes -digital ethnography of the ninth graders**

**Sari Tuuva-Hongisto, Kristiina Korjonen-Kuusipuro**

South-Eastern Finland University of Applied Sciences, Finland

For young people, digitalisation and online environments create opportunities in the areas of learning, self-expression, identity, interaction and civic and political participation. At the same time, different social and cultural differences are intertwined with the digital world. In this presentation the representations of gender are examined in digital environments of young people. Although digitalisation create equal opportunities, it also creates gender-specific heteronormative persistences and recurrences.

Our analysis of digital ethnography highlights the strongly stereotypical gendered nature of the digital landscape among young people. We asked the ninth-graders who participated in our study to show us the content they follow on various social media services. Roughly, girls named lifestyle youtubers and makeup videos, while boys named bodybuilding and motorsports. Although the uses of digital media did not bring gendered difference, the content was strongly divided into conventional cultural imaginaries and stereotypes of gender. The "YouTubers" favoured by young people perpetuated gender-related divisions and perceptions, hardly questioning them. Also young people did not challenge the permanence associated with the imagery.

The digital content followed by the ninth graders echoes the postfeminist and toxic technocultural imagery (cf. Massanari 2015;) Digital culture and digital content are produced according to a strong feminine (fashion, makeup, fitness) production or masculine (motoring, bodybuilding, sports) division. Imelda Whelehan (2000) has called the return to stereotypical gender imagery retrosexism, which emphasizes gender differences and reinforce standards of cis sexuality.

The analysis is based on Capturing Digital Social Inequality – Young Digi-Native's Asymmetrical Agencies Within Socio-Technical Imperatives and Imaginaries (DEQUAL) – research project and both the qualitative and quantitative data collected in two phases in 2021 and 2022 with ninth graders in Finland. Quantitative material consists online questionnaire that collected a total of 418 respondents and qualitative material with 28 interviewees and digital ethnography at Instagram and Youtube.

## **Factors Influencing the Use of Mobile Applications and Services in the Context of Sexual Health**

**Katarzyna Wac<sup>1</sup>, Jessica Pidoux<sup>2</sup>**

<sup>1</sup>Universite de Geneve, Switzerland; <sup>2</sup>Sciences Po, Paris, France and PersonalData.IO, Geneva, Switzerland

Increasingly, we use mobile applications and services and personal wearable technologies in our daily life activities to support our needs for information, communication, and leisure. However, our understanding of a mobile user's experience and the factors influencing it in the context of use for sexual health is limited.

This study aimed to derive and improve the understanding of the users' experience of mobile applications and services used for sexual health in users' natural environments and different daily life contexts. We also aim to report and reason upon the identified technology-related and human factors influencing the acceptance and use of these applications and services.

We conducted a small-scale real-world human subject observational study in which we collected self-reports and wearable datasets from healthy adult participants.

We identified a nine factors influencing the acceptance and use of these applications and services in the context of sexual health: User's Identity and Lifestyle Choices, Smartphone and Wearable Features, Willingness to Share Data With Others, User's Routines, Application Interface's Design, Application Performance, Smartphone and Wearable Battery, Apps and Data Connectivity Cost, and finally Smartphone Apps and Wearable Accuracy. We translate these into the design implications for future mobile applications and services and personal wearable technologies in the context of use for sexual health. We report on usability and technology-related implementation aspects based on the participants' experience to guide the design and use of mobile applications and services, on the one hand, enabling experts in sexology better understanding of sexual health through technologies, and, on the other hand, enabling evidence-based support for sexual health in populations at large.

### **“Women as an island”: Becoming a career girl on platforms in China**

**June Wang**

City University of Hong Kong, Hong Kong S.A.R. (China)

The figure of female content creators soared constantly over the past decade across the major video-sharing platforms in China. Statistics on female creators seem to validate the thesis that, the platforms of new media are friendly to women in their career-building, freeing women from many constraints. With the popularity of 'powerful girls' on platforms, the post-feminist discourse is, as argued by Gills, a critical object of study, a 'discourse that has been created, expressed and circulated', frequently through mainstream media.

This study focuses on female video creators on Chinese platforms, particularly Tik Tok and Bilibili, who are in a purported transformation from traditional women to creative subjects. I borrow Banet-Weiser's insights on the economy of visibility and Bratton's concept of the interface to interrogate the ambivalence of popularity-conditioned visibility and individual entrepreneurialism in the practices of becoming a powerful career girl on platforms. Whilst post-feminism culture advocates individual responsibility and individual career-making, platforms, nevertheless, requests intensive and extensive networking of female creators to build up their fan community and boost up and sustain their visibility. On the one hand, female content producers muddle through the individualist image production of independent girls and community-making for a high luminosity of their own. On the other hand, networking among themselves might provide hope for solidarity through the embodiment of a value chain, against the pressure from the platforms with their Algorithm of sorting, classifying, and ranking. No matter what, the ephemeral time of value creation requires constant inputs for all these kinds of labourial behaviours (Terranova, 2004).

## Panel 19: Imaginary organisations for reinvented professions. Technological expectations and the construction of the world.

*Time:* Friday, 30/June/2023: 9:00am - 10:30am · *Location:* Aula Unione 2

*Session Chair:* Enrico Maria Piras

*Session Chair:* Roberto Lusardi

**Topics:** Technoscientific promises, imaginaries and expectations

**Keywords:** Organization, Professions, Innovation, Imaginaries, Scenarios

Social studies of science and technology have a longstanding interest in Expectation Studies since the pioneering and (now) classic reflections on the mutual shaping of social and technology order (Bijker & Law 1994). Anticipations are crucial in understanding sociotechnical change given their role in every stage of the process and they have a generative role in securing funding, ensuring coordination of groups of actors and across time (vertical and temporal coordination) (Borup et al. 2006). From use cases crafted to guide designers in the development to the definition of pilot implementation settings, yet-to-be-created artifacts are narratively artefacts are narratively placed in scenarios whose realisation is the first moment in which heterogeneous engineering is practised. In this respect, expectations inscribed in use cases participate in users' configurations just as scripts embodied in the technical artefact (Grint & Woolgar 2013). Expectations regarding the reconfiguration of organisational and professional practices can be constructed in a rigorous and formalised manner. They can follow the detailed analysis of the context or even with the full involvement of future users, as in the traditions of Computer Supported Cooperative Work or Participatory Design. Or they can or simply be sketched to justify the new artifact and attract potential investors.

This panel intends to propose a reflection on a specific dimension of expectations focussing on those relating to new organisational configurations and new ways of interpreting professional roles. While imaginary organisations for reinvented professions can be created with the sole purpose to provide a working scenario for developers, they are part of a transformative-normative device that aims to shape new arrangements by proposing an ethos to which actors should conform. Scenarios illustrate the conditions under which technologies can exist, showing how organisations and practitioners must reconfigure themselves and anticipating who should be blamed if they fail. In this respect, organisational configurations and professions are both the precondition and the outcome of the introduction of technical innovations.

The panel aims at gathering and promoting confrontation between scholars working at the intersection of STS, organization and profession studies and design. Even if to the trained eyes of scholars from such traditions such imaginary organizations and reinvented professions may appear at times naïve if not completely unrealistic, we would like to devote our attention to their analysis to investigate the implicit assumption they are based on and their word-making role in the process of innovation.

We invite contributions to explore how technoscientific promises create imaginary organizations and professions and how such scenarios are created, contested, and enacted at all stages of innovation.

Bijker, W. E., & Law, J. (Eds.). (1994). *Shaping technology/building society: Studies in sociotechnical change*. MIT press.

Borup, M., Brown, N., Konrad, K., & Van Lente, H. (2006). The sociology of expectations in science and technology. *Technology analysis & strategic management*, 18(3-4), 285-298.

Grint, K., & Woolgar, S. (2013). *The machine at work: Technology, work and organization*. John Wiley & Sons.

### Future Work of Software Developers with AI: Imaginaries Through Value-Based Cards

**Migle Bareikyte, Marcus Burkhardt, Shadan Sadeghian**

University of Siegen, Germany

AI today is widely seen as the main driver of technological innovation that is expected to displace or even supersede human work in the near future. While this development is regarded as a beneficial increase in efficiency by many experts, others warn about the societal and individual consequences. The design of future human-AI-relations needs to acknowledge and negotiate the tensions between the goals of technological performance, individual satisfaction and accountability.

Based on the intuition that there cannot be a universal solution to this tension, we conducted a workshop with experts from journalism, design, automotive engineering, business and flight control to share their experiences and future imaginaries of AI. Using workshop results as material and inspiration, in 2022-2023 we collaboratively developed an experimental toolkit – a value-based card deck that allows its users to share diverse narratives around human-AI relations. This toolkit thereby serves as a method to explore potential human-AI-cooperation imaginaries in different contexts.

Using this toolkit, in the upcoming months we plan to empirically focus on one key stakeholder group in developing AI systems: European software developers, who develop algorithmic systems at their work. STS research has analysed socio-technical imaginaries of AI with a qualitative-empirical focus on AI ethics, effects on human work or data activism. We focus on the fact that AI systems are being developed by software developers and that this may have an impact also on their future

working practices. However, there is a lack of specifically situated exploration of how the very developers of algorithmic systems in Europe imagine their relations to AI systems in their future work practices. In our talk, we will present our interdisciplinary research in-progress: explorative workshops, the experimental toolkit, and its future application in researching situated AI imaginaries among European software developers.

### **Reconfiguring professional roles and practices in healthcare: the case of AI and metaverse**

**Micol Bronzini, Elena Spina, Flavia Atzori**

Marche Polytechnic University, Italy

How expectations and promises shape technological change and bring into being new artifacts and knowledge (Pollock, Williams 2010) has been widely investigated (Borup et al. 2006; Oudshoorn 2011), while less attention has been paid hitherto to their performative role (Michael 2000) in enacting organizational and professional change. Our contribution critically reflects on this issue focusing on the expectations surrounding AI and the metaverse in healthcare. Echoing Oudshoorn's (2011) questions (originally concerning telemedicine), we aim to understand the scenario envisaged, and how it reconfigures professional roles and boundaries (e.g., which roles are delegated to technologies), care practices, and norms of care within (still imaginary) organizations to come. The scenario built around AI allows reasoning on the reconfiguration of medical professionalism, bringing to light potential resistance among healthcare personnel worried by the unprecedented challenge they seem to rise to the core of professionalism, that is professional autonomy and ethics. On the other hand, the metaverse is an interesting case to focus on how technoscientific promises create imaginary organizations and organizational processes (e.g. metaverse hospital, training, etc.). In both cases, we are also interested in highlighting who and what is missing in these expectations and whether they are fostered in some fields of healthcare more than in others. We analyze promises, expectations, and worries as they are emerging in the Italian case, by looking at institutional documents (both ministerial and/or those of professional associations and unions), conferences on these issues (limited to the information available on the web) and the articles published in two popular Italian generalist healthcare journals (Quotidiano Sanità and Sole 24 ore Sanità) in 2022.

### **Rupturing Research: shaping the research landscape in Ireland after the 2008 financial crash**

**Kalpana Shankar**

University College Dublin, Ireland

Even as scientific research has addressed the pandemic at unprecedented pace, the pandemic has "ruptured research" itself. Researchers, governments, universities, research funders, scholarly/professional societies, and publishers continue to struggle with how to acknowledge the effect of the pandemic in their policies and practices.

However, the situation is not new. Pandemics, wars, and economic downturns have shaped the trajectories of national and international research infrastructures and ecosystems. In 2022, funding agencies and research institutions in many countries supported researchers fleeing the war in Ukraine with resources for them to continue their work, but we may ask why researchers fleeing other wars have not been afforded similar status. This inequality too is not new; the 1930s and 1940s saw some persecuted scholars be given homes in new countries, with profound effects for science policy (Fortun and Schweber, 1993).

How do research and innovation policy and governance create and shape our collective vision for the future and how we 'represent and gather knowledge about the world' (Wittrock, 2021). And what are the impacts on individual scholars whose careers are influenced and effected by such decisions? In this paper, I draw on the sociology of expectations to examine how the 2008 economic crash reshaped the Irish research landscape towards digitalisation and valorisation of the private sector. Drawing on documents from funding bodies, scholarly societies, science media, and research performing organizations, I examine how actors reacted to and in some situations took advantage of the neoliberal austerity resulting from the downturn (Mercille and Murphy 2013) to bring their preferred future into being.

### **The making of the Emergency Physicians and Nurses as researchers.**

**Enrico Maria Piras**

Fondazione Bruno Kessler, Italy

The introduction of ICT tools in medicine has been accompanied by promises of efficiency in processes and greater accuracy in care. The application of standardised procedures for coding patient data coupled with their availability in electronic format has also led to speculation that data can be used for research. Despite the pervasiveness of Electronic Health Records (EHR) in clinical practice, the reality of medical research, however, is still tied to ad hoc procedures such as clinical trials rather than the secondary use of collected data.

The possibility of doing research using EHR data has proved almost utopian in the field of emergency medicine where

emergency conditions have historically made it complicated to adopt uniform information management standards and are mostly confined to large academic centres, with research-dedicated organisations and teams.

This paper presents a study conducted as part of an ongoing research project that will lead to the introduction of a newly developed EHR for emergency departments to foster widespread clinical research activities by standardising data entry procedures and analysing unstructured information using artificial intelligence tools.

The research focuses on two dimensions. The first is the narrative construction of two actors, the emergency physicians and nurses, by the computer scientists as it emerges from the project proposal and project meetings. This representation proposes a redefinition of professional profiles by attributing a trait that is absent today, that of the researchers, and a willingness to change their organisational practices accordingly.

The second dimension analysed is the acted practices and professional representations of emergency physicians and nurses as these are captured through an organisational ethnography conducted in some Emergency Departments in northern Italy.

The third dimension of interest is the first outcomes of the system requirements analysis phase in which the inscriptions of the new professional role in the technical artefact can be glimpsed.



## Panel 48: STS in Italy before STSItalia

*Time:* Friday, 30/June/2023: 9:00am - 10:30am · *Location:* Aula Unione 3

*Session Chair:* Gerardo Ienna

*Session Chair:* Alvisè Mattozzi

Discussant: Ginevra Sanvitale

**Topics:** Sociomaterialities of conflict and peace; Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Ethics, innovation and responsibility in technoscience; The value of science, technology, innovation and research practices; Building alliances in public participation and engagement

**Keywords:** History of STS, Italy, movements, Marxism, sixties and seventies

Italy has gone through various interesting times. Among them, one of the most relevant has been the season of struggles, contestations and reforms that occurred between the 1960s and the 1970s ('68, *autunno caldo*, '77). During such season, a Marxism inspired reflection about the relations among science, technology and society emerged, together with alternative ways of engaging in such relations. At the time, questioning, reframing and experimenting with the relations among science, technology and society regarded, among others,

- the social and political responsibility of physicists
- the role of public and occupational health, life sciences, environmentalism in industrial conflicts, a battle that anticipates more acknowledged lay-experts involvement in health research and policies,
- the impact of the emergence of computer science in advanced capitalist societies (e.g., division and organization of labor; uses in health care; impact on scientific production; surveillance, etc.)
- various forms of citizen re-appropriation of technology (e.g., "radio libere", etc.) that may be considered precursors of various groups that promote innovation from below studied today by STS scholars.

These reflections and engagements were, of course, not an exception. For instance, during the same years Science for the People in the US, the British Society for Social Responsibility in Science and the Radical Science Journal in Great Britain, as well as initiatives connected to the idea of the "Critique des sciences" in France, were developing similar practices of reflection and engagement.

However, whereas the relevant role played by social movements in US, Great Britain and France has been investigated in order to understand their contribution to the genesis of STS and similar fields of research, the role of Italian movements, groups, organizations and initiatives has not been considered in connection with STS.

Though there have been contacts between specific Italian groups and initiatives and those of other countries more directly related to the birth of STS, there is no a direct connection between what happened in Italy and the development of STS. Thus, the analysis of what happened in Italy in the 1960s and 1970s in the field of science, technology and society still remains not only largely unexplored, but also completely removed from the narratives of the STS field, in Italy and, of course, elsewhere.

However, we deem that the Italian way of questioning, reframing and experimenting with the relations among science, technology and society has original aspects that deserve to be explored and put in tension with the development of STS and with the present STS knowledge and researches, thus remediating a situation characterized by an almost neglect.

This call asks for papers of historical and sociological nature, as well as for epistemological-methodological reflections about these almost forgotten paths (in Italy or elsewhere), with the threefold goal of 1) reconstructing a narrative of STS history that takes into account the mentioned marginalized threads, 2) understanding the reasons of the neglect these threads have undergone, 3) consider what can be learned from those experiences for interesting worlds to come.

### **The work-technology nexus and struggles against noxiousness in Italy's Long 1968: The case of workerism in Porto Marghera**

**Lorenzo Feltrin**

University of Birmingham, United Kingdom

This article traces the trajectory of theory and praxis around nocività or noxiousness – i.e., health damage and environmental degradation – drawn by the workerist group rooted in the petrochemical complex of Porto Marghera, Venice. While Porto Marghera was an important setting for the early activism of influential theorists such as Massimo Cacciari, Mariarosa Dalla Costa, and Antonio Negri, the theories produced by the workers themselves have been largely forgotten. Yet, this experience was remarkable because it involved workers employed by polluting industries denouncing in words and actions the environmental degradation caused by their companies from as early as 1968, when the workerists had a determining influence in the local factories. The Porto Marghera struggles against noxiousness contradict the widespread belief that what is today known as working-class environmentalism did not have much significance in the labour unrest of Italy's Long 1968. The Porto Marghera group's original contribution was based on the thesis of the inherent noxiousness of capitalist work and

an antagonistic-transformative approach to capitalist technology. This led to the proposal of a counterpower able to determine “what, how, and how much to produce” on the basis of common needs encompassing the environment, pointing to the utopian prospect of struggling for a different, anti-capitalist technology, compatible with the sustainable reproduction of life on the planet.

### **“The correct relationship between workers and technicians”: working-class science and the factory council of Castellanza**

**Sara Meloni**

University of Pennsylvania, United States of America

This paper traces the theory and practice of *scienza operaia* (working-class science) elaborated by the workers of the Group for Environmental Hygiene and Prevention of the Factory Council of Castellanza during the 1970s, and discusses similarities and differences with contemporary STS debates on science and democracy. While recent scholarship has focused on the fundamental role played by the Castellanza group in the struggle against industrial noxiousness (*nocività*), this paper specifically examines its extensive contribution to the debate on the neutrality of science. On the pages of the science magazine *Sapere*, at scientific conferences, and in the movement *Medicina Democratica*, the group offered an incisive critique of the relationship between science and capitalism, proposing an alternative model of doing science in the service of the working-class. According to the Castellanza group, this meant: establishing non-hierarchical and non-subordinated collaborations with physicians, epidemiologists, engineers, and other so called “technicians” (or experts); re-appropriating knowledge of productive processes and health risks; and designing alternative technological futures (the problem of what and how to produce). Even though the framework of class has been (and is) rarely used by STS scholars, the paper argues that the concept of *scienza operaia* anticipated several debates in STS, such as the ones on knowledge co-production, citizen science, and undone science. Finally, the paper reflects on the connections between STS work on institutional controversy studies and the changes in forms of political conflict occurred during the 1980s and 1990s.

### **The social critique of science in Italy and the rise of counterexpertise during the 1970s "nuclear debate"**

**Davide Orsini**

Rachel Carson Center for Environment and Society - LMU Munich, Germany

One main stream of Italian environmentalism in the 1970s emerged during the heated debate concerning the Piano Energetico Nazionale (PEN) of the Italian government. The plan, elaborated after the 1973 Oil Crisis, envisioned the construction of 20 new nuclear power stations. Local communities interested by nuclear plant siting decisions opposed the PEN vigorously with the help of young experts (physicists, geologists, nuclear engineers, etc) and emerging movements and associations like Friends of the Earth and Lega per l'Ambiente. In this paper I argue that this large anti-nuclear front was not just the result of the spread of political ecological approaches coming from the US; instead it was also the outcome of a longer reflection (especially on the Left) about the political implications and social responsibility of technoscience in Italy. In particular, three main themes about "la politica della scienza" emerged since at least the mid-1960s: 1) The role of the State in financing and promoting technoscience as an instrument of social progress and emancipation; 2) The contested neutrality of science and its entanglements with the military-industrial complex; 3) The role of experts, public participation in technoscience, and the relationship between science and democracy. These (now) classic STS themes, though, need to be historically contextualized. As Giuliano Pancaldi (1980) already argued, early Italian debates can be seen as precursive of the critical social reflections of STS scholarship, but I argue that it would be a mistake to see them only as intellectual endeavors and not also as manifestations of a broader democratic critique that invested all dimensions of Italian society. In my analysis I will offer concrete examples relying on unexplored sources, such as counter-expert debates within the Italian Society of Physics, on Radio Radicale, within CNEN (Comitato Nazionale per l'Energia Nucleare), and within ISS (Istituto Superiore di Sanità).

### **Italian Media Activism in Perspective**

**Alessandra Renzi**

Concordia University, Canada

This paper traces the emergence of media activism and hacktivism in Italy from the free radios (*radio libere*) in the 70s, through *Okkupanet* in 1989 to pirate television, a media sensation in the early 2000s. Building on the histories and theories that informed the hacking and/or appropriation of analogue and early digital technologies by Italian social movements, the paper identifies the sociotechnical processes that ignited highly inventive ways of organizing communities in struggle. In particular Italian social movements were able to draw on scientific paradigms from complexity theory, cybernetics and information theory to shape new activist assemblages and processes of subjectivation. The paper attends to the technical

infrastructure, as well as to the social and cultural networks that popularized post-Newtonian science, alongside militant research methods and economic analysis developed by post-Marxist *operaismo* and autonomist feminism. The conclusions of this study build on the philosophy of science of Gilbert Simondon, Isabelle Stengers and feminist technoscience to make sense of the entanglements of technology and sociality in Italian autonomist movements. At the same time, it proposes a theory for militancy that harnesses practices of hacking and appropriation as effective modes of political subjectivation, and hence, struggle.

## Panel 10: Games, experiments and redesign – Testing STS multimodal approaches

*Time:* Friday, 30/June/2023: 9:00am - 10:30am · *Location:* Sala Rossa

*Session Chair:* Lorenzo Olivieri

*Session Chair:* Annalisa Pelizza

*Session Chair:* Claudio Coletta

**The panel is conceived as a workshop engaging the audience with games, experiments and interventions. In order to be able to participate to the performance *Radio Ballet*, please bring along headphones and a QR-code-ready-device.**

**Topics:** Knowledge co-creation, citizens science, co-design processes, material publics and grassroots innovation; Methodological challenges in a more-than-human world; Building alliances in public participation and engagement

**Keywords:** Interventions, experiments, games, performativity

Following Law's call (2004) to develop new methods for addressing the messiness of social science, STS scholarship has explored modalities of research which could complement more traditional paradigms, practices and dissemination of knowledge production. Inventive, experimenting and playful methods have been adopted to explore new, alternative configurations of socio-technical worlds and imaginaries (Lee Downey & Zuiderent Jerak 2021, Collins et al 2017, Fariás & Criado 2017). These methods include, among others, art, design, interventions, and games. Overall, these approaches emphasize the heuristic value of creativity and experimentation, of material engagement and performativity (Marres, Guggenheim and Wilkie 2018). By creating temporally and spatially circumscribed settings, these methods allow imagining multiple scenarios and envisioning possible futures. Within these settings, researchers and artists, designers and citizens are simultaneously the agents and the interpreters, leading to a progressive collapse of the distinction between representation and experimentation, between knowledge-making and world-making. Consequently, these approaches also challenge and problematize a linear model of knowledge production, whereby the collection of data, the production of knowledge and the 'application' of such knowledge to societal issues rigorously follow each other (Zuiderent-Jerak 2016). Lastly, due to their highly participative and engaging nature, multimodal approaches have the potential to unleash new ethical and reflexivity issues (Lenette 2019). How can these methods allow us to learn about more-than-human interests and perspectives? To what extent multimodal approaches can provide us with experimental ways for understanding and thinking about heterogenous networks of humans and non-humans? Drawing upon these considerations, this panel invites scholars, artists and designers to test their games, interventions or performances. Unlike traditional panels, contributors are expected to engage with the audience according to the nature of their works.

Contributions are expected to address, but are not limited to:

- Ecological transitions
- Migrations and migration governance
- Health practices and infrastructures
- Urban imaginaries
- Ethics and responsibility in digital environments

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#### **Diego Alatorre Guzmán**

CIDI FA UNAM + Universidade de Coimbra

This contribution aims to share the process, outcomes, reflection and philosophy behind the Futuroscopio, a playful didactic material to facilitate futures' exploration. It is inspired by the realization that prognosis is not something natural to everybody and most people would recall their past when asked about the future (Dunugan, 2015). What happens is that most people remember what they previously heard about their future and even if it is against, once we acknowledge a future, unconsciously we will walk towards it. The problem with that is that most mainstream future imaginaries tend to be antisocial, underestimate the power of collaboration and limit human transformative potential by trusting corporate technology as the only means for utopia.

The Futuroscopio objective is to sensitize players to think about their own future, use their same perceptions to criticize and enable alternative futures. Inspired by their own fears and expectations, the design of this game reflects a participative and engaging process exploring games as means to democratize creativity; by looking between, across, and beyond conventional media, this experience is an evidence of the power of collective imagination to outperform mainstream channels and commercial technology, as an authentic appreciation of shared microtendencies.

From a didactical perspective, this experience entails a deep dive into Play Pedagogy, as a wholesome and collective process, nourished from a wide range of talents, modes of communication and disciplines that allows to explore and overcome

complex dilemmas, such as the balance between game and play, art and science or fun and work. Our conclusion highlights what Simon Nicholson (1972) already knew: “education is recreation”.

### **My documents, take care - Testing an ethnographic device**

**Lorenzo Olivieri**

University of Bologna, Italy

My contribution will invite the audience of the panel to play the game *My documents, take care*. *My documents, take care* is a collaborative, role-playing game which simulates some of the knowledge asymmetries, power relations and temporal dynamics shaping migration control. At the beginning of the game, players receive a “narrative identity card” describing the migration trajectory of one person and they are told that a “document” is needed if they want to legally remain in Italy. To obtain the document, players must submit an application form containing information about their characters. During the game, players design their own application form by freely choosing and introducing categories and attributes capturing what they consider salient elements of their fictional characters’ life.

The game was designed as an ethnographic device through which eliciting migrants’ memories and experiences with the data infrastructures for migration management. Moreover, drawing on participatory design, design justice and STS Making and Doing, the game was also conceived as an explorative and experimental tool for involving migrants in the re-design of the categories used in the administrative procedures to which they are subjected during their migration journey.

However, the game proved to be a productive ethnographic device even when played by other actors (scholars, students, activists). It allowed to reveal their knowledge and familiarity with the issues and dynamics that are re-enacted by the game as well as some of the tacit, implicit biases and assumptions shaping interactions with the “bureaucratic machine”.

### **Radio Ballet - An immersive audio performance on more-than-human mobility transformations and justice**

**Johanna Hopp, Manuel Jung**

TU Munich, Germany

Promising to induce socio-technical change, urban mobility experimentation and living labs create novel configurations of more-than-human infrastructures, mobility, design and technologies. STS research has illustrated how these experiments test particularly the social aspects of urban imaginaries (Marres and Stark 2020), but questions of justice that are imbued in this process often remain unaddressed. At the same time, the underlying rationale of testing and scaling successful mobility solutions adheres to a linear logic of transformation and innovation, creating blind spots on the often messy and complex ways humans and more-than-humans co-shape transformations. Interventionist STS research allows to challenge this rationale. Starting from the notion that transformative actions emerge from affective entanglements between heterogenous human and more-than-human bodies (Barua and Jellis 2018), we developed a collective audio-mediated performance within our research project on experimentation for just futures of mobility.

The piece is inspired by *radio ballet* – a type of immersive art performance where the audience turns into actors, engaging in corporeal interactions and creative appropriation of their environment. Once the participants put on their headphones, the performance is choreographed by atmospheric soundscapes and voices along questions such as: *What moves, when you rest? With what rhythm does today’s traffic rhyme? What fills a pigeon’s lungs when she inhales? Who can take the first step?* Participants are invited to *move, feel* and *imagine* urban futures in the light of mobilities and justice. The performance serves as creative entry point for investigating the following research questions: What knowledges about what future urban worlds emerge through these affective encounters induced by an experimental collective performance? Which role can such engaging, *moving* formats play for facilitating reflection on justice within urban mobility experiments? And – in how far can such approaches open up worlds of urban mobility transformations that transcend linear scaling logics of transformation?

### **Teaching Architecture - Learning Architecture**

**Björn Lundell**

Folkuniversitetet - Arkitekturskolan STHLM, Sweden

In this lecture I will speak about how I introduce and teach architecture preparing my students for higher studies and a professional life as architects. In the fields of architecture and urban planning new technologies in production methods and AI will change the construction industri but also the architects processes. Time consuming production of drawings will be made by AI. Embracing this future and its possibilities, I suggest a renaissance for the role of the architect as an artistic leader, educated in art, craft, poetry and philosophy beside the education in architecture, history of architecture and a palette of creative computer programs.

I'm teaching methods to sharpen senses and mind learning to experiencing architecture as well as working with ideas and concepts in individual and collective creative processes to generate architecture. This is important when techniques like 3d-printing challenges the idea of mass production of identical objects, for a future build by creativity and diversity in design and architecture. I ask myself how to prepare students for a future demanding a non linear creativity in a world of performative design processes unifying experiments and production. I will try to answer these questions. Likewise I intend to open up for a discussion on that topic. I believe social skills and language built upon experience of cooperating in creative processes will be of growing importance.

In the lecture I will speak about performative learning in the field of architecture but also invite the audience to take part in an interactive play to experience some of the methods I use in my teaching. In companion with a slideshow of my students work I will speak about structures and methods I use forming an experimental and performative education with ambition to learn the students to evolve into creative leaders of the future.