

c o n f e r e n c e

# **FEM**MEETING:

WOMEN IN ART,  
SCIENCE AND TECHNOLOGY **2022**

**BOOK OF ABSTRACTS**

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# PREFACE

As a highly international community, the program of **FEMeeting 2022 “FEMeeting: Women in Art, Science and Technology”** includes 90 presentations by 95 speakers from 23 countries as well as other activities to encourage communication among its participants. Taking place from 12 to 17 September 2022, the third conference has its kick-off in Lisbon, at the Institute of Molecular Medicine, and continues its program in the city of Évora, hosted in the Convento de São Bento de Castris and the Fundação Eugénio de Almeida.

FEMeeting is driven by the desire to develop and promote a more direct collaboration at the level of artistic and research projects between all individuals who identify with the female gender. The conference aims to disseminate projects being undertaken by women worldwide and, as a result, to contribute to the development of art-science research methodologies and to the growth of cooperation strategies that can increase knowledge sharing and bring communities closer. To facilitate personal networking, most of the program is organized as closed sessions, only to the conference speakers, but the program also includes, in the first day in Lisbon and the last day in Évora, two public sessions that aim to encourage participation and attendance among all individuals interested in the topics of the conference independently of their gender.

Launched in 2017, the idea behind the conference “FEMeeting: Women in Art, Science and Technology” was orchestrated by the Portuguese artist Marta de Menezes and scholar Dalila Honorato. Alike the two first FEMeetings, FEMeeting 2022 is co-organized in Portugal by FEMeeting, Cultivamos Cultura and Direcção Regional de Cultura do Alentejo, this year with the support of Fundação Eugénio de Almeida (PT) and Intellect (UK) and in partnership with Ionian University (GR), Rensselaer Polytechnic Institute (US), University of California Los Angeles (US), Aalto University (FI), Universidade Nacional Autónoma do México (MX), Windsor University (CA), University of Western Australia (AU), I3S – Institute of Health Innovation and Research (PT), Science for Change (ES) and Leonardo/Olats (FR).

This time the organization of FEMeeting 2022 aims the debut of part of the conference proceedings in the peer-reviewed journal *Technoetic Arts* and is integrating its open event in Lisbon in the LASER series, with the support of Leonardo/ISAST and as part of the project Blend, a collaboration in the field of art, science and medicine between Faculty of Medicine of the University of Lisbon, Instituto de Medicina Molecular João Lobo Antunes and Centro Hospitalar Universitário Lisboa Norte – Hospital de Santa Maria with Ectopia Experimental Art Laboratory.

**ABSTRACTS**

**FEMMEETING**

## Remediation, Reactivation and Renactment as Feminist Methods for Collaborative Research-Art-Creation

For the past decade or so, an interest for regarding art and creative practices as valid forms of research and knowledge production in academia have emerged worldwide. For example, in Canada research-creation has been progressively adopted as an interdisciplinary field and funding category. Its adoption intersects with the growing push for critical making practices, STEM curriculum, and technological innovation as well as the adoption of neoliberal economics that transformed the ethos and funding models of universities. However, this turn is also closely connected and informed by the emergence of critical discourses and practices including feminism(s)– within and outside academia in the Global South and North. In this talk, we locate the feminist collaborative art practices developed in the Critical Media Art Studio (cMAS) within this critical turn. Based in the School of Interactive Arts and Technology at Simon Fraser University for the past eight years cMAS members and collaborators have developed a series of interactive art projects that investigate and foreground the histories, roles and experiences of women within art, science and technology. Informed by gender theory, cMAS projects interrogate women in its broadest sense, that is not as fixed gender or sexual identity but as a category of analysis with a complex history and part of a heteropatriarchal capitalist system that overvalues masculinity and mobilizes its power by silencing and marginalizing the feminine from any rational discourse or intellectual field. cMAS interactive projects have explored the kitchen as a laboratory and an intergenerational family cooking recipe book to recover the role of women as agents of the Archive; combined analog, digital and artificial intelligence-driven imaging tools with live performance and sound to bring visibility to the work of women artists and explored motherhood as an expanded mode of caring that moves beyond the boundaries of the human into the non-human and the machine. Focusing on a series of collaborative and ongoing projects including *The Real*, *the Virtual and the We*, *Remediating Mama Pina's Cookbook*, *Body as Border* and *Mitochondrial Ontologies Series*, in this talk we retrace the methods used in their production and theorize on the possibilities of remediation, reactivation and reenactment as feminist methods of collaborative research-art creation to bring visibility to women in art, science and technology.

**Aceves, Gabriela**

Gabriela Aceves Sepúlveda is Associate Professor in the School of Interactive Arts and Technology at Simon Fraser University where she directs the interdisciplinary research-creation studio cMAS (criticalMediArtStudio). She is the author of *Women Made Visible: Feminist Art and Media in post-1968 Mexico* (University of Nebraska Press, 2019) awarded the 2020 Book Prize from the Canadian Association for Latin American and Caribbean Studies (CALACS). Her interactive installations exploring the body as archive and site of cultural, gender and biopolitical inscriptions have been exhibited internationally since 1990 and published in *Public Journal*, *Feminist Media Histories Journal*, *Feral Feminisms* and *Mapping Meaning Art Journal*.

**Zinovieff, Freya**

Freya Zinovieff is a PhD candidate at the School of Interactive Arts and Technology and member of cMAS, directed by Dr. Gabriela Aceves Sepúlveda. She holds an MFA from the University of New South Wales and a first-class honors degree from Cambridge School of Art at Anglia Ruskin. Her research looks at how sound can mediate relationships to landscapes in the Anthropocene age. She is interested by the potential for digital audio technologies to reimagine the contrary temporal narratives of digital media, deep, and cyclical conceptualizations of time, and how sonic art practices, such as graphic notation and sonic mapping can explore the junctions of human history and geo trauma.

## Ada's Song: Making Machine Learning Processes Visible

In this presentation, I will propose a methodology for rendering real-time machine learning processes audible and visible through the use of musical automata/robotics. This methodology will be illustrated through a project from 2019-2021, *Ada's Song*, a musical composition for mezzo-soprano, ensemble and an interactive Piano Machine system employing AI and ML processes.

This musical tribute to Ada Lovelace was commissioned in 2019 as part of an homage to the mathematician and programmer of the Analytical Machine by the Barbican Centre during their *Life Rewired* series, which presented artistic perspectives on AI. It was premièred by mezzo-soprano Marta Fontanals-Simmons, to whom the work is dedicated, and the Britten Sinfonia, conducted by William Cole.

Ada Lovelace is credited with the first published imaginings of AI applied in the creation of music: she chose composition as an example in which 'mutual fundamental relations could be expressed by those of the abstract science of operations', such that a machine could 'compose elaborate and scientific pieces of music of any degree of complexity or extent.' *Ada's Song* takes inspiration from Ada Lovelace's theories to further investigate the 'complexity or extent' that AI-generated music can attain, and its relationship to human agency and expressivity. It seeks to discover the distinct qualities that may be achieved beyond verisimilitude to human composition, and what music created using AI may be able to tell us about how humans learn to compose, how style is formulated, and the nature of expressivity.

*Ada's Song* explores these questions in AI-Assisted Composition (AIAC) in several steps of its compositional process, as well as in its performance. The first step was to create a score through similarity matching processes based on recordings of existing works – somewhat the musical equivalent of Google's Art and Culture app: these processes yielded not only the notes of the score, but the orchestration of them. There was also a concatenation of text taken from Ada Lovelace's letters which produced the sung text.

*Ada's Song* also employs AI in the performance of the Piano Machine. Designed at Goldsmiths College in collaboration with Konstantin Leonenko in 2017, the Piano Machine plays the strings of the piano directly through mechanical, sustained vibration created by a set of motors and finger-like appendages controlled by microprocessors, thus creating dynamic control of notes over time. While the first version of the Piano Machine allowed a performer to play it directly with the use of a MIDI keyboard, the new version we designed in 2019 for the *Ada Song* project allows for higher-level control involving AI and ML. Although all sound in *Ada's Song* is acoustic – produced traditionally from musical instruments of the ensemble and through physical computing processes by the Piano Machine – the Piano Machine uses AI and ML processes to interpret real-time performance data from an

ensemble and produce acoustic responses from the piano. By manifesting these processes in real time through a physical "machine", they become both more visible and more perceptible as they unfold over time.

### Alessandrini, Patricia

Patricia Alessandrini is a composer/sound artist creating compositions, installations, and performance situations which are most often interactive and theatrical. Through these intermedial formats, she actively engages with the concert music repertoire, and issues of representation, interpretation, perception, and memory. Her works are often collaborative, and engage with social and political issues. Her works have been presented in the Americas, Asia, Australia, and over 15 European countries. She studied composition and electronics at the Conservatorio G.B. Martini di Bologna, Conservatoire National de Strasbourg and IRCAM (Paris), and holds two PhDs, from Princeton University and the Sonic Arts Research Centre (SARC), Queens University Belfast respectively. She has taught alto perfezionamento of Computer Assisted Composition at the Scuola superiore of the Accademia Musicale Pescarese, Composition with Technology at Bangor University, as a Lecturer in Sonic Arts at Goldsmiths, University of London, and is currently Assistant Professor of Composition at Stanford University in 2018, where she also performs research at the Center for Computer Research in Music and Acoustics (CCRMA), where she performs research on embodied interaction and immersive audiovisual experience, including instrument design for inclusive performance. She serves on the international board of Share Music & Performing Arts. Her works are published by Babelscores, and may be consulted at [patriciaalessandrini.com](http://patriciaalessandrini.com)

## Oranssi Lumi: connecting (citizen) science and art to enact change

Mineral dust can travel thousands of kilometers up in the atmosphere from the Saharan desert all the way to Finland, landing through snowfall and freezing rain. Inspired by events like the one that occurred in Finland on 23 February 2021, a project is being developed in 2022 and its outcome is expected to provide useful knowledge from the research point of view in the field of dust transport and climate change as well as a foundation for citizen science and citizen arts campaigns in future dust deposition events. Citizen science and citizen arts educational material: learning through atmospheric events, is the first Finnish Meteorological Institute led project, funded by the Kone Foundation aiming at bringing science and arts together in the form of educational materials for different educational levels around the topic of desert dust transportation and deposition, and of course, climate. The focus of this project is in an exploratory approach carried out by a multidisciplinary team of women from diverse fields and backgrounds. The outcome is Oranssi Lumi (name deriving from the orange snow phenomenon), an initiative created within the project, in which the core team, in contact with other researchers and educational professionals, ideates and designs informative, inspiring educational materials through a framework of steps: from sample collecting methodologies research, co-creation workshops for the development of the education materials, a strong visual identity aligned with the goals of the project, dissemination of the activities and further ideation on future possibilities in the realm of citizen-driven initiatives. The project aims are varied and try to respond to scientific and societal questions and needs. One of the main goals is to be better prepared for future citizen science campaigns, by disseminating knowledge and clear sample collection guidelines, adapted for different age groups. By having citizens contributing and helping scientists understand climate change and atmospheric processes, we also aim at engaging society in the process of science-making, building trust in scientific institutions, and raising awareness about climate change. This project also focuses on highlighting the human and artistic aspect of natural processes and events therefore connecting with the emotional side of living in a changing world and environment. We look at these challenges through a multidisciplinary, multilingual and multicultural lens, in which science and arts can complement each other, and international audiences can be reached. We truly believe that science and arts are for everybody, regardless of age, gender or background: everyone belongs in the creative process of making science and art. Oranssi Lumi has the potential to establish a set of good practices and methods to address issues within future projects of similar nature and goals.

### Álvarez Piedehierro, Ana

Ana Álvarez Piedehierro (Badajoz, Spain, 1986) is an atmospheric scientist who loves sharing the wonders of science with everybody, especially the little ones. She obtained her PhD in Physics in Spain. Now as a researcher at the Finnish Meteorological Institute she studies the role of aerosols in the making of clouds.

### Montalvão, Ines

Ines Montalvao (PT) is based in Helsinki since the beginning of 2017, where she has worked with concept & experience design in Heureka, the Finnish Science Centre, as a freelancer in international projects with museum exhibitions, and currently as the experience designer responsible for content co-creation in a citizen science and art project at the Finnish Meteorological Institute. With a degree in Biology and a passion for Art, she combines both, exploring cross-disciplinary approaches, storytelling, illustration and innovative ways to create meaningful experiences.

## Gender biases in AI – Representations in cinema

Artificial Intelligence (AI) has always been a contradictory field, baring great opportunities for human kind and with the promise of making life more sophisticated and advanced. However, AI carries significant risks for fundamental human rights, such as gender biases that threaten equality and non-discrimination, affecting women, non-binary persons and the black community.

Gender bias in AI has a technological and societal meaning: in technical terms, it is the effect that deprives a statistical result of representativeness by systematically distorting it due to gender; on the other hand, in societal terms it includes the gender prejudices and stereotypes found in society as expressed in AI applications. Gender biases may also result in gender discrimination, which comprises any situation, in which a person is treated less favorably than another because of their gender, it is therefore any unequal treatment based on gender (sexism). An example of gender bias in AI are the digital assistants, such as Apple's Siri and Amazon's Alexa, because they possess certain features, such as voice, speech, response style, names, and purpose (provision of help and services customized to the user's needs), which reflect gender stereotypes to the detriment of women. Gender biases in AI arise as a result of gender stereotypes already existing in human society, which are embodied into AI. Non-representative data and the under-representation of female and non-binary persons, as well as the natural language used for the training of AI systems (Natural Language Processing - NLP) are important factors contributing to the problem. Also, the feminization of AI, as noticed in digital assistants, androids and AI representations in cinema, creates a distorted image of AI's real nature, contributing to the reinforcement of gender biases. With technological, ethical-societal and feminist references, this paper has the ambition of showcasing the relation of cinema and AI, in an attempt of revealing the way in which AI is depicted based on gender stereotypes and raising awareness on the impact of gender biases in AI. Indeed, cinema has always showed a strong interest in AI, presenting an obvious need of capturing it with anthropomorphic features. One of the most important films in relation to AI is "2001: A space odyssey" by Stanley Kubrick, which is considered to be the most accurate depiction of AI in cinema. There are also films such as "I, Robot" and the "Terminator" series, which fully reflect the terror of a possible machine uprising and the subsequent annihilation of human kind. In these films, AI is presented as either sexless (without any gender characteristics) or having male characteristics, projecting dynamic character, strategic and fighting spirit. However, there are some films, such as "Metropolis" by Fritz Lang, "Her" by Spike Jonze and "Ex Machina" by Alex Garland, in which AI is was obviously based on gender characteristics,

since AI is presented with specific "female" characteristics and from a specific gendered point of view.

### Antonopoulou, Sophia

Sophia Antonopoulou (MSc): Sophia Antonopoulou is an Attorney at Law in Greece focusing on Intellectual Property and Information and Communication Technologies. Sophia's academic research focuses on legal issues in the digital world, cybersecurity and artificial intelligence. After graduating Athens Law School (National and Kapodistrian University of Athens) she accomplished in 2022 a Master of Science (M.Sc.) in Law and Information and Communication Technologies (University of Piraeus). Her thesis is on AI and Gender Biases, focusing on the feminist theory and ethics. Sophia's experience with Athens Digital Arts Festival since 2017 has contributed to developing a strong interest in digital art and how technology, art and gender are intertwined.

### Markellou, Marina

Dr. Marina Markellou (PhD): Dr. Marina Markellou is a Post-Doc Research Scholar at the Ionian University (Greece) and Adj. Lecturer at the Panteion University (Greece). After accomplishing a Master of Laws in Intellectual Property (LLM) on September 2005 in Montpellier of France, she was offered a scholarship by the Greek State to pursue a Ph.D. degree in the field of Copyright law (University of Montpellier/University of Athens-high distinction). Her primary research interests concern intellectual property, law and art, protection of cultural heritage.

## Textile Waste and Recycling: Project A\_WEAR

**Baleia, Ana**

Ana Baleia is a fashion designer and costume designer. Develops projects of clothing, accessories, object design, workshops and creation of clothing for show - theatre, dance, performance.

The huge amount of textile waste produced daily is the socio-environmental problem that gives rise to the A\_WEAR visual arts project. I intend to make an alert, materializing in artistic pieces the way I relate to the problem of tons of discarded clothes. presenting a set of installation / sculpture pieces where the main raw material used is used clothes that were thrown away.

## Prototyping a Body-Controlling Performance for Self-Optimization

**Berkoy, Allison**

ALLISON BERKOY is a Brooklyn based artist. With mixed physical and electronic media, she creates videos, sculptural installations, interactive environments, and performances between humans and machines.

YOU ARE PREPARED is a browser-based interactive performance, unfolding in real-time between a human participant and their computer. Presented as a “one-on-one webinar for self-optimization,” a virtual entity guides participants through an interactive audiovisual presentation on human self-optimization trends using emerging technologies. As the virtual host becomes increasingly demanding, she challenges participants to a series of interactive games and training exercises, berating those participants who do not follow instructions or achieve optimal outcomes. Departing from standard browser-based experiences using a keyboard and mouse, all interaction with YAP involves the body. Participants navigate the experience through speech synthesis as well as with their hands, heads, and torsos; using the body as interface controller while taking commands from the virtual entity. The project uses ml5.js, a machine learning library built on top of TensorFlow.js, enabling skeleton tracking of participants’ bodies through the browser in real-time.

Berkoy will discuss the process in creating and testing YAP, through multiple prototypes and ongoing research. In a remote design process, Berkoy built YAP’s first systems prototypes with her students in the Emerging Media Technology program at New York City College of Technology, City University of New York (CUNY). She will present on the process and outcomes of technical usability testing as well as experiential research exploring the boundaries of HCI etiquette and body control.

## Testosterone project

Observing modern society and its structure, we can make a conclusion that, despite the cultural, social and other revolutions, we still retained the “hormonal” dependence on our “animal” beginnings. We can say that testosterone rules the world. And despite the fact that in today's society there is more gender equality, we are still remain captive to our hormones.

### **Bortsova, Kateryna**

Kateryna Bortsova, a painter and graphic artist who has been creating art for more than 15 years. Kateryna's body of work includes more than a total of 300 works, which are in public and private collections worldwide. She holds both Master of Fine Arts and Bachelor of Graphic Arts degrees. Her works have been showcased in many international exhibitions (Taiwan, Moscow, Munich, Spain, Italy, and the USA etc.). She won a silver medal in the “Realism” category after participating in the “Factory of Visual Art”, New York, USA and the 2015 Emirates Skywards Art of Travel competition in Dubai (UAE).

She is inspired by the concept of human development and self-improvement. In her opinion, she feels that the process of humans constantly learning throughout their lives is very important and is what enables us to reach new heights.

Furthermore, as an artist she feels that if one ceases to develop themselves then they will have nothing more to give their audience through their work.

The central theme of Kateryna's work is human life. She believes that an artist's work reflects their inner emotions and moods and can therefore be completely autobiographical – an inspiration of certain landscapes, journeys or memories they've experienced for example. This is illustrated through the people depicted in Kateryna's paintings who often have features and experiences similar to her.

## Bio Art Near Futures

This presentation will explore the impact and influence of bio art on the curated art and non-art space, and address the ways in which artists create new presentation spaces through the display or performance of embodied biological actions. In a comparative discussion I consider the theories and discourse(s) of bio art to the methods used in collaborative work with non-human collaborators such as living organisms created in a lab environment and performances with species found on our bodies (ie: COVID-19), or with intangible mediums such as embodied ancestral knowledge in Indigenous tattooing. Here, approaching biological futures require that we take a step back to consider bio art outside of a chronological historical order and/or biological process, and instead look to the expansion of our current moment, and the layered human and non-human involvement within that expansion.

Immediately prior to the COVID-19 pandemic, IOTA Institute began research into strategies for curating bio art, and how specialized scientific knowledge is translated for a general art public. Shortly after, arts organizations across Canada and Internationally began reeling with the complex impact of the COVID 19 pandemic on production, live performance, audience engagement, marketing and sales across artistic disciplines. To expand IOTA's research and respond to the present conditions for artistic presentation, IOTA has partnered with INCUBATOR Art Lab in a SSHRC-funded research project investigating curatorial strategies for the virtual presentation of bio art, and communicating liveness virtually. Given that the contemporary art world is moving online, we are asking: how can bioart convey enlivened engagements between artists / audience members / and species found on our bodies, in our homes, outdoors and in laboratories in the virtual sphere? I will share data from our research based on the "Bio Art Hangout Kitchen Series" (2020-2022); a virtual hangout where an invited bio artist or scientist perform an art/sci protocol, performance or show and tell. In this series we have hosted a DNA cocktail demonstration over zoom with Ionat Zurr and Oron Catts, a show and tell tour of Jens Hauser's personal bio art collection, a lab-to-lab tour between INCUBATOR Art Lab and Hackteria, a live streamed bio art card game with Marta de Menezes, and a live tattoo demonstration by Dion Kaszas. Concurrently and in partnership with Indigenous Tattoo artist Dion Kaszas, I am co-curating the upcoming exhibition "True Tribal: Contemporary Expressions of Ancestral Tattoo Practice" at the Museum of Vancouver in 2023. The exhibition looks at the work of contemporary Indigenous tattoo artists reaching back into their ancestral visual lexicon creating contemporary embodied artistic masterpieces on the bodies of their clients, collaborators and community members (Kaszas, 2022). These tattoos use the visual vocabulary of their respective communities but are stretched and modified outside the conventions of traditional size, placement and motifs of their ancestral embodied mark making practices. With permission, I will present research

conducted by Kaszas and shared with me for the curation of this exhibition, which looks to these practices, also from the perspective of the contemporary bio art genre, as a way to question the biology of bodies as art in the gallery or museum space, and to challenge the science and art sector tropes surrounding hierarchical prioritization of all creation.

### Bourgeois, Mireille

Mireille Bourgeois (She/Her) is a white Acadian settler from Wolastoq (New Brunswick, Canada). For over 15 years, Mireille Bourgeois has independently curated and participated in art projects in Switzerland, France, Scotland, India, New York and throughout Canada, as well as published critical writing for Visual Arts News, Creative Times Press, C-Magazine, Canadian Art, and the Canadian Film Institute. Her research explores themes on synesthesia, nonsense, the sublime and stupidity, with research currently underway in the field of BioArt with exhibitions presenting in venues such as Dalhousie University Art Gallery (Nova Scotia), Art Gallery of Nova Scotia, Museum of Civilization (Ottawa), Bitforms (NYC), Haus Für Kunst in URI (Switzerland).

### Shore, Amanda

Amanda Shore is writer and curator based in Halifax and the current (2020) Curatorial Research Assistant and Assistant Manager for IOTA. Her art criticism has been published in Canadian Art, Visual Arts News, and C Magazine, and she is the former coordinator for the SSHRC-funded project "Inuit Futures in Arts Leadership: The Pilimmaksarniq/Pijariuqsarniq Project." She was the Centre for Art Tapes curator-in-residence in 2017, and her curatorial projects include Sound Etiquette (Khyber Centre for the Arts, 2017), Outside the Box 5.0 (Toronto Offsite Design Festival, 2017), and Symphony of Hunger: Digesting Fluxus in Four Movements (A Plus A Gallery, 2015).

## Digital Sensemaking - an artscience exploration of performance into the aesthetics and embodiment of sensemaking in digitization and business informatics

The goal of the DIGI-Sense (Digital Sensemaking) project is twofold: on the one hand, it aims at contributing to theory building around artscience collaborations by exploring aspects that are central to the arts and artistic practice: aesthetics, artistic investigation and sensemaking through art; on the other hand, it aims at contributing to the field of digital humanism by exploring sensemaking (Weick, 1995) and the role of aesthetics in processes of digitalization, especially in the field of communications engineering in business informatics where interaction with tangible interfaces, robotics and digitized processes such as digital twins are developed.

Previously sensemaking has been employed to explain the impact of artscience projects on the processes of artists and scientists in their respective work (Schnugg, 2019), similarly to the effect of arts engagement in other work processes (Barry & Meisiek, 2010). The cases investigated pointed to the specific power of aesthetic experience created through artworks and artistic practices that lead to new insights, e.g. on viewing and understanding data. In sensemaking theory, the role of aesthetics has barely been researched although materiality and objects (Stigliani & Ravasi, 2012) as well as embodiment (Sandberg & Tsoukas, 2020) have been shown to play a central role in sensemaking processes. Therefore, we realize artscience projects to ask if we can use artscience collaborations to learn about aesthetics in sensemaking and thus also contribute to sensemaking theory.

We chose the case of digitalization of work processes where people are bereft of most aesthetic components that they are used to which often leads to sensebreaking and confusion in the transition phase. Do we need to take aesthetics into account in order to build better processes and a more human-friendly digital world? Can art provide insights that help technicians and engineers to build better processes (as Strati, 2010, suggests)? We approach this question by a series of experiments between performance and the development of cyber-physical-systems, with a focus on digitalization processes that include interactions with tangible elements such as sensors and robots, and digital twins.

The artscience experiments will be realized in three phases. In the first phase, March - May 2022, we work with two performance artists to explore the role of embodiment and movement in the sensemaking process of interacting with different levels of abstraction in a digitized world: the performers who previously have no experience in applying technologies in their performances will explore sensors, tangible elements, robots and digital twins in their work. In the second phase, September 2022 - December 2022, we aim

at building on the insights from phase one and incorporate two more specific aesthetics in the work with another performer: the role of aesthetic dimensions such as rhythms and melodies. This will also dive deeper into embodiment and digital twins. The third phase, scheduled for March 2023 - May 2023 will explore which role the body and movement play in what Weick (2011, p.9) calls "take airy nothing into existence" - the process of grasping a cognitive reasoning to make sense.

### Brill Estrada, Daniela

Daniela Brill Estrada was born in Bogotá, Colombia. Currently, Daniela works as a Ph.D. student on the team of the research project DIGI-Sense, at the Linz Institute of Technology at the JKU, Linz. She finished her Master's degree in Art & Science at the University for Applied Arts Vienna, with her own hypothesis about a new fundamental force in nature written from an artistic perspective. She works in collaboration with artists, researchers, and scientific institutions such as CERN (the CMS experiment) and the ORIGIN network for high-energy physics.

### Schnugg, Claudia

Claudia Schnugg holds a PhD in social and economic sciences with an additional focus on cultural sciences and media arts. Her practice is twofold: she is a scholar researching artscience collaborations, investigating effects and impact on the actors and organizations involved and the relevance of the outcomes; and she is curator of artscience processes, programmes, and exhibitions. Thereby, she is working internationally with industrial, scientific and artistic organizations to realize art-sci-tech projects, such as ESA/ESTEC, Institute of Stem Cells and Epigenetics at Helmholtz Zentrum München, Science Gallery Berlin, Pro Helvetia, SciArt Project at the JRC Ispra, and start-up JECT.AI.

## Living crystals, a matter of language

Brill Estrada, Daniela

We alone can devalue gold  
by not caring  
if it falls or rises  
in the marketplace.  
(...)

Feathers, shells  
and sea-shaped stones  
are all as rare.  
Alice Walker - We alone

I think of the word “alone” in this poem. Using the word “we” already implies that two or more people, organisms, or life forms are acting together. When are we really alone, if we are composed of billions of other organisms, and if we are surrounded by millions of entities and complex structures? I contain multitudes - says Whitman - how can I ever be alone, or act upon only myself? ““We”, a kind of baroque edifice, are built every two decades or so by fused and mutating symbiotic bacteria” (Margulis, 1998) There is no action I can take by myself that does not affect other beings, and this includes linguistic actions.

Language, knowledge, and the way we act around and upon others were (and are), as well as the land, life-forms, and bodies, colonized and mutated by capitalism and patriarchy. What if there is a way of activism, through art, science, and poetry, to fight back and resist? On the drawings, I made while at my artist residency at Cultivamos Cultura, crystals were forming on paper. These crystals behaved similarly as if they were alive, and it was through the words I was using to describe them that I realized it is a matter of language, that made me care for them as if they were living organisms. The crystals moved, they were born, they could breathe, they interacted with the environment, they changed their forms, and they grew. In this non-academic research, I draw parallels between the non-living crystals on my drawings and living matter using metaphors and language. Further on, I extrapolate this to explore in a global way, the way language (and the way it was and still is colonized) has an impact on the way we care for others.

Francia Márquez, a vice-presidential candidate in Colombia, as well as an environmental and feminist activist, suggests not to use the term “minority” when talking about indigenous people, racialized people, impoverished people, and people in the LGBTQ+ community, among others. She calls them the majority. Humans, among all other living and non-living entities, are a clear minority. What would happen and how would our behavior change if we started calling humans the minority among other beings? Returning to Walker's poem, we alone have the power that no other entity has, to restructure (and reinvent) language, and we do so often in art and science research. If gold (and all that gold as a metaphor stands for in a capitalist society) is more valuable than other entities, bacteria, rivers, and animals, or if we turn things around and realize the importance of language, words, and value of every molecule, cell, and ancient thought is up to us.

Daniela Brill Estrada was born in Bogotá, Colombia. Currently, Brill Estrada works as a Ph.D. student on the team of the research project DIGI-Sense, at the Linz Institute of Technology at the JKU, Linz. She finished her Master's degree in Art & Science at the University for Applied Arts Vienna, with her own hypothesis about a new fundamental force in nature written from an artistic perspective. She works in collaboration with artists, researchers, and scientific institutions such as CERN (the CMS experiment) and the ORIGIN network for high-energy physics. Her research approaches knowledge from an in-disciplinary, queer and complex angle. Daniela is also co-organizer of Suratómica, an international, self-organized network of individuals, collectives, and organizations, that opens spaces for creation and experimentation to strengthen reflection on science, society, and alternative forms of organization

## Building a post-pandemic gallery: narratives of mutation and adaptation

Building a post-pandemic gallery: narratives of mutation and adaptation

As mainstream news and popular media lament the consequences of climate change on the species inhabiting planet earth, narratives of survival and adaptation are often suppressed in favor of narratives of loss: we often don't hear about the species whose resilience has allowed them to adapt and survive in polluted and radically transformed environments (e.g., urban animals, marine animals finding shelter in human-produced artifacts, organisms thriving in toxic environments). In addition, great emphasis often lies on the loss of charismatic megafauna and very little attention is dedicated to other less crowd-pleasing or less known organisms (for e.g. lesser-known insects and wild bees, whose work as pollinators easily exceed the one performed by more popular insects such as honeybees).

How could silent stories of loss, survival and adaptation be given attention, accounted for, and narrated? How can prevailing views revolving around human exceptionalism and anthropocentric interpretations – views that establish hierarchies and priorities of what ought to be narrated, or to be preserved, or named etc. – be disrupted? to quote Tsing (2020) “we need new kinds of storytelling ... to tell empirically grounded stories of particular times and places and positions and we need to tell them with some much curiosity and wonder”. Could the arts help find new ways to communicate new narratives across disciplines, as well as across species? My goal with this project is to create a series of interdisciplinary dialogues between artists, scientists and the general public revolving around life as it thrives and survives pollution and climate change. To achieve this dialogue, I invite these individuals to interact with and through a mobile gallery featuring a curated collection of artifacts, scientific specimens, and documentation evoking interdisciplinary narratives of survival and adaptation. As they interact with the mobile gallery, participants are invited to explore and take note of multiple stories built through layered and disparate practices of knowing and to engage with each other's perspectives.

Part art and science (sciart) installation and part science communication project, the mobile gallery was designed in early 2021 at the height of the pandemic, thanks to a collaboration with interior design Lorella DiCintio (Ryerson U), and interdisciplinary artists Cole Swanson (Humber College) and Kavi (York U). The choice to create a mobile gallery was dictated by necessity and opportunity. In fact, the unfolding of the pandemic has become an opportunity to cross the gallery's walls and to merge with the streets, giving the floor to a much diverse public as well as to the living beings, the trees, the infrastructures populating and sustaining the city. Instead of displaying a collection of artifacts in an enclosed space delimited by four walls, this gallery moves easily within and across communities, adapting and interacting with its human and more-than-human surroundings.

For FEMeeting, I am planning to bring a version of the mobile gallery and invite fellow artists to imagine how their very own research and experiences of survival and adaptations can be presented within this space. The way I see this mobile gallery is not just as a container but a space of engagement with different individuals and locations, which respects, and works with, different positionalities, thus leading to new narratives. Practicing empathy and “becoming with” the non-human and more-than-human may lead to abandon the hegemonic “god's view from nowhere” so popular with current anthropocentric knowledge systems.

### Buiani, Roberta

Roberta Buiani received her PhD from the Joint Programme in Communication and Culture at York and Ryerson Universities and completed a British Academy Visiting Scholar Fellowship in Cambridge (UK). She is a research associate at the Centre for Feminist Research at York University and a recent fellow of the Fields Institute for Research in Mathematical Sciences (Toronto), where she co-founded and currently curates the ArtSci Salon, an interdisciplinary program dedicated to fostering dialogues between science and the arts. Her research is located at the intersection of STS, Media Studies and Visual Cultures. Her recent SSHRC-funded research creation project draws on feminist technoscience and on collaborative encounters across the sciences and the arts to investigate emerging life forms exceeding the categories defined by traditional methods of classification. Her artistic and curatorial work has travelled to art festivals (Transmediale; Hemispheric Institute Encuentro; Brazil), community centres and galleries (the Free Gallery Toronto; Immigrant Movement International, Queens, Myseum of Toronto), and science institutions (RPI; the Fields Institute). Her writing has appeared on Space and Culture, Cultural Studies, TOPIA, Canadian Journal of Cultural Studies, Approaching Religion, Antennae and The Canadian Journal of Communication among others

## Tethered—The Ventilator Impulse: Eurus, Another Breathing Machine

Chacin, Aisen

In March 2020, ventilators were the only answer to COVID-19.

At the time, there was no cure, no vaccine, no known treatment, except to help patients breathe while they battle the virus. In Italy at the time, the triage was rough and awakening. Doctors were making the impossible decision to only ventilate patients under 60, and everyone over the age would be left at the mercy of their own immunity.

In response, we set out to make a breathing machine by automating an Ambu bag with a blood pressure cuff assembled with components from the hospital's supply closet and other common electronic equipment. Our goal was a low-cost, replicable, accessible, safe, and simple device.

This way, we could publish the plans. Every hospital could gather a team of nearby engineers to help them assemble the device with their own locally sourced materials. The ventilator impulse was a phenomenon that surged massively, collectively, and globally. A call to action to make ventilators in the open-source community began to brew. It was a push for the need to survive, to pull together our resources, come up with our best solution, and share it with the world in hopes that someone else improves on it and makes it work for the collective well-being.

A prototype, an artwork, Eurus is an iteration of the incessant drive to survive, the will to live and save lives, and the chance to be tethered to existence by another breathing machine.

Social resilience is inherent in Eurus in every aspect of this experiment. It investigates the drive for survival, the symbiotic and dynamic approach to collaboration in an emergency, the technical aspects of electromechanical ventilation, and the legal and scientific mechanisms for medical device design- what it takes to make a machine that sustains life.

Aisen Caro Chacin is a regenerating composition of cells that produce a woman, a Venezuelan, a Spaniard, a U.S. American, and an animal whose patterns of migration are not based on seasons, but rather on chance, chaos, and opportunity. Her curiosity led her to research the intersecting fields of art, science, and technology, driven by conceptual forms of inquiry. She is an artist and medical prototyping lead at the University of Texas Medical Branch. She holds a BFA from the University of Houston, (where she is affiliate faculty of New Media), an MFA in Design and Technology from The New School, and a Ph.D. in Human Informatics from the University of Tsukuba, Japan. She chairs LASER Houston, a series of art|science talks by Leonardo and Transart Foundation, and is a Board Member of Medicine and Media Arts at UCLA. She created a framework for Human-Computer Integration and Device Art. She has exhibited at Ars Electronica, Cite du Design, NYC Museum of Art and Design, and New York Hall of Science. She has been featured in NYTimes, MIT Review, Discovery Channel, Creative Applications, and PopSci.

## **bA(I)bylon (artificial – intelligence – project)**

The Tower of Babel is the subject of a biblical tradition described in Genesis 11:1–9. According to this legend, after the Flood, humanity was represented by one people who spoke the same language. Then people decided to build a city, which they called Babylon and a tower to heaven, in order to "make a name for themselves." The construction of the tower was interrupted by God, who made people speak in different languages. After that, they ceased to understand each other, could not continue the construction of the tower and scattered throughout the earth. – Thus, the story of the Tower of Babel explains the appearance of various languages after the Flood, and the tower itself becomes a symbol of separation. I place the action of building the Tower of Babel in the modern computer age. Through my web-application, I invite all peoples of the earth to take part in the construction of the virtual Tower of Babel. Each person can say a few phrases into the microphone in their own language. The program recognizes what language a person speaks and "builds" a gate in the wall of the tower. Each gate is an architectural symbol of the respective nation or language spoken by that nation, for a total of 109 languages that Google allows. The gates are always open, they invite cooperation and talk together. "Scrolling" all the floors of the tower, the audience will see how many people (nations) took part in the "construction", they will hear the sound of various languages and see their original spelling nation or language spoken by that nation, for a total of 109 languages that Google allows. The gates are always open, they invite cooperation and talk together. The construction of the tower takes place against the backdrop of the biblical Negev desert of modern Israel – as a symbol of the continuity of eras. – Thus, the construction of a "virtual", ghostly tower will not play the role of separation, as in ancient history, but of the unification of all peoples and an active attempt to reconcile and integrate them. The main role of artificial intelligence in the project, is language recognition, but this role is not its only role. I want to let artificial intelligence compose logical text from passages absorbed in different languages. This will be an answer to the problem of "unification". Most often, the Tower of Babel is depicted in art as having many gates, leading to a compound of an inner temple. My idea is that when the artificial intelligence system recognizes the spoken language in the recording, it will add to the tower a gate identified with the cultural tradition associated with that language. Thus, a tower is constructed of visual and audio "bricks", gates and sound clips. The idea came to me a long time ago. A thorough and lengthy research work was done – I examined pictures of gates, and formulated architectural styles, typical of specific cultural areas. I converted the images to icons. Using Google Translate, I translated and arranged the word "Babylon" for all 109 supported languages and selected the appropriate fonts for each of them.

### **Chak, Lilia**

Lilia Chak is an Israeli artist, designer and Science-art researcher (b. St. Petersburg, 1966). She graduated from the Saint Petersburg Stieglitz State Academy of Art and Design, 1988, Russia (MFA). For her activities from 1985 to 1986, she was awarded the first prize for "The Best Research Work on Art" by the Russian Ministry of Culture. Since 1990, Lilia Chak lives in Jerusalem. In 2009 Lilia Chak was nominated the Prix Tartuffe for the "Ferror" exhibition. In 2010, she was awarded the first prize at the art competition (from among 18,000 entries) organized by Cellcom Company, Israel. In 2022, she defended her PhD thesis "Bio-art: When a Tree Becomes an Artwork. Contemporary Practices" in Sorbonne, Art & Science Department, Paris, France (under the direction of Prof. Olga Kisseleva). She explores the intersections of art and biology and proves that new biological technologies can be used as a new medium for art.

### **Chak, Alexander**

Alex Chak is an Israeli SW engineer and Contemporary art lover. He was born in western Ukrain (1964). Alex Chak graduated from the Belarusian State University of Informatics and Radioelectronics, 1986, Belarus, Minsk (MFA). Since 1990, Alex Chak lives in Jerusalem. Alex Chak is EP senior SW engineer at Akamai Technologies. Akamai Technologies, Inc. is an American content delivery network (CDN), a cybersecurity, and cloud service company, providing web and Internet security services. Akamai's Intelligent Edge Platform is one of the world's largest distributed computing platforms. Alex Chak supports Lilia Chak for a long time with program parts of her projects. Recently, they have been working on Art & Science projects based on AI and Coding. In 2022, Lilia and Alex Chak finished the alpha version of the bA(I)bylon project. This is web application in field of AI-art and Coding Art.

## Posthuman Feminism: A Technological and Ecological Framework for Contemporary Art

Chevalier, Clarissa

Our current moment is one in which technology permeates every dimension of global life and impending environmental crisis heightens in urgency. Both of these realities are explored in contemporary art practices that exist at the intersections of art and science. Posthuman feminism becomes an increasingly critical approach for interdisciplinary art historical research because it can respond to both the technological and ecological dimensions of these shifts. This paper examines the history of posthuman feminism and extends it outward to consider contemporary artworks that engage the nature/culture/technology triad. Posthuman feminism branches into two main strands: the technophilic turn that embraces cyborgs à la Donna Haraway, and the vibrant materialism turn that seeks to move beyond anthropocentric narratives, as in the work of Mel Y. Chen. While these two strands are often separated and examined in different disciplinary pools, this paper utilizes both simultaneously. Championed most recently in the writing of philosopher Rosi Braidotti, posthuman feminism has roots that can be traced, in the United States, to the mid 20th-century radical feminists. As distinct from posthumanism, posthuman feminism moves beyond the idea of Universal Man without obscuring the exploitation and subjugation of specific human groups, including women, BIPOC individuals, and queer communities. While approaches to move beyond anthropocentrism and respond to the increasing complexity of technology are much needed, it is critical that these theories do not obscure racial, gender, and economic struggle.

Clarissa Maria Chevalier (she/her) is an art history Ph.D. student, interdisciplinary researcher, and writer at the University of California, San Diego. She received an MA in art history from Savannah College of Art and Design in 2020 and a BA in cinema arts and art history from Columbia College Chicago in 2018.

Chevalier's areas of interest are underpinned broadly by the global environmental crisis and include modern and contemporary art, phenomenology, environmental philosophy, art/science collaborations, and posthuman feminism.

She also explores philosophies of technology and ecological art practices of historically under-recognized artists, including the work of Agnes Denes.

Chevalier has been published in the Australian and Zealand Journal of Art for her work on Denes and eco-phenomenology and will be featured in The Palgrave Handbook of Global Sustainability in 2022 on the application of sustainability as a concept for art historical discourse.

## Being Together While Apart

Clouston, Nicole

During the ongoing global pandemic, we have been forced to adapt to being together while being apart. As part of this, my art practice - in particular workshops - needed to be presented virtually. In this talk, I will discuss the impacts of moving a typically communal, physically interactive workshop online, how a community can still connect through the shared virtual experiences of getting muddy, and why online workshops may still have a place in the post-pandemic world.

Nicole Clouston is a practice-based researcher currently completing her Ph.D. in Visual Art at York University in Toronto. In her practice, she asks: What happens when we acknowledge, through an embodied experience, our connection to a world teeming with life both around and inside us? Nicole has exhibited across Canada in Montreal, Victoria, Edmonton, and Toronto, as well as internationally in New York City, Buffalo, and most recently Santander, Spain. She has been the artist in residence at the Coalesce Bio Art Lab at the University at Buffalo and is currently the artist in residence at Idea Projects: Ontario Science Centre's Studio Residencies at MOCA in Toronto.

## Vulgarization of Knowledge

Since 2008, I have been focussing carefully (with care and precaution) on the ways in which knowledge may be communicated depending on the contexts wherein they are performed. For forskning (2008-12, a series of choreographic works created in dialogue with a scientist in neurophysiology) the notion of immobility was approached with a particular attention to the “vulgarization” of scientific knowledge through the identification of an appropriate gestural combined to a spoken articulation. It was a minimalist piece that only relied on our presence on stage to invite the spectators in a situation of activation. Vulgarization may correspond to the use of everyday life vocabulary to make accessible the language used by an expert. The notion of “popularization” is also frequently used to describe this process of transcription into different languages or media. Vulgarization/popularization is an essential means through which science can be processed. “Popularization of science is nothing else than an endeavor to image scientific ideas in such a way that everyone (especially non- scientists) can grasp the fundamental concepts and have an idea of what science in essence is.”

In my work, the activation, articulation, transformation and circulation of knowledge are central. I address bodily, tacite, spoken and written knowledge (as well as the implied translations) and practice a live approach to knowledge—since hi/story is, according to my perception, in movement. This does not exclude contents and potential meanings. Each element (point of reference or projection) finds significance both when considered in the entire system it belongs to and as it pursues its journey. Each proposition invariably contains another one. There is more than one way of seeing things. Not to exclude that an articulation of knowledge has its own process. It performs beyond its author, thanks or due to other individuals and media.

Expand, unfold, translate, read between the lines of physical and abstract spaces. This is what practical knowledge calls for. Live, formal, and/or informal communications navigate between bodily, spoken, written, and tacit languages. When being in a co-circulation of knowledge, ‘meaning’ is created through meeting. Presence and performativity are required, which, in turn, implies a process of “instant composition” of the different elements that come together, as well as their relations to an overall directionality. This moment can be understood as in a chessboard or a labyrinth: a shared setting where different actions combine: speaking, listening, transcribing, reading, transporting, transforming, and displacing. I encourage the circulation between different degrees of complexity and different knowledge, permitting ‘jumps’ between different registers: abstract thought, humor, and anecdotes will occur.

### Cogne, Ingrid

Ingrid Cogne (1977, Dijon, FR) is an artist, facilitator, and scholar working across choreography, visual arts and academia. Cogne sees choreography as a way to create movement and suspension, circulation and time, positioning and displacement in relation to Economy, Knowledge, Work, and Individuals. Her work problematizes the dramaturgy of (existing or created) situations. With soft provocation for movement in representations and structures, Cogne likes to—slowly, progressively—shake and shift perceptions, projections, and perspectives.

The arts-based research projects she initiated are: The dramaturgy of Conversation (in progress, FWF, Elise-Richter PEEK V709); Six Formats (2015-18, FWF, PEEK AR291) for which she conceptualised the Object of Communication (2018); Displacement(s) as Method(s) (2011-15, PhD research project AKBILD / CEAC Lille 3). It is in the latter that Cogne started to articulate a discursive practice of her work by using the notions “situation”, “presence”, and “performativity” as filters to unfold her research between body, spoken, and written languages in a matrix composed of five methods, three practices, and the art piece WORK (2015).

In parallel to her own artworks, choreographies, and artistic researches, Cogne has been involved in several group projects and collaborations (such as Le bistrot du coin, Môte09, Spells) and contributes to peers’ projects as dramaturge or performer.

Cogne is also editor and co-author of the publications Dansbaren—The Mob without Flash (2016) and For and By Six Formats (2018).

## A glance into the personal archives of women architects in Lisbon between the 1940s and 1980s.

Contreras, Maria

What do the personal archives tell us when the official archives are silent? Little is known about Portuguese women architects, and less of those who studied this profession between the 1940s and 1980s in Lisbon. Gaps in the existing history of architecture in Portugal, what happens if we want to rewrite it? We go straight to them to realize the diversity of stories in history. We see the personal archives, each one with a different personality. Lines, drawings, poems: each archive is different from these women in Lisbon architecture.

María Contreras is a Colombian filmmaker, visual artist, and anthropologist based in Lisbon. She is interested in documentary, experimental and hybrid films that express alternative social and visual narratives from a female and migrant perspective. Studied Anthropology at Pontificia Universidad Javeriana (PUJ) and earned her master's degree in Cinema from the Universidade da Beira Interior (UBI). Currently she is working as a documentalist for the Institution Cultivamos Cultura and directing a documentary in collaboration with the research group W@Arhc.pt, about women in architecture in Portugal between 1942 and 1986. As a visual artist, in 2022/2023 she will be exhibiting in a project for the dissemination of Portuguese art and artists in the international airports in Washington DC called ArtBox. Her filmography as a director includes The Namelessness Dance (second place in the Sophia Student Award for Best Experimental Short of the Portuguese Academy of Cinema) and co-directed Catarse (Award for Best Experimental Short at the Porto Femme Film Festival). Participated in Oberhausen Seminar (Germany, 2022) the DocLisboa '19 Filmmaker Seminar (Portugal, 2019); in the Young Critics Workshop at the European Film Festival (Serbia, 2019), and the ACAMPADOC International Documentary Film Camp (Panamá, 2016).

## Home Economics and Technology

Home Economics is a 90-minute immersive contemporary dance work / installation evolving from the study of vaginal trauma and acknowledges the qualitative experience of people with vaginas, through healing. The project is the work of the art collective, Home Ex, and I am the choreographer and Artistic Director. Home Economics is an on-going research and practice development, and movement and vocabulary are found using Somatic Movement Approach; based on sensations and experiences of the body, versus aesthetic pursuits.

### Cormier, Alexis

Alexis Cormier is a dance artist based in Halifax, Nova Scotia, Canada | K'jipuktuk, Eski'kewaq, Turtle Island, and brings experience from over a decade of choreography, artistic direction, and production. She is passionate about the delivery of art in intimate and accessible ways, drawn to activated spaces and conversations. Career highlights include having work featured by Live Art Dance Productions (Halifax, Nova Scotia) in 2014, 2016, and 2018, and producing large-scale art projects for IOTA Institute, such as the Bio Art Series in 2019. Alexis founded and is Artistic Director for Atlantic Canada's first and only professional hip-hop dance company, The Woods (est 2010). In 2020, she received the Diane Moore Creation Award (Live Art Dance Productions) for the creation of Home Economics, a researched-based dance project by the art collective, Home Ex, for which research and development is on-going. As a technical consultant, Alexis has 15+ years of experience in professional project management and strategic planning.

## Excitations

I will discuss new work that responds to the specificity of site and incorporates notions of time and natural phenomena by enlisting various instruments, both obsolete and current, to observe and record what can be sensed and visualized at various scales. Also included are works done close to home during COVID lockdown – works (including fungi spore prints) that consider energy and the material, optical and experiential possibilities of light phenomena. Unexpected interactions between light, energy and matter have been realized in installation, photography, and sculpture.

### Cummins, Rebecca

Rebecca Cummins: In addition to a studio practice, I am active in public art commissions and cross-disciplinary collaborations with artists and scientists. Recent exhibits include: the Bellevue Art Museum Biennial of Architecture and Design, Bellevue, WA (2021); Lux' Aeterna, Art Center Nabi at the Asia Culture Center (2019) Gwangju, Republic of Korea; Retícula, ASKVII: UCSC Culture Gallery, Concepción Arte y Ciencia Biennial, Concepción, Chile; Heller Gallery, NYC and Southwest Contemporary, Adelaide, South Australia. Previous exhibitions include the 2006 Shanghai Biennial, Shanghai Museum; The Museum of Contemporary Art KIASMA, Helsinki, Finland, 2004 and the 2008 Biennial of Seville, Spain. Public commissions have been completed for the City of Seattle, the Washington State Arts Commission and the Exploratorium, San Francisco.

## Using science fiction to explore scientific ideas in science education

In this project we aim to investigate how women study science and how science fiction can be used when teaching science in all stages of learning. Science and technology are becoming more ubiquitous in our everyday lives, however there is still a discrepancy between how science is taught and its potential practical applications. As Hadzigeorgiou (2016, xx) writes, while science curriculums place high importance on creative thinking and imaginative engagement with scientific ideas, Pugh and Girod (2007, 10) maintain that science education is still often centred around teaching “standards, conceptual change, and inquiry”. Because of this, students are less inclined to personally and emotionally connect to scientific themes taught in schools and are less likely to relate scientific concepts to their lives outside the classroom (Hadzigeorgiou 2016, xviii). The disconnect between the importance of scientific ideas and relevance to their lives has been specifically observed in girls, women, youth of colour, and other marginalized groups (see for example: McKinley-Hicks 2020; Wade-Jaimes & Schwartz, 2019; Kang et al., 2019; Pinkard, Erete, Martin, & McKinney de Royston, 2017; Wargo 2017).

In the first step of this project, we aim to collect stories from women in different generations, cultural backgrounds and careers within and outside of STEAM (Science, Technology, Engineering, Arts, Mathematic) to learn about how they were/are taught science. We will be inquiring about their experience engaging with scientific ideas and technology, and asking what they find important in the process of learning and teaching scientific topics. This (auto)ethnographic approach will provide an insight not only to the rationale and systems that our interlocutors were/are taught, but also enable us to learn about the emotional, imaginative, and creative impact science education has or has had on their lives. We will specifically be looking for connections between these stories and the uses of science fiction and imaginative thinking to develop a system of science-fictional narratives and performances that could be used in conjunction with other materials in teaching science.

**Czegledy, Nina**

Nina Czegledy independent curator, media artist, researcher, educator is based in Toronto, Canada. She collaborates internationally on art&science& technology projects. Current curatorial projects: A Light Footprint in the Cosmos for the Substantial Motion Research Network (2022)Vancouver and Sensoria, the art and science of our senses, Laznia, Contemporary Art Centre Poland in collaboration with Sensorium Centre for Digital Arts and Technology, Canada (2022), Dobbie Debate digital educational game focused on dis/different abilities with Lynne Heller, OCADU (2022).

**Vodovnik, Sanja**

Sanja Vodovnik is a PhD graduate from the CDTPS and artist living in Toronto. She has a BA in international relations, and MAs in cultural studies and performance studies. She likes to read science fiction and write about aliens and robots. Her dissertation focuses on the contemporary anglophone North American and European science/speculative fiction (sf) in theatre and performance, exploring the embodied materiality of sf narratives in theatre. She is also interested in events that contribute to the production of sf experiences such as immersive theme parks, world fairs and online fan communities.

## Experiences in Virtual Reality Drawing

I am interested in sharing my experience in virtual reality drawing, presenting the finished projects, and the most recent experiences that can be considered as a work-in-progress. The presentation will be structured in four parts.

I. Creative strategies for drawing in virtual reality environments (2016–2018)

This was a first didactic approach to drawing in virtual spaces. We carry out this approach through experimentation and appreciation of contemporary drawing, both in its discursive, artistic and technological possibilities. For us, the creative experience and critical reflection on drawing skills in these environments have been essential.

<http://dibujovirtual.rua.unam.mx/>

II. “Dimensiones Inasibles”. Collective exhibition

“Dimensiones Inasibles” is a collective exhibition made up of a series of installations drawn and built-in virtual reality (VR). The participating artists are Jorge Chuey, Daniel Manzano, Eduardo Ortiz Vera, José Ángel García Moreno and Tania de León Yong. Our main intention has been to explore and make known some of the creative possibilities of drawing in VR environments. We are interested in experimentation in this medium and its assessment in the context of contemporary drawing, in its relationship with technology. In this type of environment (RV) the panorama of the drawing expands. The traces of the hand take on three-dimensionality as they extend into space. The artist's body and his movements generate a dance that is recorded graphically. We hope to trigger in our students and in the general public the curiosity to explore the expressive qualities of drawing with information technologies. This exhibition is housed in the Ixtli Observatory of the DGTIC UNAM. This work is part of the PAPIIME PE404717 project.

<https://ixtli.unam.mx/dimensiones-inasibles/>

III. Possibilities of drawing in virtual reality spaces

How I began to establish a relationship between drawing in virtual reality environments, performative drawing and expanded drawing. I believe that it is important to motivate and explore alternatives that encourage the creation of drawing in virtual reality as a means of expression staff. For this I have proposed to look for expressive possibilities in the drawing in virtual reality spaces in its relationship with expanded drawing and performative drawing.

<https://www.labcom.ubi.pt/book/375>

IV. “There is a time for everything” (2022)

Use of drawing in virtual reality environments for short films in standard format. Presentation of the film and creative process.

### De Leon Yong, Tania

Tania de Leon is a Mexican visual artist dedicated to experimental animation, drawing, and engraving. Her artistic work has been exhibited in different cultural spaces, in different countries: Canada, Germany, Poland, Uruguay, Taiwan, Cuba, Argentina, Brasil and Spain. Her animation films have been projected in different festivals, such as: Experimental Film Festival, Festival de Cine Experimental de Bogotá, Animac Lleida, Animasivo, among others. Her more recent animated project is Chronographs. A Personal Digest of Time. In 2005 Tania obtained the PhD in Fine Arts specialized in Expressive, Formal and Spatial/Temporal Components of Animation, at the Universidad Politécnica de Valencia (UPV), Spain. Before that, she acquired a Master Degree in Multimedia Production for the Internet at the same university. She also has Master Degree in History of Art and a Bachelor's Degree in Visual Arts both from the Universidad Nacional Autónoma de México (UNAM). Teaching experience: Facultad de Artes y Diseño – UNAM- Mexico City; Kunsthochschule für Medien Köln, Germany; Tecnológico de Monterrey CCM ITESM, Mexico City, and Universitat Jaume I at Castellon, Spain. [tdeleon@fad.unam.mx](mailto:tdeleon@fad.unam.mx) [www.taniadeleon.com](http://www.taniadeleon.com)

## Women Stories at Cultivamos Cultura

De Menezes, Marta

Most artists that visit Cultivamos Cultura have developed specialized knowledge and skills during their career as art creators. With a variable duration (from 3 weeks to 4 months) residents will perform research and production of specific artworks that will remain in Cultivamos Cultura or its surrounding area. These artworks will become integrated in the visitors itinerary, and contribute to the local cultural offer. Many of the artists and researchers in residency who passed by Cultivamos Cultura have participated in FEMeeting, some of whom I am glad to share this year's program and I am willing to hear their presentations, and others who could not for different reasons be here. Names such as Amy Youngs, Carolyn Angelton, Anna Isaak-Ross, Maria Francisca Abreu Afonso, Isabel Burr-Raty, Eileen Ryan, Ana Santos, Kim Doan Quoc, Kira O'Reilly and Saša Spačal. There is no ingenuous art residency, it is a friction of emotions and experiences, where characters experiment and discover hidden parts of their personality: sometimes an admirable internal strength. Besides these women that have marked the story of Cultivamos Cultura, there are those who are essential contributors to its development and organization, and therefore they are referred by their first name because there is no doubt of whom they are: Manuela, Claudia, Diana, Sally, Maria... This presentation is a short narrative of lives and how they braid into each other.

Marta de Menezes (born 1975) is a Portuguese artist, with a Degree in Fine Arts from the University of Lisbon and a MSt from the University of Oxford. De Menezes is director of Cultivamos Cultura, the leading institution devoted to experimental art in Portugal and Ectopia, dedicated to facilitate the collaborative work between artists and scientists. Marta de Menezes has worked in the intersection of art and biology since the late 90s, in the UK, Australia, the Netherlands, and Portugal, exploring the conceptual and aesthetic opportunities offered by biological sciences for visual representation in the arts. Her work has been widely exhibited in major venues in all continents, presented in most anthologies devoted to bioart, discussed in doctoral dissertations, and considered an example of research in the visual arts. Among the most recent international exhibitions, de Menezes was invited for the 2019 Ars Electronica Festival: Out of the Box, and organized two 2020 Ars Electronica Gardens (Lisbon and São Luis). She was invited to be the official representation of Portugal at the London Design Biennale 2016 and exhibited at the Beijing Biennale of New Media Art 2016. DeMenezes was nominated in 2015 by Time and Fortune magazines for the Art and Technology Awards 2015. Besides her work as artist, de Menezes curated major international exhibitions including for European Capital of Culture (Portugal), Kontejner Festival (Zagreb), Verbeke Foundation (Belgium) and this last three years the editions of FACTT – Transnational and Transdisciplinary Festival of Art and Science that took place in Lisbon, New York, Mexico City, Berlin and Toronto.

## Tree of Dawn

“Tree of Dawn” will be a participatory performance project. For FEMeeting conference I propose to present the research methodology I used for the development of this project. My research focuses on the concept of contamination approached from different perspectives, and its connections to symbolic thinking. Looking at the correspondence between radioactive contamination and the mythological image of the Sun-Tree, I am developing a performance based on the decodification of Latvian Dainas, an ancient form of Latvian poetry transmitted orally through songs. A set of movements and sounds will be generated departing from a four-lined text using a formula taken from radioactive decay. I am now working in collaboration with researchers on radioactivity from the departments of Chemistry and Physics of the University of Helsinki to select a formula that will function as a decoding tool. In parallel, I have taken soil samples from the Latvian former nuclear missile base of Zeltini, used for the purpose of making a soil chromatography, which I plan to use in combination with the plasmodial slime mold *Physarium Polocephalum*, selected for their intrinsic intelligence in finding paths. I will proceed by overlapping the chromatography with the map of Zeltini and observing the mold’s movement to connect spots in the map, to later develop these movements into a performance. Throughout the unfolding of this process—which I think of as translation—the symbol of the (invisible) sun functions as a liminal space, a threshold at the intersection between the potentiality of what resists definition and the identification of the blindness of what is left aside from perception. Among every sensible movement which connotes the perceived world, the structure of reality is hidden to the sight. This research seeks to understand the process of effacement through what I have called the “rule of disguise”, proposing translation methods as a way of thinking otherwise. The paper *Tree of Dawn: Translation as a Method* has been selected for publication at *VIS, Nordic Journal for Artistic Research*, and is currently being developed together with the visual exposition to be finished before September.

## Sx-poiesis\_Beyond the pleasure principle

Sx-Poiesis is an aesthetic experience beyond the pleasure principle, that pleasure confined to the norms of heterosexuality and patriarchal systems; is a hybrid identity, a cyborg made of unclaimed desires, taboos, and censored affects.

It claims the liberation of sexuality, banned, censored and aims to open dialogue between the visible and the invisible, the body and its fluids through new technologies, digital fabrication and biohacking.

### Del Rio, Aurora

Aurora Del Rio is a multidisciplinary artist and Ph.D. candidate at Aalto University, based in Helsinki. She holds a BA in Painting from the Academy of Fine Arts Bologna, and an MFA in Creative Practice from Transart Institute Berlin/New York. Her artistic practice investigates the relationship between humans and nature and how the perception of contaminated spaces influences the creation of reality. She is interested in the space of potentiality that originates when definition is avoided or misplaced, and the liminal space of failure

### Dezi, Cristina

Cristina Dezi is a multidisciplinary artist and queer costume designer. Through a feminist critique she experiments on biomateriality by intersecting fashion, video performance, sound, biology and technology.

## Anthropocene AnArchive

This project creates various interactions of multi-media and sensory “anarchive” of/for the Anthropocene. An anarchive, a term from Siegfried Zielinsky, is in direct opposition to the alienating hegemony of traditional archives, and instead invites material and sensual chaos. Given that the Anthropocene is a temporal entity, an epoch defined by a breakdown of natural/man-made binaries, and by the oft-unforeseen material ramifications of human civilization, its documentation calls for a structure which defies attempts at objective or impersonal documentation. In Zielinsky's terms, the anarchive follows “a logic of plurality and wealth of variants, [and] are particularly suited to handle events and movements; that is, time-based sensations... they indulge in waste and offer presents.” Objects in the anarchive resist a trope of the Anthropocene: satellite and aerial images of pollution, large-scale agriculture, and natural disasters. These scales exceed us, and displace our subjectivity from the ecological impacts they depict. The anarchive, alternatively, seeks to provide a scale that embodies us, through situated knowledge produced through sensory and material encounters. The creation of the archive usually takes the form of installation works, including fabricated scents, edible food items, recipes, re-worked Anthropocene geology, photographic objects, and video projections. The archive is also a written practice exploring the multi-temporalities of these ‘artifacts.’ Much of the anarchive work relates to agriculture, the advent of which is a proposed start date for the Anthropocene. (It is also certainly relevant that food production now accounts for a staggering third of all greenhouse gas emissions.) Agriculture represents a primary example of post-natural landscapes, and many objects in the anarchive reject the ontological hygiene of separating humans from nature.

critical ‘artifacts’ of changing landscapes, and may even be ways we build alternative forms of knowledge about our changing climate. We are constantly engaged in oscillations of remembering and forgetting in the uncanny encounters of the ongoing ecological calamity we find ourselves in. Ultimately, I propose that a renewed environmental consciousness in the age of climate collapse can be enhanced from the creation of non-discursive knowledge based in recipes. I will outline two projects of mine. A Recipe for Potable Water is a future artifact that represents a new ‘normal’ recipe within for a new climate. The work presents a necessarily fraught DIY method for desalinating water for cooking and drinking, the necessity of which could arise in a future of increased, normalized natural “disasters” and impacts on access to potable water. Sea level rise and increased flooding will affect access to potable drinking water in multiple ways: saltwater can flood and contaminate fresh drinking water sources, and extreme weather events may damage the infrastructure to transport and deliver fresh water periodically.

## Sensory Knowledge for Changing Landscapes: The possibility for situated environmental knowledge and multi-temporalities through food + recipes

How does society remember, and how does society forget? What is at stake within the spectrum of mass forgetting, especially at a time of accelerated change? That is, as climate change swiftly alters landscapes at unprecedented speeds, will our cultural amnesia about past ecological states become more and more acute? The mechanisms behind collective remembering and forgetting are influenced by material encounters in the present and by embodied experiences, often with specific artifacts. I consider forgetting to be an active verb in the present—a companion to the active recall of memories through objects, actions, and sudden encounters with familiar sensations. These encounters shape our remembrance (or lack thereof) of past realities that they are entangled with. I argue that food, and especially recipes, are

E.S. Wist, Allie

Allie E.S. Wist is an artist-scholar currently working on an Arts PhD from Rensselaer Polytechnic Institute with a focus on sensory futures, food, and the Anthropocene. Her work encompasses photography, radio broadcasts, artifacts, dinners, and writing that render timescales and futuristic speculation accessible through material and sensory narratives. She looks at the role of food, taste, and smell in our perception of multi-temporalities and multi-species communities. She has an MA in Food Studies from New York University and a BA in Media from Boston University, and worked in food media for over a decade.

## Hacking as a curatorial research tool. An exhibition as a case study: Hackers, Makers, Thinkers

Art Laboratory Berlin hosts a 4 month-long project, titled Hackers, Makers, Thinkers: Collective Experiments in Social Fermenting. The exhibition brings together six positions, by woman and woman-defined artists.

The presentation will focus on the concept of Hacking as a methodology for curatorial research, and how it inspires and structures research process in the hybrid arts field. The research process of the project, HACKERS, MAKERS, THINKERS. Collective Experiments in Social Fermenting explores non-Western woman and woman-defined artists' practice in the art and Hacking is used in the process of art-making and curatorial research.

Hackers, Makers, Thinkers focuses and appropriates hacking as a curatorial research and methodology to unlearn institutional structures and reshape and hack in various mediums of artistic practices, such as workshops, performances, process-based exhibition, and conversations. The h/i/story of hacking and its patriarchal structures as well as its political, economic and cultural connotations needs to be unpacked and addressed. At first glance, hacking is associated criminal, negative. Furthermore, hacking embodies masculinity and cyber-bullying. However, through a feminist lenses, Hacking can be used as a toolset to critique the patriarchy, capitalist system, colonialism, and inequality of redistribution of resources. In reference to this large-scale critique, the project addresses the value of citizen science, democratisation of knowledge, community driven skill sharing, collectivism, and collective mind hives.

Based on McKenzie Wark's A Hacker Manifesto, hacking is used as a methodology of abstraction and creating new things, which express the relationship between art, science, philosophy, and culture. Hacking allows the production and democratisation of knowledge and technology beyond certain capitalist structures. Indonesian scholar and critic Grace Sambon proposes process-based artistic practice in contrast to conventional artwork production, which provides a different perspective of experience, knowledge and scholarship and their ownership. How can we re/distribute knowledge through thought, action and exchange?

The project will be based around an exhibition featuring Indonesian artist Irene Agrivina, Taiwanese artist/designer Pei Ying Lin, The Mexican collective Interspecifics, Berlin-based artist Cammack Lindsey, Chilean artist Constanza Pía Pardo and Rice Brewing Sisters Club (RBSC) a collective from South Korea. Connecting the exhibition to practical action will be workshops by Interspecifics, Constanza Pía, Irene Agrivina and RBSC and performances by Cammack Lindsey and Pei Ying Lin (in cooperation with the Berlin collective Soy Division).

Erel, Tuçe

Tuçe Erel (1981, Ankara) is a Berlin-based independent curator, art writer, and cultural worker. She studied Sociology at METU (2005), and Arts Theory and Critic (MA program) at Anatolian University (2009). She did her second MA in Art Arts Policy and Management (with curating pathway) at Birkbeck College (2015). In 2017 February she co-curated "Now You are Here" with Seval Şener at Arte Sanat (Ankara) and curated "Fabric/ate" at Schneidertempel (Istanbul). In 2019, she curated "Hactivate Yourself" in 1a Space in Hong Kong. She also co-curated Leviathan: A Capitalocene Bestiarum (Berlin, 2021), Sentient Matter (Leipzig, 2021), and Hackers, Makers Thinkers: Collective Experiments in Social Fermenting (Berlin, 2022).

Her curatorial interests are archiving practices, ecology, Anthropocene, posthumanism and post-digital theories. Erel uses her sociology education in her curatorial research whereas she prefers to twist and challenge the conventional social science methodologies. In the last years, she explores the concept of hacking as a way to unbox the concept of bio-politics, Anthropocene, ecological crisis, naturecultures, non-human agency, artistic speculation and imagination. Since December 2019, she is a team member of Art Laboratory Berlin, assisting their hybrid-art-oriented programme.

## A poetic entanglement:cosmos, women and art

The relationship between astronomy, art and literature is as old as homo sapiens: that is, not very much. In a chronological framework on a cosmic scale, from the first cave cantabric paintings that may perhaps represent comets or constellations [about 35,000 years ago] to the poems by Rebecca Elson or Alice Oswald, and the paintings by Maruja Mallo or Chou Ota, as early as the 20th century of our era, we are a drop of ink trying to capture in metaphors a vastness that unfolds and overwhelms us. On a planet about 4.5 billion years old, where our primate family scratched their skulls about 35 million years ago, those 35,000 years are but a tiny comma at the footnote of the page. From a paper page that, by the way, would not be more than 5,000 years old. It hasn't been that long. But yes, we have written a lot. Very much. And in that harmonic sphere made up of the earth that we walked on during the day and the sky that we saw lying down at night, we have fabulated with the stars, put in hexameters, painted them...I propose a walk of about 25 minutes through some literary, scientific and artistic trailblazing women on stars, accompanied by the few artistic representations of women with the eye in a telescope and their achievements: from Maria Mitchell to Caroline Herschel and Vera Rubin. If today literature includes black holes, dark matter and pulsars, 50 years ago the feminist drive to vindicate women astronomers such as Caroline Herschel is evident in the poem Planetarium [by Adrienne Rich]. Going back: fireflies compete in brilliance with the stars in a poem by Rosalía de Castro, the Milky Way is richly described by many authors, as in the Japanese haiku tradition, the moon by Emily Dickinson, the purple star by Hilda Doolittle, the Pleiades from Arabic poetry to the Greek poet Sappho... The entanglement of poetry and science is old as our brains. My presentation aims to remember many things we usually don't see: not only women's achievement in science, mainly in astronomy, also the fact that we are the first generation that, starting to comprehend what a galaxy is, is not able to see it anymore. The skies are full of wonders like the history of the ideas are full of women.

Estíbaliz Espinosa Río, María

Estíbaliz...Espinosa [A Coruña, 1974]; writer [poetry and science]. Sociologist and Philologist in a Coruña University. Musician (singer mezzosoprano). Astronomer aficionada. Translator. Editor. [www.estibalizespinosa.com](http://www.estibalizespinosa.com) I was born curious. An essential part of my poetic work emerges through my curiosity about science and literature [linguistics, astrophysics, puns, maths or biology], and an activism on the search of new arteries for contents, in paper, screen or social network. I write short stories, articles, essays and try to weave nets around the net; I also direct several conferences, workshops and musical readings. My last poetry books are *Curiosidade* [Curiosity, 2017, 3rd reimpression], and *As neuronas irmás* [The neuron sisters, 2018, Afundación-Pen Club Prize and Finalist of Gala do Libro Galego, Galician Book Awards shortlisted]. I started publishing in 1998. I have been laureated with prizes as Afundación-Pen Club and Modesto Figueiredo 2019 (short fiction), to name a few. I have assembled festivals of science and creation (Novembro Estelar), readings of literature and astronomy [*As Curiosas: son de letras-ciencias*, Concello A Coruña, 2018] *Escrita no ceo*, (Written in the sky), Planetary of A Coruña, 2014], science-fiction and robotics [*Soños de robots* (Robot dreams), MUNCYT, 2014, to name a few. I write program notes for the Symphonic Orchestra of Galicia, where I also have sung in its Choir. I also include music in my performances, since I sing as a mezzosoprano. Some of my performances with voice can be found [here](http://www.estibalizespinosa.bandcamp.com): [www.estibalizespinosa.bandcamp.com](http://www.estibalizespinosa.bandcamp.com)

## C-OLORS of Alejandría

“C-OLORS of Alejandría” is an adaptable experiment for different publics, where the participants get to know the story of María de Alejandría, the woman who is considered the mother of alchemy and invented the alembic and distill proces back in the II century.

Inside the lab, first we observe a copper alembic put into action and then, in each team/table, participants assemble a modern version to distill some odor particular to the place where the workshop is held (lavender, orange, rosemary...)

With that liquid scent mixed with fluorescent acrylics, everyone paints a piece of a puzzle, that all together under RGB+UV lights with 3D glasses, creates a bright 3D collaborative painting of the only engraved image of Maria.

Maria not only invented the distill process, but also the metallic paintings, so we honor her mixing both of her most important creations (in a modern version of them)

The objective of this talk, in addition to showcase the work of a storical woman in science, is to explain how we brought together the science of smell with art, to talk about olfaction and finding synesthetic ways to feel it.

This workshop was part of a FECYT financed project called “OdourCollect: Citizen science in intergenerational and cross-cultural learning scenarios”.

We held this workshop in 3 science museums of Spain: Museo DOMUS of A Coruña in Galicia; Museo de Ciencias de Valladolid in Castilla y León; and Eureka! Museum of Donosti in the Basque Country. In each of them we did the workshop for ~12 years old students, and also to a familiar public, where we created a space for families to talk about their own stories about smell while painting them with the same fluorescent and smelling paintings in a comic strip to showcase them under the lights.

We want to share our experience creating workshops that can combine science and art in a sensible experience, but also including history and feminism by claiming the work of old female scientist. All while keeping people engaged and open to hear about someone so old and distant that can inspire them to create a vincte with scientific knowledge.

### Fernandez, Isidora

Isidora studied social communication (Universidad Católica de Chile), graduated in Ecotourism Management (Universidad Andrés Bello) and did a Master in Scientific, Medical and Environmental Communication at UPF-BSM. During the last years, she worked coordinating community tourism development projects in Chile, looking for ways and tools to involve citizens in the design of strategies and services in rural destinations. She also worked as a designer of experiences for different museums, contributing from the creation of original science museum rooms, as well as resources and educational experiences of different STEAM themes. Isidora is currently working on the OdourCollect project and the Diagnosis of citizen science and nature projects in Catalonia, helping to link art in all our projects and sharing our activity through social networks.

## Liminal Experience in Virtual Reality

Förster, Desiree

I explore different phases of meaning-making, particularly, meaning-making within aesthetic milieus, that take into account the affective relationships we have with our environments, through intensifying or otherwise explicating processes, relationships, and other aspects of our surroundings in such a way that they can be sensed. In this talk, I will present the project “Liminal Experience of Virtual Reality” that I am currently developing at the University of Chicago. Together with students from computer science, we are creating virtual spaces that do not adhere to our common sense-making. We are leveraging architectural layouts for VR that deviate from the laws of physical space, and are surreal in that sense. Through a combination of immersion and alienation, we enable participants to experience what it is like when familiar relationships with space are disrupted, and how the development of new postures and patterns of movement can lead to alternative forms of navigating space. Pausing, reflecting, and observing are thereby integrated into the experience of immersion. After participants have experienced our alienating VR spaces, I will conduct micro-phenomenological interviews with them to reveal their liminal phases of the experience. This interview methodology was purposefully selected as it allows us to gain access to parts of one’s experience that we usually do not notice. With the outcomes of these interviews, we can trace what participants experience while encountering and navigating alien virtual spaces, which micro-acts are involved in becoming familiar with an alien space, how it is, that we begin navigating it, and how we develop new forms of navigation, new gestures, etc. if we do. As a philosophy and media studies scholar, I will integrate the outcomes of this study (which will be finalized May 2022) into a larger analysis of processes of meaning-making and the role that pre-reflective experience plays in processes of subjectification.

Desiree Förster is currently a postdoctoral instructor at the Cinema and Media Department, University of Chicago. Before, she graduated from the Institute for Arts and Media, University of Potsdam with her thesis “Aesthetic Experience of Metabolic Processes”. Taking on the perspective of process philosophy and media-aesthetics, she investigates here the impacts of liminal experiences on human subjectivity. She conducted several research creation projects together with artists, designers and academics from Concordia University (CA), Arizona State University (US), and IXDM, Basel (CH) in order to explore liminal experiences within aesthetic milieus. Her research interests are Aesthetics, Media Ecologies, Affective Media, Embodiment, Phenomenology, Process Philosophy, Immersive Environments. Further information: [dfoerster.org](http://dfoerster.org)

## Beyond Binaries, a case study on the Italian territory of women's artistic practices in interaction with science and technology and community care

Beyond Binaries is a programme of participatory and transfeminist residencies for contemporary artists at the intersection of the languages of technology and science, taking place in the Roman suburb of TorPignattara in Italy. It is promoted by Erinni, a recently founded independent Italian cultural organization that carries out an artistic and curatorial investigation in relation to gender ethics and politics in the field of contemporary and media art. It is supported by the Youth Policies of the Lazio Region with the collaboration of the Department for Youth of the Italian Ministry. The following proposal for the FEM22 foresees the description of the case study of Beyond Binaries as one of the few initiatives on the Italian territory supporting the bottom-up creation of women's research methodologies and arts on art science and technologies. As the residency programme will take place in June 2022, data, testimonies and results of the experience, that is currently in production, can be presented at the conference in September.

## Microbial Me

In this presentation, Fisher talks about her projects throughout the last 10 years to her current research and practice. After being diagnosed with IIH Fisher's artwork reflects the symptoms of a phantom brain tumour affecting her vision and treatment within the NHS. She talks about the most recent artist in residence position with the Centre for Systems Modelling & Quantitative Biomedicine (SMQB) at the University of Birmingham in 2020.

### Forte, Arianna

Arianna Forte is an independent art curator, creative producer and organizer of artistic projects of social innovation, based in Rome. She is moving freely between official cultural institutions, non profit organizations, squat and independent spaces. She has been part of international digital arts events teams such as in the production of transmediale-festival for art and digital culture in Berlin and as cultural manager of the research center HER Sheloves Data, founded by Oriana Persico and Salvatore Iaconesi. Currently, she curates the three-year project of 1M Sotto la Metro, a temporary exhibition of interactive media art that took place in the metro stations of Rome. Her research concerns the ways in which artistic practices deal with technologies and sciences and create new opportunities for social imagination and activism. At the moment, she is focused on how technological infrastructures are linked to gender issues, biases and taboos related to femininity and is the founder of the Erinni association.

### Fisher, Mellissa

Mellissa Fisher is a British artist whose work explores the relationships between nature and the self. Past works have involved using casts of her own body and the bacteria that live on it to visualise the invisible world on our skin. She graduated in 2016 from the MA Art and Science course at Central Saint Martins and has since undertaken major commissions for the Eden Project and the BBC. In 2016 Mellissa was commissioned by the BBC to create a large-scale microbial sculpture which formed a central theme of the documentary "Michael Mosely verses the Superbugs", first shown on BBC4 in May 2017 and has now been shown internationally.

Mellissa has extensive experience working collaboratively with scientists and leads a range of projects and participatory workshops exploring art and science. Recent research and projects are working with a rare brain condition Idiopathic Intracranial Hypertension (IIH) which Fisher was diagnosed with in 2018, her works are now focused on invisible illnesses where she works closely with the IIH community as Arts & Culture representative with the IIHUK Charity.

## Moon Gallery: finding our humanity in space

Glukhova, Elizaveta

The Moon Gallery Foundation is an international collaborative artwork making history as the first off-planet gallery. Fitting within the compact format of 8 x 8 x 1cm plate, the gallery is filled with 64 miniature artworks that bridge space, art, science and life. While the gallery is currently onboard the International Space Station, its final destination is the Moon. Why? We are in the midst of a space-age revival, off-planet human settlement is not only inevitable but fast approaching, and with that, technology, farming, communications, and of course, weapons. This growth will lead to cultural autonomy and eventually, state creation. This is a process that requires not just the best from our scientists and engineers, but the best from all of us. Therefore, the gallery is a monument, an archaeological artifact that can say something important about who we, humankind, are. The contributions, made by the Moon Gallery artists are profound, deliberate, and thoughtfully realized. It is a chorus of artists sending out an enthusiastic “hello” to future generations. Space, although boundless, is yet incredibly exclusive. At the moment human space exploration is primarily shaped by space agencies, private companies or a closed circle of billionaires. Therefore, diversity and inclusivity are a big part of our agenda, which we try to achieve in both - a carefully curated selection of submissions as well as through the projects and initiatives that we support as an organisation. At the moment the gallery is represented by artists from Asia, Europe, North America, South America, and Africa and we welcome submissions from people of any nationality, gender, age, religion, professional and cultural background. Besides that, Moon Gallery advocates for the democratization of space exploration and we work hard to involve the society at large to be a part of this discourse.

The main objectives of our foundation are providing a platform that enables interdisciplinary and international cooperation and knowledge exchange between creative/ artistic sectors on the one hand and space/technology sectors on the other hand. Since the initialization of our gallery in 2018, we have built a strong community coming from different disciplines, who all share the dream of bringing art to space, and improving life for our and future generations. We would like to stress the importance of contributions by all gallery artists to the process of the project development and give credit to the hard-working foundation team.

Elizaveta Glukhova, Stichting Moon Gallery Foundation. As a founding director and secretary of the Moon Gallery Foundation, Elizaveta oversees the management, curation and defines the evolutionary process of the gallery. Aside from being a TEDx speaker, she is also an elected expert at Technical Committee on Cultural Utilisation of Space (ITACCUS). Elizaveta's roots are primarily in graphic design and story telling and since 2020 she is also a co-founder of the brand identity and design studio SEED.

## Postdigital patterned human and more than human communication

According to Maturana and Varela, the recurrent interaction of unit and medium causes structural coupling, which is reflected in a patterned cognition and communication (Maturana and Varela, 1972). According to Haraway chthulucene is the timespace of the symchtonic, symbiogenetic and sympoietic systems, those submerged of damaged waters, airs, and lands (Haraway, 2016). In the kind of environment, I am looking for the intersection where a mutual communication of human and more than human can be realized. Alongside the principle of structural coupling, the communication between different units, such as human and more than human, is possible on/in an interface – a specific medium which is a part of environment. In the project I introduce interface and pattern of possible communication of embodied structural coupling with a specific environment – the interface of water and soil. The kind of deep-felt communication was recorded and mediated by a machine as transient pattern of communication.

In the paper I focused on the pattern of human, nonhuman and more than human communication. I recognized the grid pattern as human cultural principle of written and printed communication. Unlike a rectangular grid arrangement, electronic writing has a character of a cross-linked and developing, also AI based, writing technique. This relates to human, machine mediated, recorded and interpreted communication, not only human to human, but also to more than human. While the grid is a specific human cognitive and cultural pattern, the other patterns could relate to “the recurrent interaction of unit and medium causes structural coupling, which is reflected in a patterned cognition and communication” (Maturana and Varela, 1972). Then structural coupling of interactive living unit and medium of environment can cost exchanges according to structural plasticity of patterned communication of autopoietic (Maturana and Varela, 1972) or sympoietic system (which is a complex of a dynamic responsive interrelated situated historical system) (Haraway, 2016). At the first step the living unit must react with the specific medium of environment. From the interaction, through inner correlation and cognitive acts, a specific cognitive pattern is realized. Each living unit connected with the same pattern will be able to communicate.

These arguments lead us to use a transient pattern as a model of patterned digitalized communication. The approach in which the patterned communication is created is related to an inevitability of human and machine intelligent agent collaboration. The collaboration where the interrelation of human and more than human elements of interaction leads to the open vision of communication which could be manifested on/in certain interface.

Artistic communication carries the value of aesthetic action, which draws the audience into the imaginary world of the author's work in which she or he tried to find a form of

communication between human and more than human.

In this project, I provide a vision of how it is possible to see communication patterns which includes human and more than human interrelation of embodied communication. I used the model transient pattern (Gogova, 2021) and combined it with phenomena of structural coupling, redefining the form of patterned digital communication as such I provided the idea of communication between human and more than human, mediated by a machine

### Gogova, Andrea

Andrea Gogova – Ada Gogo (Slovakia) was graduated a Ph.D. degree at Faculty of Multimedia Communications Tomas Bata University in Zlín, Czech and master's degree at Academy of Fine Arts and Design in, Bratislava, Slovakia. She is an external researcher of Metatechnicity research group at Cardiff Metropolitan University, UK. She took Erasmus doctoral scholarship at Cardiff Metropolitan University, UK and a Freemover doctoral scholarship at Ionian University in Corfu, Greece. In her transdisciplinary research, spanning Art & Science and Technology, she is focused on the 'process based' posthuman speculative practical and theoretical approach to pattern of communication between human and more than human. The approach to communication is based on that what she schematically described as “transient pattern”, which means an intersection of patterned perception and random intrusions of chaos. Manifestation or actualization of the communication could take place on/ in many different or hybrid interfaces. She published the book “From Grid to Rhizome” and the other text articles. She exhibited in Vienna, Bratislava and Lisbon.

## I hear you! Conscious walking with the other

Golovátina-Mora, Polina

This project is still at the stage of the theoretical reflection and projections. Its goal is to draw attention to the voices that surround us - voices of the sea, grass and flowers, trees, rocks and rivers, snow, eventually the air. Those are the beings that only in few countries have legal rights as sentient beings and as agencies; those are the beings that have been ultimately colonized, whose colonisation and exploitation is normalized in the majority of the countries. This educational project aims at school children of different age or general interested audience. Its goal on the one hand is to emphasize the holistic nature of knowledge and the importance of different disciplines at schools to work together, the importance of contextualize world in the local cultures and the recognition of the situatedness of the stories. The aim of the project to sensitize the environment and our relations with it especially the urban nature and, hopefully, to transform the sensibility in the beyond the nature-culture division.

The project requires collaboration between the educators, visual, aural and performing arts, natural sciences and engineers. For different reasons, I was not able to significantly advance with the project beyond the theoretical-methodological part. The reasons are interesting to reflect on as well. Considering that social and economic injustices define not only social relations but also human-natural environment relations, scholarly and agenda-setting texts stress the necessity of a new sensibility and sensitivity towards the world as the key element for systemic change. In the search for such sensibilities, researchers working with the topics of sustainability and critical developmental studies (e.g. A. Escobar) align their theoretical approaches with feminist thought and employ the potential of the arts for interdisciplinarity, complexity and praxis of critique.

Drawn on critical more-than-humanist theoretical and practical advances, the project sees its central question as how can we listen to the surrounding us natural environment without anthropomorphising that but recognising the cultural and social importance of it, recognising it as part of the natural-social metabolism. I will discuss the existing approaches such as deep listening (Oliveros), sonic curriculum (Gershon), sensitive walking (multiple authors) and propose the possible participatory ways of increasing such sensibilities with technology and with art-science collaboration, as well as mutual research benefits of such collaboration.

Polina Golovátina-Mora is Associate Professor in Film and Media in Education at Faculty of Teacher Education at Norwegian University of Science and Technology – NTNU. Polina holds PhD in History with emphasis in historiography and research methodology. Her research is informed by posthumanist feminism and critical pedagogy and focuses on qualitative, art-based and sensorial research methodology and pedagogy. Polina's research at different moments has covered an intersection between narratives, language, and power, the monstrous as a reflection of current societal issues, theoretical alternatives to traditional views of nation-state, urban artistic practices, nature and elements in folklore and their social and environmental meanings as well as questions of memory and creativity.

## Reflections on “Mind Blind Pathetic Sublime”

For FEMeeting 2022 I will discuss my 2021 lecture performance “Mind Blind Pathetic Sublime: Explaining The Pathetic Sublime to an Axolotl Audience”, which was the culmination of many years of artistic experimentation and research. Aspects of the aesthetic and conceptual groundwork for this then-in-development project were shared in my presentation “The Pathetic Sublime” at FEMeeting 2019, and now will share reflections on the results. Willingly entangling into human/human, human/non-human, and human/technology confusions, the performance was presented to an invisible online audience via the Zoom platform, and featured dual screens of the artist (streaming from an art gallery) and axolotls (in their aquarium home). This was in February 2021, in the heart of Covid-19 social restrictions, which therefore presented an opportunity to engage with the isolation, loneliness, and technologically-mediated communicative ambiguities forced upon many more people than in the past.

Discomfort with the unknown, black-box minds of an audience was a concern in this performance’s predecessor, my 2016 performance “Mind Blind: Therapeutic Interventions for Human/NonHuman Communications”, presented in the same gallery space before a live audience. These form two performance experiments of before and after: before my diagnosis on the autism spectrum (the physically present audience confronted with the experience of cognitive confusion), and after (with the invisible/online human audience peering awkwardly into an intimate conversation between a human and axolotls.)

Although this was an artwork which directly addressed discomfort, failure, and unclear intentionality, I will share ways in which their groundwork was laid through various prior projects, discovering imagery and performative actions with which to communicate. My artistic practice has provided me with ways of articulating my previously unnamed experiences of the world, from the nearly violent intensity of forced attention, to the entangling raptures of absorption and willing co-presence of (often non-human) others.

### Hermanutz, Sarah

Sarah Hermanutz is a Canadian artist based in Berlin since 2012, with an MFA in Media Environments from the Bauhaus University Weimar in 2021. Her performance- and installation-based artistic experiments frequently betray a preoccupation with water, mud, wetlands, and amphibious life, while being concerned with issues of neurodiversity, social cognition, awkward embodiment and human/non-human ecologies. She often works collaboratively. She is a co-founding member of the Berlin-based art-science-technology community Lacuna Lab (since 2015), and the art-science collective DIY Hack the Panke (since 2018) with whom she creates workshops, performances, and installations engaged with Berlin’s Panke river. She frequently collaborates with the gallery Art Laboratory Berlin. Past residencies include Cultivamos Cultura (Portugal) and Critical Media Lab (Basel), with her installations, lectures, performances, and workshops presented across Europe, North America, and Australia.

## The Sanctuary for Independent Media and NATURE Lab: Creating community change with media, art and science

In this presentation artists and activists Kathy High and Branda Miller will discuss various media, art and science interdisciplinary projects taking place in Troy, NY, USA, a small post-industrial city, 200 kilometers north of New York City along the Hudson River. As co-founders, High and Miller will discuss the development of the local non-profit community media arts organization The Sanctuary for Independent Media's one block campus in North Central, and The Sanctuary's NATURE Lab initiative. Situated within The Sanctuary's living learning one block campus, NATURE Lab opened its doors summer 2021 to provide robust social and environmental justice research using NATURE Lab's BSL1 laboratory and the People's Health Sanctuary.

Born out of progressive media politics and working against top-down hierarchies and hegemonic models of knowledge production, The Sanctuary was formed to have control over creative freedom of expression and democratic education practices. Situated at the historic location of the upper Hudson River waterways at the beginning of the Erie Canal, and next to an important indigenous Mohican village called Unawat's Castle, The Sanctuary has embraced these local histories while developing new futures. The Mohican people referred to the Hudson River as Mahhicannituck, which means the "river that flows both ways" or the "waters that are never still," as it is a tidal river connected to the Atlantic Ocean. This connectedness and sense of open-ended movement inspired The Sanctuary's "campus" which grew while also building networks of community volunteers and collaborators. The fact that Troy is a second tier, smaller city, with a lower economic overhead, properties and even building rehabilitation costs were overall very low. In the years following its founding in 2005, The Sanctuary has been able to purchase a number of empty lots and abandoned houses which serve as active learning spaces (today The Sanctuary has 4 rehabbed buildings and 6 empty lots which are now gardens).

Using participatory action and creative DIY/DIT approaches, we posit The Sanctuary/NATURE Lab as models for our bio and social futures where we also need to turn attention to the ethical debates around allocating resources, and creatively exploring eco- and biological resilience to our ecosystems and environmental crises, as well as to poverty and neglect and environmental justice. Leveraging government institutions and academic resources, how can we inspire similar autonomous social justice projects around the world? What do these kinds of self-realized spaces afford us as civic peoples, and what are the challenges? How can the care and nurturing provided through this community organization be a motivator for future community activists?

**High, Kathy**

Kathy High (USA) is an interdisciplinary artist who collaborates with scientists and activists, and considers living systems, animal sentience, and ethical dilemmas of biotechnology and medical industries. She is Professor of Arts at Rensselaer Polytechnic Institute (RPI), Troy, NY, and is director of BAT (BioArt and Technology) Laboratory in RPI's Center for Biotechnology and Interdisciplinary Studies. She is a supporter of community DIY science and ecological art practices. She is the Project Coordinator for NATURE Lab with The Sanctuary for Independent Media. She is committed to queer / feminist approaches to reshaping ecological bio-science research, learning-by-doing and collaborative action. Among many honors, she is recipient of awards from National Endowment for the Arts, Guggenheim Foundation and Rockefeller Foundation.

**Miller, Branda**

Branda Miller (USA) is a media artist and educator, dedicated to art, ecology and community interdisciplinary arts. She is the Arts and Education Coordinator at The Sanctuary for Independent Media, where she has developed numerous media literacy/community arts/ youth media and creative placemaking projects. She is Professor of Media Arts at Rensselaer Polytechnic Institute, teaching courses in documentary art, community and technology, and independent art production. Miller is an Emmy awardwinning editor who worked in the media industry of L.A. and N.Y.C., and whose media art works have been screened and exhibited and broadcast nationally and internationally.

## Desert Sea: Reflections on Art with Light and Electron Microscopy

My recent work is titled 'Umbra', after the darkest part of a shadow, since the worlds that I am imaging are not illuminated by light. These alien landscapes are, in fact, microsculptures incorporating insect and plant fragments, imaged by scanning electron microscopy. Lit with electricity instead of light, the sculptures present as post-apocalyptic wilderness, with radiant glowing forms and seemingly unstable dark areas, all rendered in excruciating detail. The forms inhabiting these scenes appear massive and immense, but in reality the entire landscape is less than half a centimeter across.

This work raises questions around objectivity and the role of the artist/scientist's hand in the production of imagery. Bruno Latour says scientific images aim to be *acheiropoieta*, i.e. not made by human hands. But I've been naughty as a scientist. I've been using expensive and specialized scientific equipment for artistic pursuits, which emphasize, rather than subdue, visual artifacts. For 'Umbra', I utilized the scanning electron microscope to amplify the charging artifact, wherein a sample accumulates so much negative charge (often as a result of faulty specimen preparation) that it glows white and distorts the electron beam being used to image it. For scientists, the charging artifact is a nuisance that prevents accurate and repeatable imaging; for me, the resulting image – warped, inconsistent, corrupted – is a source of aesthetic appeal and a challenge to the conception of the scientific image as objective and isomorphic with nature.

During the pandemic, electron microscopes were not available for me to use, so I started new body of work using the light microscope in my living room. Light microscopy differs greatly from electron microscopy; for one thing, creatures can be very much alive. I liken electron microscopy to a 'bone dry desert of death', as it occurs in a waterless vacuum and images the desiccated shells of that which may have once been alive. Objects appear opaque and massive, always in in black and white. By contrast, my new work through a light microscope reveals an aqueous wonderworld brimming with colorful aquatic life.

For my pandemic work, every weekend, I would visit Halls Pond in Brookline, MA, and collect plankton. It was almost ritual. I then took video of the pond water under my light microscope and ran it through software I wrote which algorithmically sums images, revealing the paths and trails of myriads of microscopic creatures. I consider these images like automatic drawings or paintings, the plankton create the marks and composition. Chronophotography allows us to see these creature's 'footprints'; instead of a giant footprint in the dirt, there is a small squiggle. Some dart across the frame in less than a second, others carve slower, helical paths. They are always seeking, striving, looking for food and mates. Plankton form the basis of the food chain but are so tiny

they're often overlooked. By visualizing them and celebrating their vitality I hope to raise awareness of the impact humans are having on these unseen beings.

### Holz, Jess

Jess Holz (b. 1985) creates artworks which give the viewer a peek into invisible worlds, as well as a chance to reflect on the influence of scientific visual culture on our collective imagination. She has recently received an MFA in Art+Technology at the University of Wisconsin-Milwaukee; previously she has worked in several labs and imaging facilities, gaining valuable technical experience with a number of microscopic imaging techniques. She currently works as an electron microscopy research fellow at a Boston University lab which investigates the neural circuitry underlying thought and emotion. A true artist/scientist at heart, she has been using the scanning electron microscope for artistic purposes for the past 16 years. Her award winning micrographs have been exhibited nationally and as far away as South Africa, and have garnered the support of the Frederick Layton Fellowship and UW-Milwaukee Chancellors Award. The discrepancy between what can be perceived by eye and what is imaged with the microscope has fostered her fascination with perceptual systems along with the optical properties of materials. Jess actively exploits this in photography and installation.

## Meet HAL: Hub of Arts Laboratories and how to do lab networking

The research structure named "Hub of Arts Laboratories - HAL" focuses on the promotion of scientific research in the field of audiovisual arts / new media art, specializing in the design, development and distribution of high quality and aesthetics of digital multimedia, intermedia and interactive content. The object of HAL is the establishment of an integrated research infrastructure whose activity concerns the strengthening of the cultural creation from the Ionian Islands in the field of contemporary audiovisual arts. Given the special characteristics of the local economy of this region, which is primarily developmentally oriented toward tourism, this aid is extended to creative sectors beyond traditional music that is the emblematic example of culture for the Ionian Islands. In particular, HAL, as a research infrastructure, during the first years of its operation focuses on two individual research directions, which are not widespread in existing fab labs and which are fully compatible with the special characteristics of the social system and the economy of the Region of the Ionian Islands: a) immersive environments and gamified content and b) telematic performance art. For the operational needs of the HAL research infrastructure and to optimize its organization, a few creative hubs (C:Hubs) have been defined as internal ecosystems of the infrastructure, which can operate independently providing services in their field of activity, or in collaboration with others. Each of the nodes constitutes a smaller research ecosystem, with a distinct orientation fully covering the directions of the HAL infrastructure, as they were initially developed. At the same time, this structure will allow the creation and integration of new C:Hubs, able to extend HAL to creative content and art research directions in the post-genomic era.

Honorato, Dalila

Dalila Honorato, Ph.D, is a facilitator of safe spaces for hosting the interaction of ideas around liminal issues in the frame of Art&Sci. Her research focus is on embodiment, monstrosity, the uncanny and the acrobatic balance between phobia and paraphilia. She is Associate Professor in Aesthetics and Visual Semiotics at the Ionian University, Greece, and collaborator at the Center of Philosophy of Sciences, University of Lisbon, Portugal. One of the founding members of the Interactive Arts Lab, she is the head of the steering committee of the conference "Taboo-Transgression Transcendence in Art & Science", and, together with Marta de Menezes, the conceptualizer and developer of the project "FEMeeting: Women in Art, Science and Technology". She is a full member of the Board of Directors of the "Municipal Gallery of Corfu" (2020-2023). She was a guest speaker at the festival Extravagant Bodies: Extravagant Love (Croatia), at the Coalesce Center for Biological Art, University at Buffalo, The State University of New York (USA), at the BioDesign Seminar Series, Parsons, The New School, New York (USA), at the symposium Arts Based Research In Times Of Climate & Social Change at CNSI - UCLA (USA), at The Artist as Host: ASFA Lectures Series, Athens School of Fine Arts (Greece), at the a.pass Research Center (Belgium), at the CIAC, University of Algarve (Portugal), at Penny W Stamps School of Art & Design, University of Michigan, (USA), at FACTT 2018 Berlin at Humboldt-Universität zu Berlin (Germany), etc.

## "Repository of Life" - an art project in progress presentation

"Repository of life" focuses on the (re)presentation of life and death (mainly non-human) in the context of Anthropocene in scientific institutions and museums, as well as on the subversive potential of such representations in art. I'm interested in strategies of different kinds of collections, both historical, reaching far with geographical expansion (eg. Cabinets of Curiosities, Museums of Natural History, Herbariums, Palm Houses) as well as contemporary ones looking ahead, foreseeing human triggered catastrophes, preparing back-up plans (seeds banks, Global Strategy for Plant conservation, hibernated animal tissues - Frozen Arc, Cyro Collection, Frozen Zoo, etc.). The project will consist of visual and theoretical researching of institutionalized strategies employed in different sorts of collections of „life" and „death", with a special focus on tensions between eg. materiality/immateriality in relation to infrastructure, exhibits, tools, methods and life&death concepts. I have started my visual research in plam houses - institutions where „exotic" life on display, however robust and intense may seem to be in comparison with local (in my case - Polish) flora, is extremely fragile and highly managed. It can only survive in the otherwise hostile environment thanks to complex infrastructure and know-how. I have focused on „life supporting" collection strategies - artificial watering, lighting and protecting the plants from the outdoor conditions with the glass walls. I have also visited the Institute of Natural History in Reykjavik to record the last great auk on display. Soon I'm planning to research the wet collections from Museums of Natural History in Poland (and possibly Berlin), expanding the scope of my research over time. I'm also planning to produce artworks using i.a. coal, oil and rock salt as natural repositories of life and include them in the exhibition as a sort of contrast to institutionalized life collections.

## "Plantae Malum - a herbarium of rejected plants" - an art project presentation

The so called „weeds" do not constitute a scientific category. A plant is considered „undesired in a specific context" from a purely anthropocentric perspective. Yet falling into this category has real consequences - unwanted plants are eradicated on an industrial scale. Despite their high adaptability they remain fragile, with some already listed as endangered species. „Plantae Malum" (bad plants) is a multilayered herbarium of rejected plants. A sensitive observation employing a visual language from the edge of the aesthetics of a laboratory and a Wunderkammer aimed at a reintroduction of plants,

stigmatized both in rural and urban context, back to our botanical imaginary.

The work consists of graphic collages, bees wax objects, audio and photographs. With these diverse means, mixed with classically museum aesthetics, the rejected plants („profanum") enter a gallery space („sacrum") in the former Imperial Castle (Poznan, PL). The collages of „weed" hybrids, based on botanical illustration from an agronomic atlas of weeds, consisting mainly of seeds, fruit, flowers, are embodiments of resistance and fertility - so much feared by farmers. Bees wax casts refer to the essential connection of plants, regardless their status in the human classification, with non-human actors, eg. pollinators. The audio work (a 30min hybrid, fragmented plant description) disarms the aggression inscribed in botanical descriptions aimed at successful identification and eradication.

### Kedziora, Anna

Anna Kedziora: Born in 1982, lives and works in Poland. Visual artist. Holds degrees in English (MA) and Photography (PhD). Teaches at the Photography Department (University of the Arts in Poznan, Poland). Co-founder and manager of an international photography competition Poznan Photo Diploma Award. Curator of photography exhibitions (eg. during: Photokina Academy in Cologne, DE 2014; TIFF festival in Wroclaw, PL 2016; the European Month of Photography in Berlin, 2016; International Photography Festival INTERPHOTO, Bialystok; PL 2017, Riga Photo Month 2019, LT; Chiang Mai Photo Festival 2020, TH). Her field of artistic research embraces a wide scope of what might be called „Conflicted Landscapes". She has worked i.a. on the notions of Landscape & Power, Landscape & Trauma, and Landscape of Loss. Her main medium is photography and video, she also experiments with ceramics and installations.

## Ceramic, Seeds and Pollen Grains

Ceramic sculptures were inspired by the photographs of seeds and pollen taken under a microscope by photographer, artist and scientist Rob Kessler. Those fascinating images reveal the incredible beauty of seeds and pollen grains – otherwise invisible to the human eye.

When I first saw the photographs I knew immediately that I would recreate the seeds three-dimensionally. So this is the result of nature inspiring first a photographer-artist-scientist, and then in turn a ceramist, to portray them on a larger scale.

Of course, my sculptures are not 3D prints, but an imaginative interpretations of the photographs. From a certain point in the process, I let go of the microscopic image and tried to develop coherence within the piece itself.

### Kempe, Maya

Maya Fernandes Kempe (Berlin, 1975) is an art pedagogue and sculptor. She studied philosophy and literature (NDL) at the University of Berlin (FU), and graduated in Art Pedagogy (PFH). She is a self-taught sculptor/ ceramist, and art teacher since 2005, having practiced as an art pedagogue. She is founder of Espaço Azul, in Lisbon and co-founder of the space Ateneu do Catorze, in São Luís, where she is based.

## Materializing Ephemerality and Loss

“There is the physical lack of the person and this other infinitely unchangeable lack that was always present but now has no possibility of changing.”

Davina Kirkpatrick, PhD Thesis

The pandemonium that the pandemic created in our collective and individual lives has been experienced, inhabited and interpreted in myriads of ways. Davina and Dolores chose to share their perceptions, insights and sensitivities and to braid them during a months-long collaborative process. The artist and the scientist, with “alleged” different sensibilities, engaged in the discovering and uncovering themselves and one another, exposing vulnerabilities and forming a symbiotic relationship.

The isolation and perceived confinement, led many of us to creating communities of collective fear, loss, grief and helplessness, whilst realizing that fear, loss, grief remained persistently individual and unique. Under the same dome of collective confusion, our memories became blurry, vague, fluid, like the clouds above us: forming, dissipating, being blown each and everyway, reassembling as if absorbing every drop of sweaty fear, each teardrop of sadness or despair.

Under the same Corona skies, we tried to recreate rituals that would keep us sane and give us the sense of communion. As waves of mourning and dread would wash over us, irregular yet so predictable, our minds would continuously collect anomalous data from the overwhelming surroundings.

Both isolation and communication became cloud formations. These evanescent constructions became our memories. And our memories became us. The search for a way in which to hold onto them and to express or embody the void, the loss, the potential oblivion, was the premise under which Davina and Dolores started their collaboration.

The ongoing “memory project” allowed and encouraged the individual threads to turn into a braid: Davina’s loss and mourning of her beloved, Dolores’ grief over memories lost, their common grieving of lost selves. Stories and thoughts, words and images slowly started materializing and the bits and pieces of the different threads came to form more complex tissues and textures.

Be it solely presented in a digital form, or as a material embodiment, the project is, and will continue to be, a multifaceted, multi-media presence of a communion of interpretations. The synchronicity and symbiosis between the two women’s approach to such intimate subjects, the immovability of the “vessel of care” carried and sustained by the initially complete strangers, could make one start to think of the encounter of two of “the granddaughters of the witches they could not burn.” (D. Haraway, <https://www.youtube.com/watch?v=GrYA7sMQaBQ>)

### Kirkpatrick, Davina

Dr. Davina Kirkpatrick (PhD, MA, PGCE) is an artist, designer, researcher and lecturer, who works with art-based and qualitative research methodologies. In her work there is thread of playfulness and inquiry that connects a varied and diverse career spanning theatre design, public art, socially engaged practice, and collaborative interdisciplinary projects with the discipline of training in drawing, fine art, expanded print media (including film), architectural and sculptural glass and vitreous enamel. Her research interests are Narrative Inquiry, collaborative writing practices, arts based and practicebased research methods, grief, loss and pain. She also runs a commission-based business for public and private clients.

### Steinman, Dolores

Dr. Dolores Steinman (MD, PhD) is currently a retired medical researcher/practitioner. Originally trained as a paediatrician, upon relocating to Canada, she obtained her PhD in Cell Biology and was involved in research regarding both the ethics as well as the aesthetics of the patient data re/presented, facilitating the communication with the patients and their needs (exploring loss of quality of life or potential death) as well as the physicians’ requirements (limited by the technologically advanced tools, consequently remote from the actual body). Prior training in the Visual Arts helped both her employment as well as volunteering docent at the Art Gallery of Ontario.

## Forest: Aesthetic forms of dynamic network structures

Kisseleva, Olga

The FOREST project started in 2020 by the women's team of the Sorbonne Art&Science lab conducts a series of collaborative art experiments involving artists, researchers, and computer scientists, specialists in AI. The combined expertise of the consortium put it in the unique position to analyse and develop AI art devices and the new type of aesthetics they propose, their impact on society and their relation to the nature communication mechanisms.

The use of the latest AI technologies in digital art creation constantly raises new ethical questions and critiques related to the new digital aesthetics. The development of the new type of artistic creations using AI tool raises the question of the machine's creative autonomy. The use of algorithms and generative adversarial networks (GANs) has recently transformed the digital creation. Moreover, this type of creation became even more present due to pandemic context, which led to the active transition of communication towards the constant use of digital devices. With the help of AI machine learning artists create autonomously generated images, texts and videos. Consequently, the creative process evolves from an individual to a networked action. Therefore, it is now necessary to perform an advanced study of the creative potential of the networks use.

The central question nowadays is: How in certain artistic actions based on AI, the use of the network reveals as a creative principle and leads to the generation of the complex and dynamic aesthetic structures?

Recent works in the field of digital creation with GAN tools and swarm algorithms has opened the possibility to examine this technology as a category affecting human creativity and to question the machine and nature relationship. The advantage of the AI creative process lies in the multiplicity of interconnected objects and its dynamic nature. We will carry out a study of new aesthetic forms of networks, referred to as the set of interconnected aesthetic and intellectual objects (images, texts, works of art, musical pieces, information data) in the framework of digital creation with AI tools.

FOREST studies and experiments three types of artistic practices: 1) where AI serves as the method to give visual form to the phenomenon of collective intelligence, i.e. the ability of individuals to interact in order to acquire new knowledge; 2) which implement AI as a tool or even as the subject itself; 3) which apply bio-inspired AI, based on the principle of the intelligence of nature. Three innovative technologies are implemented in the context of creation: GANs, the Quantum Computer and Bio-inspired AI algorithms.

Our presentation expects to encourage researchers, artists and the general public, to make them aware of these innovative technologies and its impact on the society.

"The artist Olga Kisseleva's approach to her work is much the same as a scientist's. A discrepancy detected during a procedure or within the workings of a structure oblige her to formulate a hypothesis, in order to explain the complication in question, and wherever possible, to propose a solution to the problem. She then determines the skills necessary to pursue the relative study, and commissions the research. The artist calls upon exact sciences, on genetic biology, geophysics, and also on political and social sciences. She proceeds with her experiments, calculations and analyses, while strictly respecting the methods of the scientific domain in question. Her artistic hypothesis is thus verified and approved by a strictly scientific method..." excerpt from the catalogue "Windows", Musée Marc Chagall, Nice, 2008

Shagina, Elizaveta

Elizaveta Shagina is an artist researcher and independent curator, based in New York and Paris.

She is doing research at PhD Art&Science program Research and Artistic Creation at the Sorbonne University of Paris. Her research focuses on the theme of Net Art aesthetic, the interaction between the viewer and the artwork, comparison between natural and artificial communication systems.

She is a Founder of Paris-based Association of artists and curators Art Inédit, which is working on the development of contemporary art projects. In 2018 – 2019 Elizaveta was a guest curator at NK Gallery, Antwerp, Belgium. In 2016 she was a curator of the festival of Public Art Access Point in Saint-Petersburg, a curator of the Subversive Views festival of video art in Metz, France.

## Incest in world cinema: the cinematic portrayal of gender, social roles, and sexual orientation, within incestuous relationships

The act of incest is the violation of the human's strongest and almost universal taboo, throughout the history of human civilization. Taking into consideration that the condition of incestuous relationships merits further study, I am studying, analyzing, and comparing the cinematic representations of social and family roles, gender identities and sexual orientations during the incestuous condition. I suggest that we can draw significant conclusions about their dynamic, in a more inclusive way, that considers the participating subjects as individuals in whole (in terms of action, behavior and body), the society and the cultural dimension of the cinematic depiction.

Some of this research queries are, indicatively:

-If incest constitutes the strongest social taboo of human civilization, is it portrayed in cinema as such?

-Is incestuous desire as a sexual act depicted in films? In what ways?

-What is the social status and the class origin of the incestuous heroes in world cinema? Are there any differences among them? If so, why?

-How are individuals signified, in relation to their social role and sexual orientation, in incestuous relationships?

Regarding the portrayed (cinematic) reality, are incestuous couples socially included or socially excluded because of their incestuous relationship?

-Should incest in the cinema be considered art or pornography?

-Is it a trauma or a choice?

My research is based on the study of nine common, feature-length films, that belong to the classic, realistic narrative and were distributed at four international festivals (Thessaloniki International Film Festival, Melbourne International Film Festival, Festival De Cannes, and Academy Awards), within a distribution period of 20 years.

With my proposed paper, I would like to share the methodology of my research, from the selection of the research corpus, the creation of the basic model form analysis, to the basic queries of representations of gender subjects, to the categories of incest and its options, factors, and results, to the analysis of the selected sample films.

**Klimatsaki, Stella**

Styliani Anna Klimatsaki was born in Athens and completed her studies in "Hellenic Cultural Studies" at the Department of Humanities of the Hellenic Open University (2014). She obtained a MA (joint) degree in Creative Writing at the Universities of Western Macedonia and Hellenic Open University (2019). She is a Ph.D. candidate in the Department of Audio and Visual Arts of the Ionian University (Greece). Her research, entitled "Incest in world cinema: the cinematic portrayal of gender, social roles, and sexual orientation within incestuous relationships" focuses on the depiction of incestuous desire, on the violation or/and transgression of the incest taboo and on the representation and performance of gender, social roles, and sexual orientation, within incestuous relationships in films, distributed over the last twenty years.

## What does the Internet look like?

**Kormilitsyna, Ekaterina**

This research paper seeks to consider and (re)imagine models of digitality, by deploying a new materialist non-anthropocentric practice of examination. Understanding the internet in the context of the Anthropocene whilst giving agency to data generation; Agential realism and absurdist poetic strategies propose a method of engaging with “planetary-scale computation” (Bratton 2016) via a diffracted journey to explore various model structures investigating the relationships between data, digitality, autonomy, humans, and politics without notions of hierarchies or an obsession with post-truth and fact-seeking.

This paper seeks to understand why the popularized spatial model of the virtual imaginary “cyberspace” (Gibson 1984) concerning the digital, has its limits, which become highlighted in moments of geological, economic, and digital conflict.

New Materialism and Absurdism offer a generous and interdisciplinary field in which one conducts research and experimentation, allowing this study to draw on theorists working in archaeology, architecture, design, filmmaking, and linguistics.

Given that the internet is multifarious, the challenge is to engage with a diffracted methodology to approach ideas of visualization and architecture. What does the internet look like? When discussing contemporary planetary problems, the models used for such discussion need to be positioned within the zeitgeist.

This research suggests, that to have a contemporary discourse, which is capable of engaging with planetary-scale issues of geopolitics and climate, we have to move on from ineffable models of imagination and find new architectures and terminologies.

Ekaterina Kormilitsyna is an interdisciplinary researcher and artist working with arts, film, technology and soci-political research. Her academic work focuses on economic and political aesthetic philosophy and ecological geomythologies Ekaterina acquired her Bachelor in Film Studies at Queen Mary, University of London (UK) and a Masters in Research from Cardiff Metropolitan University (UK) and is continuing her education at the Academy of Fine Arts Vienna (AT) She is also currently a visiting researcher at the TransTech research group at Plymouth University (UK). She was born in Vienna and has split her work between Vienna, London and Beijing, now currently working based in Vienna.

## Are You a Full Woman?

**LaGaccia, Daniella**

When a transgender women transitions, you pass through the barrier of gender, living through the social norms and expectations of one gender to another. For the past 5 years I've been making performances and photography that focuses on my transition from male to female. Each work looks at a separate issue concerning the physical, social, legal, and medical aspects of transition as I went through them. My work critiques the power structures that exist in law and medicine between cisgender people and transgender people, and how trans women's bodies are portrayed through a lens of sex and violence.

Daniella LaGaccia is writer and artist. She has written for numerous publications like Refinery29, Interview, BOMB, and artnet News. She has performed at Grace Exhibition Space, Last Frontier, and Catinca Tabacaru Gallery.

## SEA FABRIC: Wrapping Around the Vulnerable Coastline

Sunlight, water and light-sensitive ferric salts are the basic ingredients for the creation of blueprints, one of the oldest photographic techniques. Sea Fabric is an attempt to artistically record the porosity of the shoreline. Referring to the phenomenological concept of “the flesh of the world”, human bodies and natural things, the fibers of culture and nature, self and other, are woven into a permeable fabric. In the course of making cyanotypes, the artist is physically involved, actively touching and arranging the elements to be exposed in sunlight, developed in water, and dried in air. In order to reveal our interconnections with nature, an art of exposure shall be introduced, opening up the human self to a mesh of nonhuman creatures and landscapes.

### Lammer, Christina

Christina Lammer is a research sociologist, filmmaker and lecturer based in Vienna. Her work combines sensory ethnography with video, performance and body art. Currently she leads an artistic research project with the title *Visceral Operations / Assemblage* (2019-2023), funded by the Austrian Science Fund. She is affiliated at the Academy of Fine Arts in Vienna. Lammer holds a Ph.D. in sociology from the University of Vienna.  
[www.corporealities.org](http://www.corporealities.org)

## Storyfronts: The City during COVID

Storyfronts is an interactive storytelling documentary and videogame that incorporates vacant storefronts as hotspots that launch audio testimonials from Toronto citizens, and advocates for housing, who have been impacted by the pandemic. These testimonials will describe how Mom 'n' Pop businesses were forced to close during the pandemic, and how and why tent cities arose in downtown Toronto parks. Storyfronts has two versions: the interactive touch screen version for large screens and immersive VR and a mobile application version. Based on investigative journalism, this videogame is a reflection of the events in Toronto during COVID-19, showing three-dimensional images of storefronts and improvised homes, using photogrammetry.

During the onset of COVID-19 in 2020, when Toronto was in total lockdown and the streets were almost empty, I walked for hours to document the financial and social impact of the pandemic on businesses as they were forced to shut their doors along Bloor Street West. With my smartphone, I documented over 350 emptying, and sometimes completely vacant, storefronts using a mobile 3D scanning program, TRNIO, to re-create these storefronts in photogrammetry from stitched mesh images.

These storefronts became an artform in themselves, and reflected a vulnerable, decaying city, as form and content matched. These three-dimensional streetscapes had corrosion, distortion and inconsistencies from this imperfect process, and because I could not get all the angles of buildings, there were patches of missing imagery, which unexpectedly matched the dystopic decay of a city that I witnessed during this isolated time; indeed, it was like living in a science fiction nightmare.

During these long walks, I often searched for basic amenities - washrooms, coffee, and takeout food, and observed many people who were unhoused searching for these basic amenities, as well as shelter. Some people no longer had access to their medication because outpatient clinics were shut down, and I often saw fighting in the streets.

Many of these street-involved people were afraid of being forced into close quarters in shelters where they had an even greater chance of catching COVID from proximity to others. Because of these fears, they began to build tent city housing in parks. Witnessing the tragedy of our streets: people without access to medication, fist fights, lack of access to washrooms and sanitation, and the emergence of tent cities, made me feel profoundly sad about the lack of a social safety net for housing in Toronto, revealed in high relief by the pandemic.

There are hotspots with 10-15 images and six audio story hotspots launching interviews in Storyfronts. The navigation and the path experienced by the user during the game escalates from finding a cup of coffee, to finding a washroom, to finding food, to finding warmth, to building temporary shelter, to having this shelter taken away from them by the City of Toronto. The Storyfronts user will be exposed to a 'real-life' gamification of these events I witnessed during the first two years of COVID-19, and made aware of how the

pandemic intensified social disparities in the Greater Toronto area.

### Littlejohn, Elizabeth

Elizabeth Littlejohn is a multimedia artist, communications professor, journalist, and documentary film maker who has focused on representing the arts community and social movements for the past seventeen years. As a documentary film maker, she works collaboratively with artists to cover unusual and difficult subjects. In 2022, Elizabeth received Sheridan Research Creative Activities Grant for Storyfronts, the recreation of the empty storefronts of businesses during the pandemic as a virtual reality videogame for touchscreens and mobile phones. For her augmented reality projects, she employs in depth historical research and interviews. This research is added to the creation and re-construction of the building facades as memory palimpsests, incorporating the interviewees' lived experience. Recently Elizabeth Littlejohn finished directing, filming and producing The City Island. The City Island is a feature documentary about the Toronto Island Park System, weaving its volatile political history and ongoing issues with flooding and urban densification, from the very colourful and creative people who live there. Currently she is producing the Toronto Island Puzzle Tour, an augmented-reality smartphone application with six locales depicting hidden history of the Toronto Island, funded by the City of Toronto's Artworx Grant.

## COVID's Impact on a Young Artist

COVID-19 radically changed the structure of our world. The events of the pandemic had an undeniable effect on everyone, and for a young artist, these effects were felt acutely and painfully. I was 20 years old when the pandemic started. Pre-COVID, my art was a reflection pool for beauty: I saw beauty in the world, and I sought to record it on the page. Making art, pre-COVID, was a shallow act of interpretation. When the pandemic began, my beauty-filled and adventurous life was yanked away from me. I, like everyone else, was thrown into isolation. During these dark times, my art became something entirely different. Creating a beautiful product was no longer important. Instead, creation became the basis for telling my story, a twisted story of loss, fear, hope, and divine connection. Where before the subject of my art had been beautiful people and beautiful things, I became my only subject. I was the focal point for every new piece, and the act of creating was now vulnerable and highly personal. The images and divine symbols that followed me throughout this time were incorporated into my artistic story. The idea of "product" vanished, and the importance of storytelling took over. This highly emotional and personal form of creating has tired me out completely. Now, as the pandemic calms and our "before" lives grow a bit closer, the inspiration I felt during this time has left. Now suffering from a severe creative block, I wonder if the divine inspiration I felt during COVID was a fluke. Nearly three years later, I wonder if there is a future for my art in this world, a future in which the beauty of previous forms and the rawness of my COVID creations will unite. Must an artist suffer to produce something of value? What is the cost of art, and why do we continue to make it?

### Lomoe-Thompson, Catherine

Catherine Lomoe-Thompson: I am a self-taught artist and recent graduate of Smith College, where I majored in Anthropology and English. Art, in its many iterations, has always been an emotional life-line for me, as it allows me to put myself in the way of beauty and connect with the divine. From words to images, my vision of the world is one that I seek to constantly express. I currently work as an English-teaching assistant in Spain. I practice art on the side, and I aspire to someday make my creative work into a paying job.

## Cellular Installation - Building electronics with felt and embroidery

Lopes, Lina

Cellular Installation is an interactive installation developed for the Estufa Project - curated creative economy activities within São Paulo Fashion Week (SPFW). The installation works with conductive embroidery that when touched spread lights throughout the work. Made with modular felt pieces that fit together without the need for sewing, it proposes that people participate in the installation by making their own embroidery and expanding the work, making it grow through the shed like a living organism. The challenges for this project as so many wearables and soft circuits projects is the connection between hardware and software. A conventional PCB was designed for running in each piece of Cellular however, these PCB turned the installation more heavy and less organic in the shape. In the end, the use of flexible ordinary materials and the application of sewing brought more possibilities to the pieces. This solution was possible because Cellular was created and developed inside a space where electronics and craft/textile materials are together that became possible the transition between one and other smooth. Another important note about the solution of the project was the use of agile methodology used in general inside software companies to solve part of big projects putting the team to focus at the same time for the problem. In the end, the Cellular Installation is an inviting and friendly piece, one way to embracing electronics.

Lina Lopes is a consultant, entrepreneur and artist. She expresses in her trajectory the intersection between two worlds: art and technology. Graduated in Cinema by University of São Paulo and Master in Design by Anhembi-Morumbi College, she has an interdisciplinary background that also includes theater, engineering and computing. She has extensive experience in projects, working on the themes of parametric and generative design, video mapping, interactivity, Arduino programming, wearables, internet of things, biomaterials, among others. She is a speaker on innovation and mentor of bootcamps. Directs LILO.ZONE, space for creative use of technology and is at the forefront of the LILO.THINK initiative focused on immersive processes. She is enthusiastic of experimentation, collaboration and improvisation. In the wearables area, she has experience in research and prototyping projects with flexible conductive materials, pneumatic / soft robotics systems and biomaterials. In 2016, she realized the Touch Skin project, an artistic-scientific residence in the Media Lab of UFG to develop a temporary conductive tattoo. (<http://www.bioliolab.com/>).

## Memory matters, Hybrid Arts and Mediation Strategies

Lopes, Maria Manuela

Memory has been the subject and context of my artistic practice for the last two decades. I work in differing mediums and using hybrid methodologies and strategies which deal with distinct studies and scales on memory (functioning and enhancement). Recent works fold into a category of hybrid art once they emerge out of existing artistic conventions and fields of activity and they try to convene mediation strategies alongside their public display. From antiquity different media and modes of communication have been in dialogue, conjoining and separating as the dictates of society and culture allow. A hybrid art form or practice should not be thought of as a structural category, not simply a medium-derived phenomenon. I raise problems through artistic production based on the understanding that the observer is not independent of reality and that observation and experience are constructed. On that premise, I explore the possibilities that the memory and the knowledge not only reflect a world outside, but an inner world and try, by the work, to explore various possibilities to create empathy and affect.

Maria Manuela Lopes is a visual artist whose practice is transdisciplinary, investigating relations of memory and identity informed by the biological sciences and medical research; her work appears in a varied format within the visual arts resulting in multimedia installations, drawings and performances - occasionally including biological materials. Maria Manuela Lopes studied sculpture at FBA-UP and did an MA at Goldsmiths College in London. She has a Doctorate in Fine Arts and New Media at the University of Brighton and UCA-Farnham in the UK. She has developed a Postdoctoral Art Research Project at the University of Aveiro and Porto (ID + Institute of Research in Design, Media and Culture) and i3S Institute of Research and Innovation in Health. She is currently a researcher at i3S Instituto de Investigação e Inovação em Saúde as co-responsible for the Cultural Outreach Art/Science interface of the Institution.

## BioDwelling: Living with Living Material

The vision of Bio-Dwelling: Living with Living Material project is to engage and provoke public consciousness on the concept of the home as a more-than-human living environment through the questions, 'in what ways can we think of our home as alive?', 'how might we relate to novel biotechnologies in our homes?' and 'how can we develop a more meaningful relationship with non-human life in our homes?'. Bio-Dwelling draws from Irina Aristarkhova's theoretical research on the matrix and hosting the animal, (Aristarkhova 2010), Derrida's work on hospitality and our relation to the animal (Derrida and Wills 2002; Derrida 2000; 1988), Levinas' philosophy of the face (Levinas, 1991) and Ingold's discourse on dwelling (Ingold, 2005) -amongst others, including Lynn Margulis, Vinciane Despret, Maria Puig de la Bellacasa- to consider what is at stake in offering hospitality to the more-than-human life within our homes and bodies through sociocultural and art research. This research employs a novel and interdisciplinary collaboration between academics and lay experts through a framing of an 'extended family', drawing on the concept of whānau – a New Zealand Maori language word which encapsulates a complex network of relationships (physical, emotional, spiritual) between family members. The whānau concept links with and extends participatory arts models of co-production and collaboration to explore kinship models of collaborative practice. Early outcomes of the project will be discussed, including *Shit Happens!* a collaged series of interviews on the subject of human waste and *Listen with Mother?* a feminist exploration of scientific research into scoby as building material.

## Opening up science

Currently, a new modus operandi of open science is being set, where among others, projects that emerge from within communities rather than being made for or about them are becoming more common. Co-creation belongs to a spectrum of participatory practices that are being explored as vehicles to promote interdisciplinarity and inclusivity. At the same time, by involving communities in the knowledge production process, different perspectives are included, shifting the traditional leadership roles and understanding limitations of ones' area that can lead to more meaningful and impactful research. Different examples of past and ongoing projects are going to be shared, focusing on different topics (e.g. health, education, climate), the use of digital media, the role of science communication and artistic practices and value systems.

### Mackenzie, Louise

Louise Mackenzie, PhD, is an Edinburgh-born interdisciplinary artist, curator and writer. Her practice explores human relationships with the non-human world. With an interest in experimental and experiential practices, sound and new/found media play an important role in her work. She is co-founder and curator of interdisciplinary cinema project, *Black Box* and cofounder of *Alive Together*, an interdisciplinary community for research in human/animal relationships. Her work has been exhibited nationally and internationally, including ZKM (Germany), *BALTIC CCA* (UK) and *National Library of Madrid* (Spain) and she has written for publications with MIT Press, Routledge, Bloomsbury and Intellect.

### Modi, Kaajal

Kaajal Modi (she/they) is a multidisciplinary designer, artist and creative researcher with over five year's experience working through accessible modes to engage communities around the UK into important conversations about culture, technology, sustainability and climate. Their co-creation practice incorporates illustration, live art, sound, video and sensory workshops to create lively and situated encounters between people, organisms and ecosystems.

### Magalhães, Joana

Joana Magalhães is an independent researcher and project manager at *Science for Change*, in the field of citizen science. She holds a PhD in Biochemistry and Molecular Biology obtained under a Marie Curie Fellowship. She has more than a decade of experience in biomedical research on the fields of biomaterials, tissue engineering and musculoskeletal diseases. In parallel to her scientific career, she developed science communication strategies with the media from a gender perspective. She was an invited scientist at the *TRANSCENICA - New Transmedia Creators* residency.

## Feminist data collection? (Critical reflection on the “Desirable Dossiers: Healthcare through a data lens” (2014) and how we would do this now

Recent events have led to a crescendo of artistic investigations on healthcare / data, particularly with intersectional feminist perspectives. In 2014 I led a transdisciplinary project entitled “Desirable Dossiers: Healthcare through a data lens” which was a co-creation between healthcare ICT specialists, patients and health professionals. An artistic viewpoint was used to gain insights by looking through a ‘data lens’ at healthcare. The focus of the project was the Electronic Health Record (EHR), for which I used my advantageous position as both artist and hospital EHR information analyst. It had a broad scope, touching on many issues. A key part of Desirable Dossiers was experiential understanding of participants’ own data. Co-producing health requires individuals to be equipped to do so, i.e. gain understanding and agency. Privacy regulation gave us access to our medical data: request a copy, have corrections made, or even request deletion. The resulting artwork, comprising images, audio and texts, was to be a talking point. In summary, the work combined the views of patients and health professionals to propose an all-round more desirable dossier: “We heard the need for personal and contextual information.

We put together a holistic view of the patient based on patient and practitioner suggestions, whether it be patients’ own notes and measurements, own remedies, lifestyle information, information from alternative therapies, or hospital specialist notes. A person needs choices in the style of their record which reflects the way they want to deal with their healthcare data, how much openness - with whom will they share data and under which circumstances? Ultimately our work has also led us to deeper issues such as: how do you and others deal with your health? The installation brings together patient and practitioner views, and an augmented health record.”

Recently this work was mentioned at a Bio Commons meet-up at Waag, and it was suggested that what I had conducted at the time was in fact feminist data collection (with reference to Caroline Sinderson’s “Feminist Data Set”), when I was dreaming together with participants about a subjective and holistic electronic health record. For Bio Commons participation we should do this (or an updated version of this) again, asking citizens which data they want to see included in Bio Commons\*, understanding their very individual and personal stories and journeys, even if it takes six weeks to understand this for only three people. In the end the idea is participation with citizens about what they care about.

(\*<https://waag.org/en/project/biocommons>, <https://waag.org/en/event/biocommons-meetup-1>)

As part of the current phase I have started to revisit my project in the light of what we know now (anno 2022): intersectional feminist and social justice viewpoints that I was not familiar with then. I would like to present the project

in its state at the time we meet at FEMeeting in September 2022 and would very much like to share learnings and ask for feedback.

**Majumdar, Sujata**

Sujata Majumdar (b.1976, London) is an interdisciplinary visual artist based in Amsterdam. She has a background in Physics, Photography, and Information Technology and the intersection of cultures and these disciplines drives her artistic endeavour. She feels the need to hybridise, engage in dialogue, and use the ease at which she can see multiple perspectives to raise awareness of underrepresented voices, such as those of her patient collaborators in Desirable Dossiers, a European Commission funded ICT-Art Connect project (2014).

Her art practice started with photography and developed into interdisciplinary artistic research. For Signature Print (2017) she worked in India with the younger generation of craftspeople who can no longer earn a living from their family craft of block carving for textile printing, to research possible revitalisation of ancient craft techniques using maker technology. She is currently Head of Pattern Formation at the Institute of Unnecessary Research and a founding member of the multidisciplinary forum Tickbird&Rhino, bringing together specialists in conversation and collaboration to burst epistemic bubbles and dissolve disciplinary identities as a route to uncovering new knowledge and perspectives. This year will be the fourth year she attempts to grow food on the vegetable patch next to her flat. <http://www.sujata.nl>

## R/P FLIP: Spaceship at Sea

This presentation will outline my work for the Southern California-wide Pacific Standard Time exhibition on art and science, planned by the Getty Foundation for 2024. I am producing an artist book (MIT press) and a video installation for the Birch Aquarium in San Diego about a unique technological wonder in the history of oceanography. The world-famous FLIP is a nautical marvel that flips 90 degrees to become a live-in buoy for marine study. Recently decommissioned, the FLoating Instrument Platform (FLIP) is a co-production of the U.S. Navy and the Scripps Institution of Oceanography, which operated from 1962 through 2020. Its architecture invites curiosity and re-orientation. To accommodate travelers in the horizontal or vertical position, the interior is a space M.C. Escher might have imagined: extra doors and ladders are at perpendicular angles; toilets and sinks are mounted on tracks along which they may be slid sideways onto the walls. The kitchen stove swivels to upright on rotation. Yet FLIP was remarkably stable in high waves and crucially quiet. Attaching hydrophones down the water column along the 350-foot hull, scientists analyzed sound propagation at different depths. In the 1960s, FLIP supported sonar-guided submarine-missile launching but later became a workhorse for gathering ocean data. In the 1990s, public outcry against military acoustics' impact on whales flipped FLIP's use from military defense to marine conservation. Clearly, it would be feasible to imagine an art-science installation devoted to FLIP's engineering alone. However, along with my collaborator cognitive scientist Deborah Forster, I want to examine many aspects of the past and future lives of the FLIP through its scientific and military history, documentary film and interviews, LiDAR and photogrammetry, and speculative fictions. The R/P FLIP: Spaceship at Sea is one of several projects in the group Oceanographic Art and Science: Navigating the Pacific, curated by Lisa Cartwright (Institute of Arts and Humanities) and Nan Renner (Birch Aquarium at Scripps) for the University of California, San Diego. Work has already begun, including a FLIP "book."

Some questions we are using to frame our research are:

- What does the radical design of the FLIP show us about creativity and the interplay between science, art and literature?
- What is the social, cultural and historical significance of the FLIP beyond its radical design?
- How does the FLIP get caught up in the changing cultural meaning of the Pacific Coast and its human and nonhuman inhabitants?
- How did the FLIP as a technology researchers can live on uniquely shape scientific understanding of the ocean?
- What is lost and gained as the FLIP obsolesces and is replaced by autonomous and passive monitoring systems?

The project will trace oceanographic research through the diverse perspectives and lived experiences of the people who worked on FLIP, from the scientists to the skipper. FLIP's stories take us through the cultural transformation of California's coastal Pacific Ocean waters from a territory to

be defended to an ecosystem to be conserved.

### Mayeri, Rachel

Rachel Mayeri is an LA-based artist working at the intersection of art and science. Her videos, installations, and writing projects explore topics ranging from the history of special effects to the human animal. Commissioned by Arts Catalyst and receiving a major award from The Wellcome Trust, she created a film expressly for chimpanzees – "Primate Cinema: Apes as Family," which subsequently showed at Sundance, Berlinale, and Ars Electronica. Currently she is at work on a project about the R/P FLIP, a Cold War research vessel built to rotate 90 degrees to study waves and sonar, as part of Getty's Pacific Standard Time Art x Science x LA. A Guest Curator of the Museum of Jurassic Technology and professor at Harvey Mudd College, she teaches courses such as Animal Media Studies and Art & Biology

## Life Rushes In: Art/Science Collaborative Workshops

Mediati, Domenica

A central theme at INCUBATOR Art Lab is collaborating with life and letting life rush in. Founded by Dr Jennifer Willet, INCUBATOR Art Lab is one of Canada's top BioArt research facilities located at the University of Windsor. The lab's team members include student researchers and alumni staff from the arts and sciences. Domenica Mediati is a leading team member of the BioArt laboratory, a Mixed-Media Artist and a Sessional Instructor in the Faculty of Education at the University of Windsor. She coordinates many multimedia BioART workshops and research projects for INCUBATOR Art Lab. Over the past ten years, Domenica has developed and enhanced public and outreach programming with multidisciplinary painting workshops for the local community and in the classroom. These venues include collaborations with the Art Gallery of Windsor, Greater Essex County District School Board, Windsor Essex County Catholic District School Board, Windsor-based Private Schools, Windsor Hospice, YMCA, MET Hospital, and retirement homes.

This presentation will review INCUBATOR Art Lab research findings by exploring a series of these multimedia BioArt workshops. Additionally, this presentation will outline Domenica Mediati's past and future art workshops, methodologies, and an overview of The Oops Box - a start-up art business model founded by Domenica. Multimedia plays a crucial part in the advancement and success of the BioArt community and art community in Windsor and at large, especially during a global pandemic. Video animations, social media platforms, and hybrid learning have become powerful tools to enhance education and facilitate meaningful experiences. These virtual opportunities outline an important moment in history and culture where multimedia approaches benefit art/ art-science programming and education as life rushes in.

Domenica Mediati is a mixed media artist, Sessional Instructor in the Faculty of Education at the University of Windsor and Research Assistant and Coordinator at a bioart laboratory called INCUBATOR Art Lab. She has a Bachelor of Fine Arts in Visual Arts from the University of Windsor and a Master of Fine Arts in Visual Arts from Wayne State University. Domenica has taught 3D Animation courses and Art History courses at St. Clair College Centre for the Arts and managed a local pottery and art studio in Windsor, Ontario. Currently, Domenica is working on launching The Oops Box, a company whose mission is to offer students of all ages virtual and face-to-face multidisciplinary and multimedia art classes.

## Magallanes\_ICC: Women Cultural and Creative Entrepreneurship between art, technology and sustainability

Magallanes ICC is a project co-financed by the Interreg Portugal-Spain program with partners in Alentejo, Algarve and Andalusia. The objective of this program is to support cultural and creative entrepreneurs in the development of their business ideas. However, in addition to this economic and business dimension, it is essential to give visibility to the collaborative dimensions and cultural and artistic sharing between the different communities and agents that make up this program. In the context of this program, a network was immediately created, which is presented as an object of study in the creation of collaborative networks that mitigate isolation factors and that, through the motto of the supported creative projects, trigger empowerment processes in various social aspects. In this sense, the tools of technology allied to the various artistic and creative disciplines become a lever for its implementation and practical applicability. In the vast set of ideas supported within the scope of the Magallanes program, we want to share in this context four projects in the feminine that articulate different possibilities of relationship between art, technology, nature and/or sustainability, but also using or recovering more traditional practices or a connection with the local communities. These projects are: Lomia csc (Anna Daley), TexRex (Ana Baleia), Land&Sound (Liliana Carvalho) and Absurd Machines (Marta León). These examples are relevant not only in their specific disciplinary areas, but as an empowerment statement of the women's representation in these kinds of businesses.

## \_ARTERIA\_LAB - A creative laboratory for making almost anything

\_ARTERIA\_LAB - Arts, Entrepreneurship, Research, Innovation and Application Lab is a creative laboratory at the University of Évora dedicated to cross-disciplinary experimentation and research. Created within Magallanes\_ICC - an Interreg project that aims to support the Cultural and Creative Industries in the regions of Alentejo, Algarve and Andalusia, \_ARTERIA\_LAB has opened its doors in June 2020 and has established itself as a space for ideation, prototyping and communication within the academic community, but also with the regional creative community and in boosting dialogue between these two communities. Equipped with a maker space with digital fabrication and rapid prototyping machines, which allow us to make almost anything, \_ARTERIA\_LAB is committed to fostering relationships between the University and the Communities, through participatory models and co-design processes. At \_ARTERIA\_LAB, new ideas are created and tested at the intersection of arts, science, technology, and design to respond to society's challenges.

Currently, under the project Magallanes\_ICC, \_ARTERIA\_LAB is supporting 15 creative entrepreneurs in a wide range of areas such as design, sculpture, music, literature, theatre, performance and handicraft. Besides fostering relations with the communities and supporting cultural and creative entrepreneurship, \_ARTERIA\_LAB develops activities to support scientific research and also artistic production. \_ARTERIA\_LAB is also coordinating an Erasmus+ project to develop placemaking activities through the joint work of the Arts, Applied Sciences and Humanities. PLAY/ACT - Placemaking as Youth Activism is a three-year project whose main objective is to train students and teachers in joint cross-disciplinary work processes and in relations with local communities and other stakeholders.

### Melo, Natália

Natália Melo has a degree in Environmental Sciences (2007) and a Master in Environmental Citizenship and Participation (2011), currently enrolled in the PhD in History and Philosophy of Science (specialty Museology) at the University of Évora. Her research is focused on the variables that influence the emergence of exhibitions on climate change and the Anthropocene around the world and the role of the arts as a driver for the dissemination of scientific issues and facilitator of social debates around these themes.

### Salazar, Daniela

Daniela Salazar (1988): is a researcher, curator and cultural programmer. She has a degree in History (2010), a Master's in Museology (2013) and a PhD in Art Studies (2020). She is a researcher at the IHA - Institute of Art History at Universidade Nova de Lisboa. She is dedicated to the areas of preservation, management and transmission of intangible heritage, performance studies, museums and archives, as well as in the relationship between artistic practices and communities.

## Ex-Utero: The Future of Human Reproduction

What is the future of human reproduction? We are poised to completely control, and even willfully design, our entire reproductive process. This evolution is driven by recent scientific advances. It began with the advent of easily accessible contraceptives and further changed with the development of in vitro fertilization. Pre-Implantation Genetic Diagnosis meant that prospective parents had foreknowledge and some oversight over their propagation. Soon, recent breakthroughs may mean that parents can program specific genetic expressions and even predetermine traits in their progeny. Only the 9-month incubation in the female uterus has yet to be supplanted by technology. Breaching this final barrier means we embark on an unprecedented path - the dehumanization of the human reproductive process.

As a 2020 Fulbright Scholar and Resident Artist at SymbioticA at the University of Western Australia (UWA), Millett explored the science of ectogenesis, the augmentation or replacement of the fecund uterus by a machine. The term "ectogenesis," the extracorporeal development of an embryo in an artificial womb, was coined in 1924 by geneticist, J.B.S. Haldane, who envisaged a future where humans were perpetuated via synthetic uteruses implanted with pre-screened, genetically "superior" sperm and eggs. The concept was popularized in *Brave New World* (Aldous Huxley, 1932) which depicts a fictional dystopia with government-controlled reproduction via cloning and ectogenesis. Once seen as farfetched, this mechanization and mass production of the birthing process has moved into mainstream science.

The first significant breakthrough occurred in 1986 when Yoshinori Kuwabara of Juntendo University (Japan) designed an extrauterine fetal incubation system, a box-like container filled with an artificial amniotic fluid, to successfully gestate fetal goats. In 2017, a group led by Dr. Matthew Kemp (UWA) published research in *The American Journal of Obstetrics and Gynecology*, detailing how to control the gestation of a premature lamb in an entirely man-made, extracorporeal system. Ex vivo uterine environment therapy, dubbed EVE, is an artificial uterine life support platform that provides gas exchange via the umbilical cord, thereby eliminating the harmful effects of ventilators on underdeveloped lungs. Dr. Kemp's EVE therapy, tested on premature lambs removed via C-Section, extends the gestation period for extremely premature infants at the threshold of viability (22-23 weeks).

While a laudable goal in this context, the unanswered question is whether possible extensions of this innovative technology have received appropriate levels of ethical and legal scrutiny.

In collaboration with Cynthia White and in consultation with Ionat Zurr (UWA), the team will scan, decellularize, and mold a human placenta. The goal is to create an artificial uterus, using a polyethylene biobag, filled with an amniotic-like fluid

of nutrient rich media. The transparent incubator will allow viewers to peer into the interior of the womb, revealing a simulacrum of a placenta seeded with living, growing cells. The sculptural artwork, tentatively entitled *Ex-Utero*, will prompt questions and conversations about the socio-cultural impact of ectogenesis, a science with enormous implications that will change the future of humanity.

### Millett, Cristin

Straddling traditional disciplinary boundaries, Cristin Millett's investigations of medicine and its history are integral to her artistic process. As a transdisciplinary artist, her work examines the intersection of art and science, specifically sculptural processes and reproductive futures. Her sculptural objects and installations prompt a contemporary cultural critique of societal issues surrounding reproduction and gender identity. Raised in El Paso, Texas, Millett began her professional studies at the age of 16 at the University of North Carolina School of the Arts. She received her BFA from Kent State University and her MFA from Arizona State University.

### White, Cynthia

Cynthia White is a filmmaker and multimedia artist whose work has been screened, broadcast and presented at conferences and festivals in the US, Australia, Europe, and Latin America. In addition to festival awards, she has received funding and artist residencies through government and academic agencies both in Australia and the US. White is currently an Adjunct Research Associate at the Arts and Design Research Incubator (ADRI) at Pennsylvania State University. Through visual narratives, she strives to elevate the collaborative work between arts researchers and the medical and biological sciences.

## Capturing the formative forces of the unseen

Capturing the formative forces of the unseen, revisits the experimental practices of the scientist Lily Kolisko as a creative methodology to engender a greater understanding of the life forces that surround us, by translating soil and sap into delicate cartographies. It considers the experiments developed by Lily Kolisko, and Eugene Kolisko, using capillary dynamolysis to trace and visualise the formative forces in the juice of plants and soil extracts. It establishes the resonance of the figures the Koliskos developed with silver nitrate, with the 'voice flowers' of Margaret Watt Hughes and the 'Muster Bilder' of Ferdinand Runge tracing a lineage of liquid "natural diagrams" (Daston & Galison, 2007, p.20) as naturally drawn forms but also as evidence of other unseen powers. It also highlights however, the importance of planetary interaction and Kolisko's interest in establishing capillary dynamolysis as a means to promote more sustainable agricultural practices. The simple experiments offering a direct means with which to trace shifts and alterations visually, pointing to what would Ehrenfield Pfeiffer would later develop into the practices of circular chromatography. Although, Capturing the unseen, points to the use of Kolisko's experiments as an ecological practice, it celebrates her approach as a creative practice. For as in 1939, "We are in the midst of destruction ; the powers of war are relentless, they are destroying the life of man;...(and at) such a moment it's imperative to acknowledge the immense need of constructive and regenerative powers!"(Kolisko, 1940,vii). This talk proposes to resituate the work of the scientist Lily Kolisko, and highlight how her experiments in capillary dynamolysis can function as a pedagogical and a creative tool for the problems of the Anthropocene. For the simplicity of her hands-on approach, commonly used by farmers in Latin America, offer a simple vehicle with which to reveal the subtle harmonies of balanced farming practices and the dangers of industrialised farming. It will show how experimentation with Kolisko's experiments can provide a means for Sympoietic creative practices with which to chart new cartographies to guide more symbiotic behaviours.

### Milne, Jo

Jo Milne is a visual artist with a PhD in Fine Art from the University of Barcelona in 2016. Her PhD focussed on methodologies used by scientists, artists and visionaries to visualise the invisible and this has led to collaborations with scientists at IRB Barcelona, Citilab, Cornellà and Museu Moli de Paper in Capellades. A member of the research groups IMARTE (University of Barcelona), ARE (Art, Resilience and Economy (Independent) and the Visionary Women Research Group led by Dr Pilar Bonet. She currently lectures at EINA, Centre Universitari de Disseny i Art in Barcelona and the University of Barcelona. She has received awards from the Elizabeth Greenshields Foundation (Canada), the RSA, Arena Foundation, AENA and has undertaken residencies at the Museu d'art de Sabadell, the IRB Barcelona and the Irish Museum of Modern Art. Her work has been shown in private and public institutions, including Fundació Vila Casas (Barcelona), Museu d'Art de Sant Pol (Sant Pol), La Sala (Vilanova), Can Manyé (Alella) and Talbot Rice Art Centre (Edinburgh), Widener Gallery (EEUU) and the Forum (Switzerland). Her current research looks at the visualisation of the molecular world, exploring the possibilities of contagion between scientific and visionary practices. [www.jomilne.com](http://www.jomilne.com)

## The Deep Field Performance

Mitsani, Christina

Shechem Besendrin, Vera Siroua, Angela Davis, Vivian Diaz, Asma Yahangir, Eliza Musaeva, Fatia Nadia, Arundhati Roy, Nguang Sangtrol, Leila Sahonda, Leila Zana.

The female body carries its wounds and its history through the centuries, the murders, the rapes, the women covered with chador in Iran, in Saudi Arabia, in Afghanistan, the women covered with burqa in the Persian Gulf, death by stoning in India, homicides in Pakistan, baby girls thrown in the trash as soon as they are born in China, clitoridectomy in African countries. The body that brings life into the world has the right to expression, sexuality, to wear whatever it wants, to belong to itself, to be creative, not to be abused, not to rush, to grow old, to leave, to be free.

Christina Mitsani was born in Athens. She studied at the Center for Applied Arts "Vakalo" and the School of Fine Arts of the Aristotle University of Thessaloniki on a scholarship. She attended acting classes at the Studio of the "Parathlasi" Theater and the Theatrical Workshop of the "Experimental Stage" of the "Techni Art Organization" in Thessaloniki. She has attended acting seminars with actors Aris Retsos and Michael Marmarinos. She has worked in theatrical productions as an actor and set designer. In 2018 she completed the postgraduate program "Audiovisual Arts in the Digital Age" at the Department of Sound and Visual Arts of the Ionian University. Since 2019 she belongs to the teaching staff of the Department of Sound and Visual Arts of the Ionian University. Her artistic work includes individual and group exhibitions, performances and costume design in theatrical productions.

## Tech & Abstraction

Morgan McKendry, A.

I am an interdisciplinary artist who utilizes technology in my practice both as a collaborator, mediator, and material. I am proposing an artist talk where I share more about my background as an artist and particular artworks I find that would resonate with this symposium. In particular, I have been working with AI in generating of imagery and text source. That said, I am particularly interested in the ways that our digital experience impacts our social lives and what that may mean for possible futures. Moreover, as an artist, I am positing the ways in which tech can be used as an artistic medium to convey abstract concepts.

slimebubble is a frequent video-jockey & sometimes DJ within the underground music scenes/communities of Boston, D.C., and Brooklyn. slimebubble is the persona of independent curator and multidisciplinary artist A. Morgan McKendry. McKendry holds a Bachelor of Fine Arts with a concentration in contemporary art history from the School of the Museum of Fine Arts at Tufts University (2015) and a Master of Art and Museum Studies from Georgetown University (2019). They are interested in how technology impacts perception and artistic medium. Their work is inherently gender non-conforming, queer, and feminist as they are gender non-conforming, queer, and feminist.

## Biotechnology and tech-tattoo. An approach from Science, Art, and Philosophy.

My presentation will explore the most recent kind of tattoos: the technological, smart, digital tattoos from the viewpoint of Science, Art and Philosophy. Made of nano-tech electronic components such as electro-conductive ink or fabric tape, bio-nano-sensors, curvy wires, thermo-chromic ink, and sometimes also imitation gold leaf metal inscribed over the skin, these tech-tattoos go deeply by informing about the diseases, the genetics, the very chemistry of individuals. Tech-tattoos have the capacity of sensing, measuring, analyzing and emitting data about the body's biochemistry through signs and colors inscribed in and on the skin, depending if they are done in the body with conductive ink or if they are worn on the skin. For example, tech-tattoo may measure the body's temperature, the heart beats, the level of alcohol or the blood pressure, they may also be key tools in supervising fitness, in computing sleep patterns, in a word, monitoring vital, bio-metric data. Even if still temporary - because conductivity is yet lost through skin's natural resistance - technological tattoo is exponentially expanding, aiming at becoming a permanent bio-smart device, a daily device, with great value mostly for medicine and care treatments. Beyond these medical uses, tech tattoo has other kind of purposes, such as military (e.g., identifying pathogens in the air) or daily-services (e.g., credit card payments). And, in all cases, the connection of the individuals with the world-wide-web is done, not through external devices (e.g., cell phones) but through the human body itself. Therefore, the tech-tattoo offers new possibilities to think out the intricated relationship between technology, science, and society, more specifically, the relation between medicine, politics, artificial intelligence and governance politics.

## Women in Science

"According to UIS data, less than 30% of the world's researchers are women. UIS data also show the extent to which these women work in the public, private or academic sectors, as well as their fields of research." (...) Numerous studies have found that women in STEM fields publish less, are paid less for their research and do not progress as far as men in their careers. However, there is very little data at the international or even country level showing the extent of these disparities.) Citation from UNESCO UIS <http://uis.unesco.org/en/topic/women-science>

### Nabais, Catarina

Catarina Pombo Nabais - PhD in Contemporary Philosophy from the University of Paris VIII, supervised by Jacques Rancière. Researcher at the Dept. of History and Philosophy of Sciences at the Faculty of Sciences of ULisboa. Integrated member of the Center for the Philosophy of Sciences at UL, she is the head of the RL "Science-Art-PhilosophyLab" (SAP Lab) of which she was the creator (2014) and the vice-head of the RG "Philosophy of Technology, Human Sciences, Art and Society". Post-graduation in Art Curatorship (FSCH/Nova) she is also curator-in-chief of the art space "Oficina Impossível".

### Mota, Maria M.

Maria Manuel Mota obtained her BSc in Biology and her MSc in Immunology in 1992 and 1994, respectively, at the University of Porto, Portugal; PhD in Molecular Parasitology by the University College London in 1998; Post-doctoral studies on host-parasite interactions in Victor Nussenzweig's lab at the New York University Medical School from 1999 to 2002. On this year, she returned to her home country of Portugal to become a group leader, initially at Instituto Gulbenkian de Ciência (IGC), and subsequently at Instituto de Medicina Molecular (iMM), where she became the Executive Director in 2014.

## Earth as Interface: Environmental Communication with the Sense of Smell and Taste

Neves, Paula

This research project envisions the earth-human communication relationship as a living interactive interface, where technology mediates its communication through smell and taste. This work proposes a symbolic representation system for the chemical senses, related to environmental sensory experiences that provide the means for digital implementation. In terms of environmental communication, we intended to explore the chemical senses as mediums of multi-layered meanings to trigger pro-environmental action.

Therefore, we followed research through design methodology and conducted an exploratory study where participants went through taste and smell experiences related to real environmental events. The multisensory HCI (Human-Computer Interaction) design process comprised two main design phases, namely (i) chemical sense association experience and (ii) digital media experience.

Participants encoded these experiences with formal and haptic associations, and afterwards decoded them with Virtual Reality (VR) and Augmented Reality (AR) product prototype concepts. User scenario of the VR App frames an educational scenario for the user to learn about a local smell or taste perception and its underlying meaning. The AR App envisions spontaneous interaction with local smell or taste. Its experience design enables users to communicate, share and learn about chemical sense and environmental experiences. Thus, it assures the annotation of the stimuli experience, related to a place in time.

Quantitative and qualitative data analyses results showed that the link between earth – human relationship was comprehended and recommended as an educational tool.

Our conceptual system was validated and further developments were encouraged. This exploratory study testifies how design can enable human chemical sense communication and foster environmental events comprehension for educational and behaviour change purposes.

Paula Neves lives in Lisbon and is a digital media designer focused on Multisensorial HCI experiences for environmental education. She holds a PhD degree in Digital Media by Faculty of Sciences and Technology (NOVA - UNL) in collaboration with UT Austin-Portugal Program (2020) with a fellowship by FCT - Foundation for Science and Technology (2014-2018). Her thesis work “Earth as Interface: Exploring chemical senses with Multisensory HCI Design for Environmental Health Communication” led her to explore chemical sense integrated systems informed by communication design expertise. She has a Master in New Media and Web Practices (Faculty of Social Sciences and Humanities of NOVA University) and a Bachelor in Communication (Design Faculty of Fine Arts of the University of Lisbon).

## Evolving Ourselves with Unnatural Selection: Examining through Art the Ethics of Communicating Scientific Futures

In 2020 I gathered two artists researchers together to form an arts research collective, Non Random. The role of our group would be to work at the intersection of arts and science, where we would use creative technology, human computer interaction and direct ethnographic and sociological research methods, to explore the creation of meaningful dialogues between the arts and physical sciences. Our first project, presented at this conference, titled Evolving Ourselves with Unnatural Selection, looked to make tangible, with visible/audible outputs, the ethical implications of emerging technologies in the biological sciences, in particular the field of CRISPR gene editing technology. Gene editing technology, particularly CRISPR-cas9 has the ability to allow an incredible level of intervention into all aspects of living organisms on our planet. For the first time, we have the ability to alter, at the molecular level, genetic diseases and impact future generations with germ-line interventions. While these are fantastic advances in medical research, there are significant biological implications, such as the impact on delicate ecosystems both in the world at large and in our own human bodies, including the symbiotic relationship with bacteria upon which we depend.

Our research explored the terms mutant, mutation and deformed, and how this has filtered into everyday discourse, through different media platforms, as well as participating in talks around the future of gene editing on plants, animals and humans with our research partners at Cancer Research UK. We would spend a year developing a series of methodological engagements and technological artefacts, working with scientists, social researchers, ethicists, ecologists and disabled and excluded voices in the community, to navigate the ethical, empirical and creative challenges around scientific research and how the results of findings are shared, filtered and understood by the general public. The focus of the research was incredibly timely, with the emergence of the pandemic and the shift towards wider conversations about medicine, scientific research, misinformation and fake news, all occurring alongside increased media coverage of the global climate crisis. The culmination of this research was the creation of the GAIA online application, an interactive audio visual world, designed to collect data on how a general global audience might participate in defining, designing and decision making for future genetic transformations to our planet. The data collected from GAIA will be used to develop the second stage of our research project. This paper will explore how the methodologies helped inform the development of the GAIA application, and the data that was collected by users of the app.

O Keeffe, Linda

Dr Linda O Keeffe is a research led artist working and living in Scotland, and has exhibited internationally with commissions from Europe, the UK, Brazil, Asia and the US. Her current body of practice is focused on the intersection of science & technology, ethics and communication, where she has produced a number of art works, published research papers and keynote presentations. In 2017 she was commissioned to develop a body of work for the touring exhibition Sounds Like Her, the work, Hybrid Soundscapes I-IV has been shown in major UK art galleries from 2017 to 2020, and has been featured in publications exploring the role of women in sound [www.lindaokeeffe.com](http://www.lindaokeeffe.com). She has just completed a project funded by Creative Scotland titled Evolving Ourselves with Unnatural Selection, a new collaborative project between artists and researchers that will explore and present some of the ethics and future implications of gene editing through a digital multi-arts approach <https://evolvingourselves.non-random.co.uk/>.

## The Mutable Archive

What can a story with an unstable narrative paradoxically reveal about truth? How might we reconcile the multitude of competing narratives that drive contemporary culture in a world that is always more complex than human minds can fathom in its totality?

The Mutable Archive is an anthology; a collaborative, cross-disciplinary, multi-media art installation that combines 4K video projection, spatialized sound, performance, and narrative storytelling. Research and speculation are united in the interrogation of an anatomical collection as a means to expose the role of assumption and subjectivity in science. The project begins with a series of photographs I produced while in residence at two anatomical museums: the Narrenturm in Vienna and The Mütter Museum in Philadelphia. Each image contains a skull with a post-mortem inscription and an accompanying archive card, which contains only partial information about the subject contained therein. Collaborators representing a diverse array of disciplinary fields—artists, historians, a medical ethicist, a philosopher, an opera singer, a hip-hop artist, and a spiritual medium—are invited to write and then perform speculative narratives about subjects of their choosing from the collection. Collaborators to date include Shimon Attie, DJ Spooky, and Chelsea Knight. Each script and recorded monologue, a 4K cinematic video, reveals a myriad set of issues related to race, gender, and class, while demonstrating the fictitious foundations of the human taxonomy itself. Rather than follow conventional archival theory, the project prioritizes the relationship between each author/performer and their chosen subject, while exposing how various narrative strategies can speak to the social and political conditions of the past which recur in our time. Each performance amplifies a congregation of dislocated voices that reveal hidden and sometimes unexpected interpretations of historical archives, dreams, an even fantastic literature, which conjure the ghosts of science to grapple with the paradoxes of our time. The highly affective projections and video performances that emerge catalyze a rich array of voices and stories, which shed light on more than just the past; they reveal structural inequalities key to today's debates about colonial violence, gender-based trauma, class disparity, and cultural bias.

In summary, The Mutable Archive reflects both the scientific theories of the past and renewed nationalistic obsessions with Othering and difference that have been exposed in our current pandemic moment. Revealing the unique cultural milieu, political culture, and technological advancements that influenced the history of medical science, this project also exposes the practice of collecting anatomical specimens from around the world in an attempt to make sense of it.

With this, The Mutable Archive speaks not only to the subjects enshrined in these collections, but to colonization, migration, and Empire; it interrogates the role that early

forms of Eugenics played in systems of oppression that were present then, and which continue to underlie many of the challenges we face today.

### Olynyk, Patricia

Patricia Olynyk was appointed inaugural director of the unified Graduate School of Art and Florence and Frank Bush Professor of Art in the Sam Fox School of Design & Visual Arts at Washington University in 2007. She also holds courtesy appointments in the University's School of Medicine, Medical Humanities, Women, Gender & Sexuality Studies, and Performing Arts. Olynyk received her MFA degree with Distinction from the California College of the Arts and spent four years as a Monbuscho Scholar and a Tokyu Foundation Research Scholar in Japan at Kyoto Seika University. Her work has been featured in Venice Design 2018 at Palazzo Michiel dalle Colonne; the Los Angeles International Biennial; The Brooklyn Museum; the Saitama Modern Art Museum, Japan; and the Museum of Decorative Art, Moscow. Her solo exhibitions include: Sensing Terrains at the National Academy of Sciences in Washington, D.C., Dark Skies at the Art I Sci Center Gallery at UCLA, and Transfigurations at Galeria Grafica Tokyo, Tokyo, Japan. She co-directs the Leonardo/ISAST NY LASER Talks program in New York and her writing is featured in publications that include the Routledge Companion to Biology in Art and Architecture, Technoetic Arts, Leonardo Journal, and the Angewandte Book Series, DeGruyter.

## Transient organ

The placenta is an organ that embodies notions of individuality and continuity, of relation and distinction, and an under-researched tissue of maternity regulating the health of the offspring and of the mother during pregnancy. The placenta is now known to have evolved from a viral infection with transposon DNA from the virus integration into what later became mammalian DNA. Therefore, connecting us to viruses. Within the cultural histories, the placenta has also a special place as a food, as a ritual object that was later medicalized as waste for centuries to become now a relevant source of stem cells and other useful biological material. As a work of artistic practice as research, Transient Organ is a look into the histories, biologies, and possible futures of the placenta. What would be its place in artificial wombs and in transparencies gestation, and what is its place in our relation with our mothers and the medical histories of pregnancy and childbirth. And finally as a metaphor for a transient nourishing and connection stage in the relation to our symbolic mothers in the feminisms.

### Pebo, Maro

Maro Pebo is an artist whose work aims to release the indiscipline of living cells. Born in Mexico City. Ph.D. in Creative Media (City University of Hong Kong), MA in Critical and Gender Studies (Bologna University). Weaving collaborations, Maro Pebo works on defying anthropocentrism and on skeptical environmental accountability. Her transdisciplinary work complements and transforms the responsibility of the life sciences to think about biological matter. Maro Pebo specializes in the intersections of art, science, and biotechnology. Maro has published and presented her research internationally including at Performance Research, ISEA, EVA, ISCOMA, and Media Art Histories, co-curated the Open Systems salon, the HK Leonardo Art Science Rendezvous, and was involved in the Mexican Pavilion of the 56th Venice Biennale. Previously she was senior lecturer of Moist Media at DeTao Masters Academy, Shanghai Institute of Visual Arts and Concept Developer at Waag, Amsterdam. Her works have been displayed at Ars Electronica, Riga Stradins University Anatomy Museum in Latvia, the Toronto Design Festival, Gerdau Museum in Belo Horizonte, Brazil and The Lahore Media Arts Festival in Pakistan. Her interest lies in microorganisms, the mitochondria, transposons and the placenta.

## **An intersectional aesth-ethics of care: and artist-designed project Photovoice to challenge gendered and racialised experiences of chronic pain treatment**

1980s British artist-photographer, Jo Spence, used phototherapy to challenge normative constructions of the female cancer patient by documenting her illness and was then employed as a consultant by hospitals who, through her work, recognized the need to change their practices and physicians' attitudes which objectified patients. Photovoice, a community based participatory design method where participants take photographs and combine them with short narratives, has recently been used to investigate the complexities of living with chronic pain. However, few studies have specifically addressed gender and race-related health disparities in the context of chronic pain. The presentation draws on a collaboration between 3 women: an artist (the presenter), a pain researcher and a social work researcher, with 20 participants of colour who identify as women. In summer 2021 we worked together on a 12-week online study through which participants created photo-text works that offer unique insights into the varied experiences of living with and being treated for chronic pain. Healthcare professionals are aware of the power of images as catalysts for meaning-making in medical pain encounters, as part of multidisciplinary analysis, "images can strengthen agency in the person with pain, particularly but not only in the clinical setting, and can create a shared space within which to negotiate meaning. [...] the invisible experience of pain was made visible in the form of co-created photographic images, which were then made available to other patients as a resource to use in specialist consultations." (Padfield 2018). The study presented here deployed Photovoice to address health inequity, to argue for health equity as a hallmark of social justice in healthcare, by focusing on exposing and reducing health disparities.

## **Blood Works: the queer ecologies of our hearts**

Blood has historically been a powerful and often contested symbol in art, "an object itself and an object within a network of objects". As Anne Pollock writes in "Heart Feminism", "The heart provides powerful ways of understanding bodies simultaneously as somatic, symbolic, and political-economic entities. These understandings are sometimes hierarchical and even oppressive, but it behooves feminists to take the heart seriously." Experiments with the characteristics of blood are central to three recent kinetic installation artworks made via new materialist artist collaboration between the interdisciplinary artist trio Jane Prophet, Tobias Klein and Victor Leung. The works emerged from our shared delight in creating art with materials previously unknown to us, in this

case, blown glass, liquids, condensing materials and kinetic motors. We are inspired by queer ecologies that help articulate how our works might expand subjectivity further, to the interrelations between life and environment, giving agency to matter such as nonhuman blood, viruses, and minerals. The sculptures focus on blood drawn from both human and nonhuman sources and the passage of air into blood via the lungs-heart. The transfusion of blood and organs donated by humans and that taken without permission from nonhumans like horseshoe crabs' blood, or pigs' hearts, is key to contemporary medicine. These biologically inspired, transparent kinetic sculptures, depend on, and transform, properties and qualities of blood in different species, using fluidity, coagulation, and metal content to form the structures and movement of the sculptures. Constant shifting forces, generated through mechanical and magnetic mechanisms create an auto-poiesis of the liquids to react and form second-order cybernetic feedback cycles of energy exchange.

### **Prophet, Jane**

Jane Prophet is an artist and Professor at Stamps School of Art & Design, University of Michigan. She works across media and disciplines to produce apps, objects and installations, frequently combining traditional and computational media. Prophet's papers position art in relation to contemporary debates about art, well-being, feminist technoscience, artificial life and ubiquitous computing.

## Smell and hold your breath

Unlike the other senses, smell extends across space and reaches into our bodies. We smell before we see. Our ability to smell connects us to the animalistic acts of the body, but also almost every religion uses fragrances to create a sense of spirituality. Our ability to smell is exceedingly mundane and magical at the same time. Odours have a power of persuasion stronger than that of words, appearances, emotions, or will. The persuasive power of an odour cannot be fended off, it enters into us like breath into our lungs, it fills us up, imbues us totally. Scents evaporate over time. They are temporary, but leave a permanent mark on our memory. I am working on couple of olfactory projects in which I am researching and investigating the senses, aesthetics, and the cultural perception and construction of the our sense of smell. In the Western countries we are missing so much information about our surroundings and ourselves, when we live in this mono-sensory way of experiencing life. I disagree with the notion that smell is often considered the least intellectual or informative of the senses, seemingly attuned as it is to the insubstantial and the formless. In my talk, I will first present my project about smell of death (Leave the Body, Leave the Mind, 2019-2021) and on going project smell of fear. And then talk about recently started project of "smelly women" (working title) and a project of creating contemporary pomanders and potpourris (to protect against illnesses). Olfactory-sound installation "Leave the body, leave the mind" is based on the scientific studies how the smell of the decomposing body can be categorized into 4 stages. Poetic narration, a story, guides people through the all 4 stages from the pleasant smells of flowers through unpleasant, revolting, stinky and burning-rubber type smells to ending with mild woody, wet notes. Smell of Fear. No one ever seems to be able to describe just what fear smells like, though. But scientific evidence suggests that fear might really have a chemical component that we sense through our noses without even realizing it. Fear, for sure, smells different from courage. The matter is far from settled, though. "Smelly women" Olfaction links us to our most primordial fears as well as our deepest desires. The link between offensive odours, the body, and immorality is well established in the psyche of Western society. Quite often people (women) have a troubling relationship with their body odor. It confronts us with the fact that we are a biochemical systems, a system that is in constant change and in a way is already in a state of decay. "Smelly women" project explores how smell is bound up into structural inequality. How does women's biology create different situations, even emotion of shame because of smells? Pomanders were used to protect oneself by 'cleansing the air', since bad smells (miasmas) were thought to transmit diseases such as the plague. Pomanders are metal jewels filled with fragrances. They were hung from a neck chain or from a 'chatelaine' around the waist so the scents could be taken to the nose at will. Fragrances were supposed to help protect people from diseases, which were thought to be caused by bad smells.

### Puhakka, Eeva-Liisa

Eeva-Liisa Puhakka works in mediums that include kinetic sculptures, videos, installations, bio art and olfactory art. Puhakka was a founding member of Scent Club Berlin, a collective of artists, designers and scientists working in and between scents and smells and these fields of practice. A specific focus in her work in last years have been the rural depopulation, recycling old machineries, making bioplastics and olfactory art. A big theme in her work is the investigation of human and animal dependence. She have also been researching a religious sect and its child preachers and smell of death and fear. Eeva-Liisa Puhakka graduated with an MFA in New Media Art from Valand School of Fine Arts, University of Gothenburg (2009) and an MSc in Environmental Engineering from Helsinki University of Technology (2001). Puhakka's works have been widely presented in exhibitions across world, including Turku Kunsthall Finland 2021, Seoul Museum of Art 2019, Nakanojo biennale 2019, 28. Kunstschau in Kunstmuseum Ahrenshoop 2018, Transmediale Vorspiele Berlin 2017, Kleiner Salon Berlin 2017, KW Berlin 2015, WRO Media Art Festival Wroclau Poland 2015, VIA/EXIT media art festivals France 2016, Ostrale Dresden Germany 2016, Píksel Norway 2016, Cairo Video Festival 2016, Galleri Box Göteborg 2016, Liebig12 Berlin 2014, Titanik gallery Turku 2014 and Huuto gallery Helsinki 2014. She was shortlisted for Below Zero Art Prize, London in 2017. She got the artist of Kouvola city prize for years 2020-22. Currently she is a resident artist in Helsinki International Artist Programme (HIAP) Suomenlinna in 2022.

## BIOARTISTIC PROCESSES AN INTERRELATIONSHIP BETWEEN ART AND SCIENCE

Biological and artistic processes have developed a relationship of mutual collaboration, where apparently distant sciences have weakened their boundaries. This work is an investigation that proposes a relationship between art and science, accomplish with the experimentation of a living organism (*Medusomyces gisevi*). In this research, the creative process is preceded by a stage of work in the laboratory, where a multiple characterization of cellulose, its pH, biodegradation and its behavior is studied through the microscope. The product of this experimentation was to generate a symbiosis that could be used as a biopolymer, which replaces tissues for the construction of artistic pieces, allowing to generate a sensitive element, loaded with meanings and sensations in the viewer, and causing reflections, concepts and debates. It became evident that experimentation, and even the emergence of biotechnology, are essential for the production of bio-art works.

### Hybrid Art Histories

Art in connection to the aesthetics of care, post-anthropocentrism and biotechnology are key fields of Art Laboratory Berlin's discourses on art at the interface with science and technology. For many years I have been both curating these conceptual series and art theoretically researching these artistic positions at the same time. During the last three years, I have greatly deepened my theoretical research in lectures and publications. In the process, I have redefined this new field for the study of 21st century art – Hybrid Art Histories. To embrace our current ecological complexities, climate change, extinctions of species and ecosystem loss, a new generation of artists, hybrid artists, have found interesting complex answers and sought out territory for research and activism across disciplines. They combine performance, artistic practice, as it has developed over the last 60 years, with critical theory from philosophy, media studies and science and technology studies (STS). Perhaps more importantly they make use of new software and hardware technologies as well as biotechnology and other natural sciences (chemistry) as tools for creative production. The artists put in the centre of their artistic interest fungi, algae, corals, riverine water, microbiota and other nonhuman entities. Many artistic positions stress their socio-political and bio-political critique as well as the bio-philosophical discourses that deal directly with the multiple ecological crises we face today. Their process-oriented artistic research, and which is closely related to theories from posthumanism, such as intra-action (Barad) and hydrofeminism (Neimanis). Hybrid art histories also show how the classical laboratory and exhibition spaces are functionally, performatively and interactively questioned, expanded and infiltrated.

Punín Burneo, Gabriela

Gabriela Punín Burneo es artista plástica, docente en el Departamento de Filosofía, Artes y Humanidades y directora de la Maestría en Pedagogía en las Artes de la Universidad Técnica Particular de Loja, Ecuador. Doctora en Arte y Diseño [≈ PhD] por la Universidad Nacional Autónoma de México. Coordinadora del grupo de investigación Arte y Entorno, en el cual su actividad se centra en la exploración de nuevos materiales y el bioarte. Como resultados de investigación, ha generado varias patentes de invención en biopolímeros, registradas en el IEPI, ganó el 1er Premio a la Mejor Invención Innovadora otorgada por el CEDIA. En el ámbito artístico, ha sido parte de más de 30 exposiciones en México, Chile, Perú, Londres, Ecuador. Trabajó en el Centro de Arte Contemporáneo de Quito y actualmente es productora y colaboradora del proyecto Vilcabamba de iura Flumminis et Terrae, de la 23rd Biennale of Sydney.

Rapp, Regine

Regine Rapp is an art historian, curator and co-director of Art Laboratory Berlin. Her research focuses on art in the 20th and 21st century: Hybrid Art, Installation Art, Artist Books, and Art & Science Collaborations. As a research associate at Burg Giebichenstein Kunsthochschule Halle she taught art history. As co-founder of Art Laboratory Berlin (2006), she has curated and researched on more than 40 exhibition projects and various series (Time and Technology; Synaesthesia; [macro]biologies & [micro]biologies, etc.). In 2011 parallel to the exhibition Sol LeWitt. Artist's Books, she conceived the international Sol LeWitt Symposium at Art Laboratory Berlin. Along with Christian de Lutz she developed the international conference Synaesthesia Discussing a Phenomenon in the Arts, Humanities and (Neuro)Science (2013). The Nonhuman Subjectivities (2016/17) and Nonhuman Agents (2017/18) series of exhibitions, performances, workshops, and an international conference reflected on Art and Science in the post-anthropocentric era. Currently she has been conceiving and realizing the exhibition project and conference THE CAMILLE DIARIES: New Artistic Positions on M/otherhood, Life and Care.

## Art, Science, and the Politics of Knowledge

This presentation will be based on the author's new book *Art, Science, and the Politics of Knowledge* (MIT Press 2022). It explores how the tools of STS can be used to understand art and science and the practices of these knowledge-making communities and suggests that art and science are not as different from each other as we might assume. Rogers shows how the tools of science and technology studies (STS) can be applied to artistic practice, offering new ways of thinking about people and objects that have largely fallen outside the scope of STS research. Arguing that the categories of art and science are labels with specific powers to order social worlds –and that art and science are best understood as networks that produce knowledge. It shows, through a series of cases, the similarities and overlapping practices of these knowledge communities.

### Rogers, Hannah

Hannah Star Rogers is an art-science postdoctoral fellow at the University of Copenhagen. Rogers holds a PhD from Cornell University in Science and Technology Studies and an MFA from Columbia University. Rogers is the lead editor of the Routledge Handbook of Art, Science, and Technology Studies and the monograph *Art, Science, and the Politics of Knowledge* from MIT Press. Rogers works as a curator for art and science exhibits including “Emerge: Artists and Scientists Redesign the Future” at Arizona State University, “and “Art’s Work in the Age of Biotechnology: Shaping Our Genetic Futures” at North Carolina State University and the University of Pittsburgh. [hannahstarrogers.com](http://hannahstarrogers.com)

## “Coalesce: Center for Biological Arts” at University at Buffalo, NY

Coalesce: Center for Biological Arts is a hybrid studio laboratory facility dedicated to enabling hands-on creative engagement with the tools and technologies of the life sciences. It is a place where artists, designers and architects actively learn, use and create, using life sciences technologies as their medium; scientists explore new forms or broader cultural meanings of their work; and philosophers, writers and social scientists interact in a tangible way with the processes of the life sciences. However, it is a place where such disciplinary labels are challenged and hybrid creative practices are incubated. Coalesce is a major facet of GEM (UB Genome Environment and Microbiome Community of Excellence), establishing a dedicated studio laboratory for biological art and emerging practices in the arts, as well as graduate positions, interdisciplinary coursework, residency opportunities, DIY workshops and exhibitions.

### Rothenberg, Stephanie

Stephanie Rothenberg’s interdisciplinary art draws from digital culture, science and economics to explore symbiotic relationships between human designed systems and biological ecosystems. Moving between real and virtual spaces, she engages a variety of media platforms that include interactive installation, drawing, sculpture, video and performance. Her artworks make visible the terrestrial and digital networks of capital that flow through the bodies of both human and more-than-human entities. Arising from her fascination with techno utopian culture, her multimedia storytelling seeks to reveal the contradictions of its narratives. Topics in her work include: bio politics of digital labor; sustainability myths surrounding the concept of natural capital. She has exhibited internationally in venues and festivals including ISEA, Eyebeam Art and Technology Center (US), Sundance Film Festival (US), Massachusetts Museum of Contemporary Art / MASS MoCA (US), House of Electronic Arts / HeK (CH), LABoral (ES), Transmediale (DE), and ZKM Center for Art & Media (DE). <https://stephanierothenberg.com>

## Tending Ostreidae: Serenades for Settling

Tending Ostreidae: Serenades for Settling is a speculative operetta focused on the listening body of the heroic oyster. A water filter, sea level mitigator and food source, the oyster is a vital member of our ecosystem that knows habitats for settlement by sensing sound. Specifically, research conducted at North Carolina State University's Department of Marine, Earth & Atmospheric Sciences found that the bottom-dwelling oyster knows suitable settlement habitats through a distinction of sound signatures in underwater soundscapes. For oysters, sound is a more reliable indicator than chemical exudates or patterns of light. Building on soundscape studies that feature the listening body as an onto-epistemological site, the project leverages data of harbor port movement and local sound to query the dynamic relationships between human activity and the wellbeing of oysters. The project will express thematic content through an immersive sound, visual and sculpted environment, and by virtual and in-person means, dependent on exhibition and performance opportunities. Through the simulated sense of this sonically navigating being, and participatory and responsive engagement mechanisms, we will animate questions such as: how do we listen for safe harbors, and what do they sound like; how do we tend to the more-than-human-world and how does it tend to us? And can the listening oyster guide us to a politics of mutual tending? The project is being created through research with the Billion Oyster Project ([billionoysterproject.org](http://billionoysterproject.org)), a NYC based nonprofit working to ecologically restore the city's waterways through oyster reseedling/repopulating initiatives. We will be developing the work during a 2022 artist residency with Harvestworks Digital Media Arts Center in NYC and through collaborations with the University at Buffalo Department of Art and the School of Engineering and Applied Sciences. In our preliminary project development we have worked with researchers, and resources from the Center for Marine Sciences and Technology at North Carolina State University and the Billion Oyster Project in New York Harbor. In addition, Stephanie Rothenberg has developed research partners through a Fellowship at Bowdoin College in Brunswick, Maine (2019) where she advanced her inquiry into oyster habitats with access to their marine science facilities and also local oyster nurseries and aquaculture farms (Mook Sea Farms). Suzanne Thorpe is also in consultation with retired Navy sonar/oceanic acoustic expert and audio engineer Al F. Jones on matters of underwater sound propagation.

**Rothenberg, Stephanie**

Stephanie Rothenberg's interdisciplinary art draws from digital culture, science and economics to explore symbiotic relationships between human designed systems and biological ecosystems. Moving between real and virtual spaces, she engages a variety of media platforms that include interactive installation, drawing, sculpture, video and performance. Her artworks make visible the terrestrial and digital networks of capital that flow through the bodies of both human and more-than-human entities. Arising from her fascination with techno utopian culture, her multimedia storytelling seeks to reveal the contradictions of its narratives. Topics in her work include: bio politics of digital labor; sustainability myths surrounding the concept of natural capital. She has exhibited internationally in venues and festivals including ISEA, Eyebeam Art and Technology Center (US), Sundance Film Festival (US), Massachusetts Museum of Contemporary Art / MASS MoCA (US), House of Electronic Arts / HeK (CH), LABoral (ES), Transmediale (DE), and ZKM Center for Art & Media (DE). <https://stephanierothenberg.com>

**Thorpe, Suzanne**

Suzanne Thorpe is a composer/performer, researcher and educator who lives at the foot of the Catskill mountains, on the banks of the Hudson river in New York. She creates compositions with a variety of media and technology, and performs primarily with electroacoustic flute and electronics. Her work, in all its forms, listens for and performs our cultural and material navigations and transformations in sound. Thorpe holds an MFA in Electronic Music & Media from Mills College, and a Ph.D. in Integrative Studies from the University of California, San Diego. She is also a Deep Listening instructor, having studied in depth with American composer and Deep Listening founder Pauline Oliveros. Through an interdisciplinary method that combines creative practice with feminist and ecological theory, her research focuses on sound events that emphasize principles of inclusion, relational knowledge and coalition building. Her career as a professional recording artist was initiated as a founding member of the critically acclaimed band Mercury Rev. <https://www.suzannethorpe.com>

## A spatial metaphor: 'In the antechamber of consciousness' and 'The divine psyche'

Understanding critical thinking as a discipline that highlights the human capacity to formulate reasoning and that each person presents a particularity in the way they articulate their thoughts, added to the individuality of each one, through the same stimulus, different ways of thinking may be generated. In this sense, curiosity dwells essentially in the different paths that thought can travel in a person's mind and its causes. There are several studies on the theory of mental models and their association with human reasoning processes, starting from the perspective where a mental model is observed as a "small-scale model" that is transported by an individual inside his/her head, a "small-scale model" formed by the external reality in conjunction with the very possible actions inside this individual's head, thus, the existence of these mental models evidences and enables the personalization of thought processes in each individual, since they are models structured not only by the relationship with the real world but also with the individual's ability to model and simulate world processes in his mind in a unique and particular way. With that in mind, two video pieces were made. Understanding the countless articulations of thought existing in each individual and observing that these occur within the mind the own, for the composition of the pieces it was applied an association with configurations of space. When observing a thinking being, it is understood that the "location" of his thoughts is "internal" and inherent to him, like something kept, really particular, and that establishes his connections and articulations inside his own intimate and personalized "space". This association was applied in the pieces through the place chosen to record the scenes that will compose the videos and by the representation of this place, as a correlation with the thinking being and his mind as a private space. The first piece is an experimental video - 'In the antechamber of consciousness', recorded in a small house in the countryside of the city of São Paulo, Jacareí, located at the end of a dead-end street still with dirt streets and located in front of a large grazed grass. I spent my childhood in this house, in these streets, in this pasture, my first memories of consciousness, of hearing my own thoughts, of diagnosing them as my own, were registered by running and exploring the corners of this space. The choice of this house represents my thinking being, my intimate and personalized space, where it was possible to hear and recognize my thoughts as a power. The second piece will be a video installation - 'The divine psyche', composed of three parallel screens, with three different videos simultaneously and a headset, the videos are composed of microscope images taken from the water and the clay of a small pond built inside the house already mentioned. Understanding water and clay as elements that are in constant "movement", by the development of living organisms, this ecosystem - this other space - is brought as an image to the video to associate it with the mind - internal to the thinking being -, where the articulations and

connections of thought happen - "cognitive movement" -, besides being a space that is inside the house, mentioned in the first piece. The two pieces were placed in the same exhibition space and operate in a complementary way to the objective of the investigation, where the first piece presents a more collective assisted character, through the projection on a larger scale and the shared watching among visitors, and the second piece favours an individual watching, through the unified audio and arranged in a single headset, uniting the three moving images in a single piece and indicating three imagnetic "processes" of the evolution of that ecosystem, as well as the various unified thought processes in the mind.

### Santiago, Sally

Sally Santiago is a Brazilian visual artist and researcher currently living and working in Porto, Portugal. With creations strongly centred on the grandeur of nature, her projects mainly inhabit the field of video, experimental and installations, focusing her research on debates about human experiences, their transformation processes and the connection with different spaces - the dwelling in grandeur. She holds a master's degree in contemporary art creation (UA/PT) and a bachelor's degree in social communication (UAM/BR). In 2022 she inaugurated her first solo exhibition, 'Itineraries of thinking: the intimate and the world', in Porto, and received an honorable mention for her video 'Da verdade e do tempo' at the Aveiro Young Creator Competition. She has experience in communication studies in Brazil (until 2019), collaboration with the Center of Contemporary Art - CoCA in New Zealand (2020) and is currently part of the team of cultural institutions Cultivamos Cultura and Ectopia, in Portugal.

## Emergent Invertebrate Acoustic Ecologies: Refiguring Relations Through Music Composition

Invertebrates play dominant roles in the bioacoustical dynamics of ecosystems, yet our knowledge of invertebrate acoustics (beyond the conspicuous sounds of crickets, cicadas, and katydids) is lacking. Furthermore, relations of insects with anthropogenic sound has been sorely overlooked. In this paper, I discuss the potential for sound art and music composition to address oversights in the field of bioacoustics by prompting re-considerations of our conception of invertebrate agency through generation of empathy through listening. I frame this argument within the fields of sound art, acoustic ecology, and multispecies studies. I will focus on my compositions HVAC (2021) and Formiphony (2020) as examples of musical works that embrace nonhuman means of sensing while acknowledging the entanglements of insects with human-made sound in their environments. These works present invertebrate sound-worlds from a speculative invertebrate point of perception and include elements of anthrophony that are present in their microhabitats. I argue that by de-centering the human acoustic position as much as possible, and by presenting an accurate depiction of invertebrate realities, listening can prompt new means of fostering kinship with invertebrates in our day-to-day environments. Music and sound art do not ask us to rationalize the respect for or conservation of any nonhuman(s) through utilitarian purposes, or through demonstration of consciousness, ecological role, or human-centered models of intelligence. Rather, as composer David Dunn has elaborated in his work, this learning through listening can demonstrate information that is impossible through spoken language: "Is it possible to use the very tool through which we construct reality to imagine any other outside of it?"

Schonberg, Lisa

Lisa Schonberg is a composer and percussionist creating sound works based on ecological research. Informed by her background in entomology, Schonberg is interested how these sound works can reveal and challenge assumptions about insects and other overlooked and/or avoided nonhumans. She has been collaborating with Brazilian entomologists on ATTA (Amplifying the Tropical Ants), a project investigating ant bioacoustics in the Amazon. Her other recent work includes investigations of old-growth forests in Oregon, endangered Hawaiian Hylaeus bees, and plastics. Schonberg's compositions are often performed by percussion ensembles Secret Drum Band and UAU. She is a PhD researcher in Electronic Arts at Rensselaer Polytechnic Institute.

## American Standard

My thesis project, *American Standard*, comprised of the works *Fixtures* and *Lights Out*, addresses issues surrounding automation by utilizing processes that have rendered the shift-worker nearly obsolete. In *American Standard*, I have replaced workers with 3D scanning, 3D printing (*Fixtures*) and machine learning (*Lights Out*) to question the ethics surrounding the current state of labor practices in the United States, while drawing attention to the individuals that these processes replace. Through this project, I become the archeologist of my own family's recent past to show that automated America is not some dystopian fantasy, but rather a contemporary reality with implications for the psyche of an entire societal class.

The very nature of work in America is changing and along with it the way we view ourselves as both individuals and a nation. With unemployment on the rise, we are experiencing psychological repercussions as well as shifts in America's socio-economic structure. In her article *We Are All Workers*, Sarah Banet-Weiser states that, "Historical American mythologies of rugged individualism, stoicism, and persistence have shaped the symbolic construction of the male blue-collar worker as the quintessential American man, the self-made individual who perseveres under hardship, who sees every crisis as an opportunity" (Banet-Weiser 2014, 89). The way we discuss and respond to technological advancements in manufacturing in the front half of the 21st century will greatly impact our species relationship to work for generations to come.

*American Standard* is both an archeological and anthropological examination of the present that asks us to consider the implications of automation on America's working-class and therefore society as a whole. Over the past two years, my father and I have revisited the shuttered *American Standard* plant where he, and many of his brothers, once worked. In this landscape, we become the archeologists of our collective histories through the excavation and preservation of once functional pottery, the toilets made by skilled laborers at the now abandoned *American Standard* factory in Tiffin, Ohio.

### Smith, Kaitlyn

Kaitlyn Jo Smith is an interdisciplinary artist whose works address issues surrounding automation by utilizing processes that have rendered the shift worker nearly obsolete. Through 3D scanning, 3D printing, and machine learning, she questions the ethics surrounding the current state of labor practices in America, while drawing attention to the individuals that these processes replace. Raised by skilled laborers in rural Ohio, Smith was thirteen when the housing market crashed and nearly every adult she knew was suddenly out of work. Her artworks make visible the intangible realities of unemployment by employing automated technologies that are directly linked to the loss of over 4 million US manufacturing jobs since 2000. Smith's work has shown nationally and internationally at the Tucson Museum of Art and Museum of Contemporary Art in Tucson, Arizona, Split Videoart Festival in Croatia, CICA Museum in South Korea and BIOs in Athens Greece. She was longlisted for the 2021 Lumen Prize in Art and Technology (London), presented at Technarte Conference (Bilbao), selected as Art Connect's June Artist to Watch, and received the College Art Association's Services to Artists Committee Award for her video *Lights Out*. She has also been featured in PDNedu, ArtIDEAL and AI-Tiba9 Magazine (Barcelona).

## Portrait of a Religious Woman - Margarida Gil's True and Faithful

What is "true" in an autobiographical account? How can a director adapting such an account make sure her work is "faithful" to the portrayed?

The film True and Faithful (Margarida Gil, 1987) adapts an autobiographical account by a 17th-century Portuguese nun.

The film is a transposition between different means of expression, which opens the past narrative to a reading of the 20th century, with the intention of denouncing how relations of imbalance and violence are perpetuated, and the submission of individuals by their peers. The visual work and the musical score selection help to reinforce the presentification and the denunciation.

In one of the scenes, the protagonist looks at herself in a mirror and realizes she knows very little about herself and the world. I suggest that the film functions as a mirror into the character's self and her own biography transposed from a literary into a cinematic art.

Soares, Ana Isabel

Ana Isabel Soares completed her PhD in Theory of Literature in 2003 in the Program in Theory of Literature (Faculty of Arts, University of Lisbon). She has a MA in the same Program in Theory of Literature (1996) and a Degree in Modern Languages and Literatures, Portuguese and English Studies (1993), also from the Faculty of Arts, University of Lisbon. She is Assistant Professor at the University of Algarve (Gambelas), where she teaches since 1996, and Researcher at the Center for Research in Arts and Communication (UAIG). She published 1 article in specialized publications. She published 1 chapter(s) of books. She supervised 3 doctoral thesis(s) and co-supervised 5, and supervised 6 MA dissertation(s) and co-supervised 1, supervised 7 Bachelor's course work(s). She works in the area of Humanities. In her professional activities, she interacted with 9 collaborator(s) in co-authoring scientific works. In its *Ciencia Vitae* curriculum, the most frequent terms in the context of scientific, technological and artistic-cultural production are: Cinema; Portuguese cinema; Hans Gumbrecht; Photographer-narrator; Salvador; Urban-narratives; Jacques Rancière; Tendências; 2000-2010; João Dias; Sofia Trincão; Pedro Sena Nunes; Interview; Portuguese documentarism; Kalevala; Children and Youth Literature; Theory of Literature; English literature; Literary history; Education; Film Literacy.

## Geoengineering and Surreal Designs at the Scale of the Climate Crisis

As we contend with a range of new environmental challenges, increasingly extreme designs are being proposed- shields in low orbit to reflect the sun's rays from the earth, vacuums that suck up CO<sub>2</sub>, chemicals that induce rain. There are uncanny parallels to the worlds of science fiction, blurring the line between what is speculative and what is possible. Our realities can feel apocalyptic, dystopian, and supernatural. Still considered a worst-case scenario option, geoengineering has been increasingly researched, funded, and even advocated for in scientific spheres, yet policy has not evolved at a speed to regulate it. Geoengineering or 'climate intervention' is "the deliberate large scale intervention in the climate system designed to counter global warming or offset some of its effects." [i] There are currently three main types of projects being considered: Weather Modification, Solar Radiation Management, and Carbon Dioxide Removal.[ii]. The outcomes of geoengineering could be extremely catastrophic and modeling scenarios is an imperfect science. However precarious these propositions are, we are not far off from implementing large-scale technologies to counter the climate crisis yet the methodology of how they will be instated has not been considered. This presentation will cover a range of possible outcomes, who is investing in the development of this large-scale technology and why, and suggest creative strategies for a democratized response.

## Permaculture as a model to redesign our relations to disabilities.

Technology has populated the relationship we have with our health. We can now monitor it and alter it via technological interventions, and through our phones. Medicine, AI, and robotics merge in elaborate ways to improve our quality of life. But this cannot be done till there is nothing more than our brain left, as we are embodied brains and embrained bodies in a fluid relation with our environment. Bearing in mind the developments that occurred in health sciences due to its partnership with technology, we can assume that in a near future we will all be assemblages of biological matter, electronics, robotics, and metal.

Chronic pain is a disability, and as such, it is not a given condition but one that depends on how much society is built on the concept of ableness. It places its bearer in a liminal place by dismissing their agentivity and displacing them to a state of unrecognition. As shown by inspecting chronic pain, it is apparent that secluding our vulnerability from the rest of society, the world, and the matter results in complete degradation. The elimination of differences is a way to bring societies towards monoculture, where diversity is seen as unproductive and as a threat to the integrity of the system. Monocultural plantations are not sustainable. Therefore, we need to rethink our relations to technology when it comes to assisting us.

### Tagiuri, Lily

Lily Consuelo Saporta Tagiuri is an Industrial Designer, consultant, and eco-futurist whose practice is aimed at ecological equity. Her work addresses emerging climates and conditions of cities specifically pertaining to clean water, fresh air, and green space. Using video, food, curriculum, material exploration, products, and installation, she draws attention to underlying social, political, and environmental systems and explores alternatives that are both urgent and joyous. She has collaborated with a range of studios and practitioners including Studio Lily Kwong, Esperanza Spalding, and Creative Time, and is a guest tutor at Royal College of Art/Imperial and Central Saint Martins. Her work has been shown internationally including at MoMA PS1, NYC by Design, Extraperlo Madrid, and The London Design Biennale among others.

### Tordera Nuño, Eva

Eva Tordera Nuño is a photographer and graphic designer born in Catalonia but established in Finland since 2004. She holds a master's degree in humanities with a focus on contemporary art and culture. In 2020 she started her doctoral studies at the Department of Art at Aalto University, Finland. Her artistic research is focused on chronic pain as a phenomenon that needs to be rearticulated within a critical posthumanist framework and considering state-of-the-art knowledge on long-term pain. Due to her interest in both humanities, art and technology, Tordera Nuño's artistic research combines these disciplines to develop unexpected ways to understand pain.

## Hybrid Matter: The Language of Care in Art and Science Collaborations.

Warner, Darya

Why do art and science collaborations matter? Hybrid Matter is a concept based on outlined epistemological mapping of art and science as an emerging method of interrogation. The proposed paradigm shift is driven by care and empathy. In opposition to the notion of art as a vehicle for communicating science, I suggest a model in which art and science become mutually reinforcing, discovering alternative pathways of understanding in our relationship with natural ecology and one another.

The collaborative practices of art and science present an unprecedented opportunity to generate new forms of knowledge. The artistic and scientific minds are not as divided as we might think—they are fluid interchangeable elements feeding upon each other in a powerful fusion driven by the desire for exploration. The rise of Bioart in the late 20th century is a logical outcome of systems theory ideas, where the concept of emergence reflects rapidly changing social, scientific, technological, and ecological contexts (Capra and Luisi, 2014). Bioart operates in the liminal space between these modes of understanding, forefronting the organic processes that bind us to all living processes. In this way, Bioart is like a three-dimensional fungal network reaching out to all spheres of life, searching for uncharted epistemological mapping.

Art and science collaborations as an unconventional way of introducing the public to complex science achievements and ideas through empathetic connections created through art.

Working with scientists for the past 10 years, I have discovered that an artist has the potential to spark creative insight in scientists. The notion of “play” and unlimited curiosity vital to artistic creativity works as a catalyst in conversations with scientists, igniting new pathways in scientific research. However, art functions as a platform for scientific exploration where lateral exploration utilizes nonlinear observational techniques resulting in unexpected connections. In this way, the process starts not only from one single point (hypothesis or observation) but also from multiple points simultaneously.

Inspiration and observation emerge in different directions, branching and making connections at unexpected intersections. It is an organic and living process that results in synthesis. The outcome is an artwork (an object, a performance, a concept)—living or nonliving or hybrid that serves as a channel to communicate complex scientific ideas to the public through emotive experience embedded in art.

However, how do we connect these disciplines? Perhaps the biophilia hypothesis based on the notion of care for all matter is a framework that can serve as a bridge connecting art and science.

Darya works at the intersection of art and science by bridging growth/connections with human and non-human actors through the prism of Climate Change. By addressing site-specific history, ecology, and local systems of communication, Darya aims to cultivate a new form of hybrid space for “intermatter” interaction with an emphasis on the interconnectivity of intelligence across species. Her research explores the Biophilia Hypothesis, also known as “the love of all living things,” as a crucial factor in reconnecting humans and nature. She explores this relationship via interactive installations, visual displays, photography, sound, time-based media, and bioart in the new form of hybrid matter based on care. In addition, she addresses issues of environmental impact among artists and connects creative processes to earth-conscious practices. Darya is an educator working toward implementing sustainable art practices as part of the educational curriculum at the US Air Force Academy. Born in Ukraine she moved to the United States in 2001. Darya graduated from the School of Visual Arts (BFA) and got her MFA from University at Buffalo. She has exhibited nationally and internationally, including in NYC, Denver, Albuquerque, LA, Miami, India, and Germany, and received multiple grants to support her projects. Darya teaches photography and art+science collaborative practices at the United States Airforce Academy, Colorado.

## Call of the Bonebots - an audience experiment with hybrid bodies

The Bonebots are hybrid electronic animals, confusing traditional categories of "technology" and "nature". Constructed half from formerly living materials, half from synthetic components, they wander through a dysfunctional environment, a four-legged grin.

Useless both as animals and machines, they exist in a shared territory between an ongoing discussion of hybrid alternative bodies and machines, somewhere between robotic bee substitutes, nursing bots, and extinct animals revived from ancient DNA by technological means.

The Bonebots can be read as satire, referencing developments in Synthetic Biology and semi-living machines: As technical-organic hybrids, they are low-tech and a far cry from the reality of living and semi-living technologies.

With the 7th extinction of the species is underway, specialists in Synthetic Biology are discussing engineered solutions for the re-creation of nature and humanity.

Artificially created species are supposed to replace losses of existing species: Just as our vanishing bees, which are now being replaced by miniature pollination robots, more and more species are being pushed into extinction, and huge efforts are invested into the development of semi-living machines, bio-based technologies, and electro-mechanical enhancements for the human body (neuro enhancement). After an introduction and discussion, they can be „test-run“ by the audience. They can be either switch-operated or sound-activated (started by clapping).

The Bonebots were on display at Art Laboratory Berlin and TOP at Schillerpalais, Berlin, in 2021, and will be shown at Budapest Art Market in October 2022.

### Wenzel, Kaethe

Käthe Wenzel hacks into structures of Urban consumption, providing ready-to-go products to survive patriarchy: prosthesis to complete bodies defined as lacking, machines and survival kits for tackling the obstacles of hegemonial culture. She works about Utopian ideas, alternative bodies, and speculative concepts for society, infiltrating urban systems and services – from the streets to the internet. Her techniques range from surveys to speculative fiction to explore interfaces of art and science, the collective production of culture, and the production and negotiation of public space. Wenzel is a professor for Aesthetic Practice in its Contexts at European University Flensburg, Germany. In 2018, she published "HalfLife - Machines and Organisms, Artistic Positions in Times of Climate Change and Extinction" (together with Manfred Blohm, fabrica, Hannover 2018), with an introductory essay by Regine Rapp and Christian de Lutz. She was a Fulbright Exchange Scholar and guest professor at SVA in New York 2009- 10, last showed her work at International Gangwon Biennale in Korea and the 5 th Tokyo Mini-Print Triennial; received grants, taught at international institutions, founded and ran kurt im Hirsch gallery in Berlin, studied in Marburg, Florence, and Berlin. <http://www.kaethewenzel.de/> <http://www.globalupfitters.com>

## INCUBATOR Art Lab: Reimagining Biotechnology as a Technology of Love

Willet, Jennifer

INCUBATOR Art Lab is a bioart research and teaching facility in the School of Creative Arts at University of Windsor in Canada founded in 2009 by Dr. Jennifer Willet. In 2018, INCUBATOR Art Lab launched a state-of-the-art BSL2 laboratory facility dedicated to biological art research, that also serves as a multi-media theatre and art venue where audiences can view living biological artworks through a glass wall. In 2022, INCUBATOR Art Lab opened an art studio and community engagement lab in downtown Windsor, Ontario, Canada. INCUBATOR Art Lab houses ongoing student and faculty bioart projects, and science and technology studies research and special events investigating the intersection of biotechnology, art and ecology.

The primary research objective of INCUBATOR Art Lab is to devise research/creation methods, artworks, texts and technologies that serve to engage audiences, species and communities in collaboratively imagining possible biotech futures. This generative process is intended to counter the overwhelmingly pessimistic and corporate cultural imaginations of our environmental and technological future (through news media, advertising and science fiction) and instead focus on generating alternative and imaginative possibilities through interdisciplinary research/creation integrating:

- feminist / post-colonial perspectives
- advanced digital and biotechnologies
- historical, ecological, agricultural, and indigenous knowledges
- community engagement
- sustainability
- love, joy, gratitude, and the acknowledgement of suffering

INCUBATOR Art Lab reimagines biotechnological processes, lab management, bureaucracy, and community building through a lens that reimagines biotechnology as a technology of love. This proposition relies heavily on notions of biophilia (Wilson 1984; Suzuki 2010), and kinship (Kimmer 2013; Haraway 2016) to describe possible forms of interspecies love and reciprocity in a biotech laboratory. This work also look to bell hooks, who describes love as a transformational force for social justice. She describes love not as an emotion but as a practice and a commitment to “care, affection, recognition, respect, commitment, and trust, as well as honest and open communication” (hooks, 2000). Perpetuating biotechnology as a technology of love is a social and political act, a feminist and post-colonial reimagining of scientific methodology. Reimagining what a lab is, who belongs there, and what types of knowledges and activities are celebrated laboratory communities.

Dr. Jennifer Willet is an artist, a Canada Research Chair in Art, Science, and Ecology, a Professor in the School of Creative Arts at the University of Windsor and the Director of INCUBATOR Art Lab, founded in 2009. She is a member of the College of New Scholars, Artists, and Scientists in the Royal Society of Canada. Willet is a leader in the Canadian bioart community and works internationally as an artist and curator in the field. In 2018, Willet opened a new state-of-the-art bioart laboratory, and in 2020 a storefront bioart studio and community engagement centre in Windsor, Ontario, Canada.  
[www.incubatorartlab.com](http://www.incubatorartlab.com)  
[@incubatorartlab](https://www.instagram.com/incubatorartlab) [@jenniferwilletbioart](https://www.instagram.com/jenniferwilletbioart)

## Signs of the Times. Collecting Biological Traces and Memories – presentation and action

I want to propose two forms of participation in FEMeeting 2022: a short presentation of a project and a performative action that is part of the project implementation. Signs of the Times. Collecting Biological Traces and Memories is a slow art project planned in several stages. It started in Spring 2021 when I was ready to build an artistic narration on the Covid19 pandemic. The first stage of the project was collecting masks from the street. Then, I decided that anonymous masks were not enough. I needed to know people hidden behind them. That was the beginning of the second stage of the project. The main idea is to work with the notion of human and non-human memory and create an archive of the very peculiar crisis. I decided to collect masks, which are symbolic of the pandemic period and the pandemic stories of the mask carriers. This collecting happens in different places and is a form of participatory event. Every participant is asked to sit in front of the camera and share a memory from the pandemic. I do not ask many questions; leaving space and freedom for the stories is crucial. I give the person a fresh medical mask to contaminate it while talking and breathing. After the talk, I took the mask to place it in the laboratory tube and added it to the existing collection. All recordings will be transcribed and used in the following project stages. So far, the project was hosted by: Liebig19, Berlin (August 2021), Łażnia Gallery, Gdańsk (October 2021), TOP (Transdisciplinary Project Space), Berlin (November 2021), FishTank Pamora, Malmo (January 2022), Art Laboratory Berlin (January-February 2022). I want to discuss these performative situations and organize space in Evora to collect pandemic stories and biological samples of FEMeeting participants.

**Żyniewicz, Karolina**

Karolina Żyniewicz is an artist (2009 graduated from the Academy of Fine Arts in Łódź, Department of Visual Arts) and researcher, Ph.D. student (Nature-Culture Transdisciplinary Ph.D. Program at Artes Liberales Faculty, University of Warsaw). Working in a laboratory (mainly at the Institute of Genetics and Biotechnology, Faculty of Biology, University of Warsaw) Żyniewicz locates her works in the field of bio-art. However, she tries to avoid using this term. She sees her liminal activity as situated knowledge production. She is mostly focused on life in its broad understanding (its biological and cultural meaning). Her projects have mostly conceptual, critical character. The main point of her Ph.D. research is multilevel relations emerging during the realization of liminal projects. She tries to put her observations, as an artist/researcher (liminal being), in the context of Science and Technology Studies (STS) Actor-Network Theory by Bruno Latour and feminist humanities.

# WORKSHOP

## **Biomaterial Art Lab – Why Biomaterials Are Important For The Artistic Practices**

With the proposal to promote a critical reflection on the potential of the use of biomaterials in artistic practices, the group of artists composed by Diana Aires, Felipe Shibuya and Juliana Lee intends, during their artistic residencies at Cultivamos Cultura and ARTERIA\_Lab, not only to explore the materiality of these “bio artistic supports,” but also their ability to deepen the social and ecological impact of art in our society. This can happen through the use of products of great relevance to the local economies—such as the kombucha in Alentejo, Portugal—or through an approximation between art, science, and spirituality.

This approximation is given by the balance created between artistic object, research and expression, resulting from critical thinking in relation to the processes of creation of the materials that serve as support for the artistic object, the solutions they bring to the environmental problems, and the freedom that they provide to find ways of expression of the soul that brings us even closer to our ancestral nature.

As a way to facilitate these discussions among the international artistic community during the FEMeeting 2022, Diana, Felipe and Juliana will promote a workshop on biomaterials that can be applied in different artistic contexts, bringing out the reflections of this experience.

## Facilitators

### Diana Aires

Diana Mordido Aires (Vila Nova de Milfontes, 1997) is specialized in Jewellery, by Escola Secundária Artística António Arroio, studied Painting at Faculdade de Belas-Artes da Universidade de Lisboa (FBAUL) and has a degree in Artistic and Cultural Mediation by Escola Superior da Educação de Lisboa (ESELx).

She has worked as a intern and collaborated with different cultural organisations – Atelier Concorde, Casa das Histórias Paula Rego, Cultivamos Cultura, Fundação Eugénio de Almeida – Centro de Arte e Cultura, RHI. It is in these contexts, and in her artistic practice, that she explores interdisciplinarity and the concept of “territory”, by producing discourses, dynamics and activities that aim to bring together different daily lives and languages.

She is co-founder and President of the Portuguese Association of Artistic and Cultural Mediation. Since 2019 she has been working with Cultivamos Cultura, where she develops educational projects and is responsible for the collection.

### Felipe Shibuya

Felipe Shibuya is a Brazilian ecologist and artist who decided to adventure around the world. His journey began when he completed his Ph.D. in Ecology and Nature Conservation at the Federal University of Paraná. He then decided to explore the visual aspects he had included in his research, beyond the purely scientific perspective. He also holds an M.F.A. in Studio Art from the State University of New York at Buffalo, where he worked with pigmented bacteria, with the intention of understanding how the colors they synthesize could be communication signals for us humans. Being a scientist-artist enables Felipe to explore different forms of life, from bacteria to trees, using different methods, from microbiological culture to videos. However, all of his work involves aspects of his own identity, and he always highlights the visuality of nature. Currently, Felipe is the Hyundai Biological Programs Fellow at Edna W. Lawrence Nature Lab, at Rhode Island School of Design.

### Juliana Lee

Born in Curitiba, Brazil, and living and working between her hometown and Lisbon, Juliana Lee graduated in Multimedia Art at the Faculty of Fine Arts of the University of Lisbon in order to materialize, through authorial artistic projects, her perceptions about the existence, the unconscious, spirituality, nature, the feminine and its intersectionalities, creating a link between science, spirituality and art.

After several years of working with photography, Juliana has expanded her portfolio giving more freedom to her creative expression by using other artistic supports, always through experimentation, to create visual explorations in pieces that give life to these themes that are so ethereal and intrinsic in the artist's life.

| organisers |



| lisbon |



| international organisations |

