TABOO TRANSGRESSION TRANSCENDENCE

IN ART & SCIENCE 2018

Editors:
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Marta de Menezes | Andreas Giannakoulopoulos

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TABOO – TRANSGRESSION – TRANSCENDENCE in Art & Science 2018

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DALILA HONORATO

Introduction

By definition the conference series Taboo - Transgression - Transcendence in Art & Science includes theoretical presentations and artists' talks focusing (a) on questions about the nature of the forbidden and about the aesthetics of liminality, as expressed in art that uses or is inspired by technology and science, and (b) on the opening of spaces for creative transformation in the merging of science and art.

The organization of Taboo - Transgression - Transcendence in Art & Science 2018 in Mexico City, the third conference of the TTT series, embodies the trust and support that constitutes its community. After three years working in the organization of TTT in Corfu the possibility to see it happening across the Greek borders and, above all, on the other side of the Atlantic was overwhelming. I am personally grateful to María Antonia González Valerio, Marta de Menezes, Ana Ventura Miranda and Andreas Giannakoulopoulos for gracefully challenging the concept of a conference's digital organization in real-time space and for kindly bringing in their immense experience and ability to connect beyond limits. I am also thankful to all TTT2018 participants who have generously shared their experiences, offering, through their presentations, excellence and respect for the concept of interdisciplinarity and collaboration, independently of each other's status. Finally, my appreciation for the discrete and inestimable sustaining role of my fellow members on the Steering Committee of the TTT conference series: Roy Ascott, Andreas Floros, Gunalan Nadarajan, Melentie Pandilovski, Stelarc, Polona Tratnik and Adam Zaretsky. I am also thankful for the support of the Scientific-artistic committee. Together the Commitees insured that TTT2018 in Mexico City was an intentionally facilitated meeting point, organized to safely host the free interaction of ideas around liminal issues in the frame of Art&Sci.

The fourth international conference "Taboo - Transgression - Transcendence in Art & Science" will take place November 26–28, 2020, in Austria, hosted by the University of Applied Arts Vienna, at the invitation of Ingeborg Reichle, Professor and Chair of the Department of Media Theory. On behalf of the TTT2020 team I hope to see you there!

#TTT2018

Co-organized by the Research and Creation Group Arte+Ciencia – Universidad Nacional Autónoma de México (MX), Arte Institute (USA), Cultivamos Cultura (PT) and the Department of Audio & Visual Arts - Ionian University (GR), Taboo - Transgression - Transcendence in Art & Science took place in 11-13 November 2018, hosted by the Universidad Nacional Autónoma de México (as a part of the research project PAPIIT IG400718), and the Centro de Cultura Digital. The conference had the privilege to present ninety-three speakers from twenty-four different countries, organized in twenty-one sessions. In collaboration with FACTT - Festival Art & Science Trans-disciplinary and Trans-national within Festival N, TTT2018 included in its agenda the opening of the exhibition "Spaces of Species" with artworks, among others, by Brandon Ballengée, Andy Gracie, Bios ex Machina, Jaime Lobato, Kathy High, Lena Ortega, Marta de Menezes, Plataforma Bioscénica, Robertina Šebjanič and Victoria Vesna. Moreover, the conference in Mexico was preceded by the TTT Satellite Physiological Bioart - Body Performance Live Art Event "BioCuerpos Perfor|m|ados", organized by the Grace Exhibition Space in collaboration with Casa Viva Gallery, Paranoid Visions UTA and Anemonal, with performances, among others, by Boryana Rossa, Alex Romania, Praba Pilar, Adam Zaretsky, Alejandro Chellet, Marita Solberg, Jacco Borggreve, Margherita Pevere, Cecilia Vilca and Lorena Lo Peña. Similar events, within the hosting institution in collaboration with other organizations, characterize TTT's agenda, as, since its beginning, TTT seeks to provide a comfortable setting for the interaction of its participants, the students of the academic institution hosting it and the community at large.

Taboo-Transgression-Transcendence in Art & Science 2018 received the generous aid of public and private institutions from Mexico, USA, Portugal, Brazil and Greece, and it is through these that the organization of the conference was possible. The conference was sponsored by the UNAM (MX) and the Ionian University (GR). The events integrating TTT2018 were kindly hosted by the Centro de Cultura Digital, the Casa Viva Gallery and the Paranoid Visions UTA in Mexico City. Supporting institutions of the conference programme were the Intellect Publications (UK), Bioscenica (MX), Instituto de Investigaciones Filósoficas - UNAM (MX), Grace Exhibition Space (USA), Anemonal (MX), Centro Cultural de España en Mexico (MX), Instituto de Investigação em Saúde and ID+ Research Institute for Design, Media and Culture - Universidade do Porto (PT), California State University (USA), Marist College (USA) and Organização de Estados Ibero-Americanos (BR).

The conference proceedings for TTT2018, as TTT2017, are published in two forms. The first part of the proceedings are published on the special issue vol. 16:3 of the Technoetic Arts journal, by Intellect Publications, including only texts from TTT2018, at the invitation invitation of Roy Ascott (editor-in-chief) to Dalila Honorato (guest-editor). The texts of the first part are those by authors: Sixto Castro, Graydon Wetzler, Hege Tapio, Adam Zaretsky, Dolores Steinman - David Steinman, Matej Vakula, Sofia Falomir, Mariana Perez Bobadilla, Polona Tratnik, Linus Lancaster, Jenifer Wightman, Miguel Oliveros, Ebru Yetiskin, Dimitrios Traperas - Nikos Kanellopoulos and Yi-Chen Wu. The second part of the proceedings are included in this digital book, published by the Department of

Audio & Visual Arts - Ionian University, edited by Dalila Honorato, María Antonia González Valerio, Marta de Menezes and Andreas Giannakoulopoulos.

The texts of the second part are those by authors (in order of appearance): **Roberta Buiani** defends the role of art as research catalyst in the classification of newly discovered or created life forms; **Adam Zaretsky** presents a template license for human subjects participating in bioart or other experimental interactions; **Olga Majcen Linn - Sunčica Ostoić** approach the role and meaning of the relationships of art, science, technology and the body in society through contemporary curatorial practice; **Felipe Shibuya** opposes the romanticized representation of hummingbirds in various artistic interpretations with scientific aspects; **Olga Timurgalieva** introduces the characteristics of multispecies intra-active aesthetics through examples of bioart; **Nicole Clouston** explores responsible collaboration between humans and mud microbes through acts of care; **Rachel Treide** considers the ethics of genetic manipulation through the use of unobtrusive coding methods in Joe Davis' bioartwork Malus ecclesia; **Günter Seyfried** describes the performance in vitro of image manipulation at the level of molecules including the use of the CRISPR/Cas method; **Margherita Pevere** analyses materiality from the perspective of artistic research through auto-ethnographic methods in performance art; **Alex Romania** offers a genuine testimony on the circumstances surrounding the creation of his poetic performative text confronting the double sickness of the individual and the governmental body; **Sharry Taylor - Efrat Gold** question hyper-individualized constructions of mental illness within contemporary capitalist relations and practices; **Adnan Hadzi** presents the results of a three year research project on the living conditions of boater communities and art productions resulting from this experience among the so-called bargees; **Miguel Oliveros** introduces documentation from his ongoing field study on hotspots and borders that are connected to the EU migration crisis; **Evaguelia Diamantopoulou** explores the role of the fear of death in contemporary artistic expression; **Reyes Espinoza** looks at post-mortem technologies in live performance and art exhibitions; **Katsiaryna Suryna - Rodrigo Guzmán Serrano** approach artificial intelligence as artistic medium, distinguishing the concepts of AI-tool and AI-agent; **Laida Limniati - Dalila Honorato - Andreas Giannakoulopoulos** investigate the ways biohackers are communicating with each other in social media and particularly in Twitter; and **Paulo Bernardino Bastos** considers the rhizomatic expansion of creativity in collaborative and solo art practice and research. The last chapter "Spaces of Species" includes the exhibition's curators statements, on behalf of Festival N and FACTT Mexico 2018, by **María Antonia González Valerio** and **Marta de Menezes**, as well as the artwork labels by **Victoria Vesna**, **Robertina Šebjanič**, **Brandon Ballengée, Andy Gracie, Bios ex Machina, Kathy High, Lena Ortega, Bioscénica, Jaime Lobato, Marta de Menezes - Luis Graça, Maria Francisca Abreu Afonso, Jude Abu Zaineh, Alan Tod, Maria Manuela Lopes - Paulo Bernardino Bastos** and **Instituto Gastronómico de las Altas Montañas - Arte+Ciencia**. Finally a word of appreciation to the team that voluntarely documented TTT2018 and whose work can be partially appreciated through the photographs integrating the first and the last chapter of this book.

Image 1. Dalila Honorato, María Antonia González Valerio and Marta de Menezes, credits A+C

Image 2. Ebru Yetiskin, credits A+C

Image 3. Gunter Seyfried and Axel Barcelo, credits Felipe Shibuya

Image 4. Hege Tapio, Nicole Clouston, Ingeborg Reichle and Marta de Menezes, credits A+C

Image 5. Adam Zaretsky, Erik Hokanson and Jill Mcdermid, credits Felipe Shibuya

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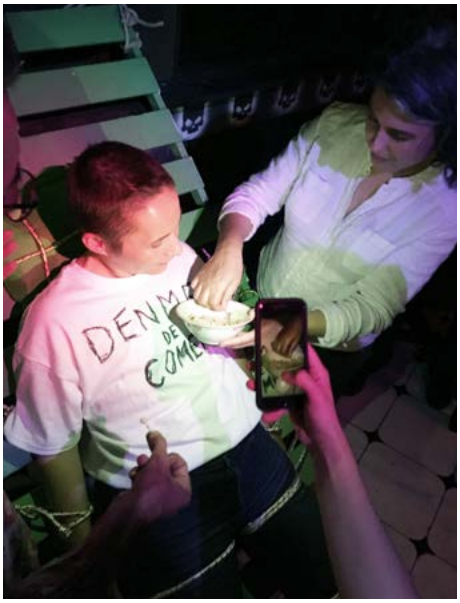

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ROBERTA BUIANI

Coping with new categories and complex phenomena: a thought-in-progress

ABSTRACT

How can we better comprehend and eventually cope with complex phenomena, and specifically, the emergency of new forms of life a? New life forms tend to exceed the classification established by traditional trees of life. Attempts to fit these newly discovered or newly created life forms into pre-existing containers casts doubts on the ability of individual disciplines to seize their complex formations and their porous boundaries, raising questions about current understandings of nature and culture, what counts as life, and agency. In the midst of this seemingly existential crisis, the arts play a crucial role: in fact, they can function as research catalysts. When incorporated into the methodological apparatus of research (and not just as decoration or as aesthetic attraction at the service of science) they become connectors between disciplines, and between the scientific community and the general public, bringing in a diverse range of perspectives. In this specific case, the arts can facilitate new ways of making sense of the complicated worlds being discovered and emerging today.

KEYWORDS Emergence, taxonomy, natureculture, sciart, symbiosis.

INTRODUCTION

The compulsive tendency to fit the living into increasingly elaborate trees of life, and to organize life forms according to pre-existing conceptual and material containers is dictated by a cultural obsession that is many centuries long: from Aristotle to Linnaeus, classification was dictated by a desire to locate all forms of living and our human species within a very diversified world, to understand their role, as well as to control it. However, we appear to have hit a particular socio-cultural, political and epistemological conjuncture: despite the recent breakthroughs in science and technology, it has become increasingly clear that neither one, nor the other are able to fully assess nature's transformations and readjustments caused by human and natural action.

The proliferation of technology and the overspecialization of disciplines have made it more difficult, not easier to seize these phenomena (Arbesman 2014). It is increasingly difficult to fully comprehend them as phenomena that can be understood individually, by means of a single discipline or through one reliable procedure. In fact, science has contributed to creating more categories, not less, hence complicating current taxonomies, as Sophia Roosth illustrates in her comprehensive account on synthetic biology and lab-produced microorganisms (Roosth 2014, 2017). The rise of big data has facilitated the collection and easier detection of information. However, it has also taken these data out of context, making their analysis more complicated and prone to instrumentalization (Dalton and Thatcher 2016).

In addition, the visionary, yet puzzling, endeavors of recent scientific research have proved to affect nature, culture, and society in too many intricate ways (Tsing 2015). It follows that even if old categories are still dominating our conception of the world, emergent categories (like the naming of new types of bacteria, the discovery and identification of new species carrying substantial variations away from the "norm", or digitized creatures only materializing thanks to AR technologies) are challenging our traditional understandings of nature and culture.

With such increasing complexity, it becomes more difficult not only to interpret organisms as finite units, but also to identify hard and well-defined boundaries that distinguish them. Then, questions arise on whether our current models to understand the world are adequate to make sense of its complexity, or we should rather toss all the models away. In this essay, I argue that rather than throwing away the models, we should seek ways to rethink them through an interdisciplinary practice based on sharing and on artistic experimentation.

TREES AND DIAGRAMS

We are maybe familiar with the living forms and categories highlighted in biology and taxonomy books. Featuring increasing numbers of organisms and their morphological and genetic details, tree of life diagrams have generally reflected the new technologies available at the time of their formulation. Whittaker's 1969 diagram for instance, featured five kingdoms: fungi, animalia, plantae, protista and monera, based on visual observation of organisms, and facilitated by the increasing ability of microscopy to seize smaller details.

Conversely, Woese's diagram is a phylogenetic tree of life, that is, a tree made possible by newly acquired techniques of DNA analysis rather than on visual observation. This diagram distinguishes life forms in three groups known as Eukaryotes, Bacteria and Achaea and concedes that the microscopic kingdom is not only the most diverse and populated of all kingdoms, but it is also still partial unknown. As biologists keep naming categories, Margaret McFall Ngai observes, we discover that what we thought of as self-contained entities is actually a plurality of indivisible organisms in symbiosis with each other. In many cases, organisms only survive and evolve thanks to other organisms living inside them or in close proximity to them: in other words, "every I is also a we" (McFall Ngai 2017).

Recently, we have seen the tree of life diagram growing, prompted by the emergence of different kinds of technologies. Rather than facilitating the study of life in its most recondite attributes, leading to the discovery of more organisms and more connections between them, these technologies re-invent or re-design life. The emerging field of synthetic biology for instance has championed a series of techniques that "rationally engineer living things [typically bacteria] in a goal-oriented manner" with the scope of "improving upon natural selection (Roosth 2017)." Only in the past decade, an astonishing number of synthetic bacteria have been produced and are currently archived in the biological libraries of a variety of scientific institutions. In addition, a thriving and very competitive industry specialized in onco-immunotherapy has mastered the art of producing oncolytic viruses, a new class of bioengineered human viruses with "attenuate[d] pathogenicity, increase[d] oncolytic potency, or enhance[d] specificity for cancer tissue (Kelly and Russell 2007)". Programmed to delivered drugs and therapies and presumably short lived, these viruses are in limbo: in fact, they don't occupy any particular category.

After speaking with synthetic biology experts, Alexandra Daisy Ginsberg proposed that the organisms emerging from synthetic engineering, mainly creatures made for, and largely surviving in the lab, should be added as "a new branch of the tree of life: the Synthetic Kingdom (Ginsberg 2014)". How do we classify this increasing diversification of life and semi-life? Conversely, how do we interpret those organisms that have undergone various degrees of mutations resulting from lab experiments (see GMO mosquitoes, the onco-mouse, or those very oncolytic viruses employed in many onco-immunology trials these days), or caused by climate change and chemical transformation of their habitat? New environmental mutants have emerged due to a range of anthropogenic and natural events (such as the propagation of toxic waste, the leakage and dispersion of chemical compounds in the soil or water, the acidification of the sea, air pollution etc..) that have affected life forms in many ways. Of interest to this research project are what Michelle Murphy called "queer survivors (Murphy 2013)", that is, animals and other organisms (Tsing 2015) that are "altered by, but still flourish in highly polluted environments" (Pollock 2016: 187). In some cases, both morphological and genetic transformations in these organisms are permanent and have sometimes allowed them to adapt

and even to thrive. Should we add another kingdom that takes into account those mutants?

In his "What Technology Wants" Kevin Kelly develops the concept of *Technium* to observes how the sum of technology (technology at the macro level, or Technology with capital T) can achieve a considerable degree of autonomy that is not present on the microlevel (Morozov 2011). For Kelly, Technology should be added as an ulterior kingdom to the tree of life diagram. Evgeny Morozov liquidates Kelly's alleged new term as too reminiscent of the German term *Technik*, calling his attempt to link Technology to evolutionary biology uncritical and too "industry-friendly" (Ibid.). Kelly's idea is deterministic and outdated. However, I think the significance of technology should not be underestimated here. In fact, it is not to Technology as a whole that we should be paying attention, but to some of the artifacts it produces. Specifically, I am referring to those "digital chimera", those digitally produced or digitally imagined entities, whose existence may or may not be considered a new living category. Indeed, recent information technologies have enhanced human ability to represent and further build alternative worlds and realities, to the extent that we are often unable to tell real from virtual life. Thus, digital worlds and augmented realities should be discarded as just "artificial," since their ability to alter our sense of space and place have also shifted our perception of what is real and what is artificial (de Souza e Silva 2006; de Souza e Silva and Sutko 2011; Meyrowitz 1986).

The increasing availability of new technologies goes hand in hand with the development of new epistemological views and new ontological configurations of the world: the more we dig into the recondite space of the microscopic, the more we discover the interdependence of the living; the more we study this interconnection, the more our vision of the world becomes complicated. María Antonia González Valerio and Liliana Quintero explain that technologies (the technosphere) are inevitably interfering with organisms (González Valerio and Quintero 2012). This means that nature has incorporated the idea of artificiality, and the boundaries between nature and artificiality have ceased to exist. However, the exchange across realms should still be acknowledged, not dismissed or made invisible, even if it's become *a fait accompli.*

Margaret McFall Ngai suggests that representing life as a tree is not accurate. Life is certainly not built hierarchically as popular diagrams (or additions to them) state. A more adequate model, she argues, was recently proposed by Koonin and Wolf in 2012: featuring life as a busy web, this diagram does not completely toss away the tree, but shows how organisms from different kingdoms share much more than we imagine, thanks to frequent gene transfers. "Tree of Life, Forest of Life, Web of Life, Mess of Life –What is it after all?" Koonin asks during a 2011 presentation. Traditional taxonomic boxes have become much more difficult to fill (Puigbò, Wolf and Koonin 2013).

Currently, whether morphological or phylogenetic, including digital creatures or synthetic organisms, the systems of classification exemplified by popular trees of life may reflect the increasing diversity, differentiation and crosspollinations

between organisms, but don't reflect how the latest technologies and the latest epistemological shifts have showed us a world where the boundaries between the natural and the artificial, nature and culture intersect. Then How do we proceed? How do we account for the new organisms emerging from labs, endangered environments and digital imaginary without just adding an extra branch to the tree of life? How can we express the entanglement between all living forms?

FROM ART AND SCIENCE TO ARTSCIENCE

Grappling with complicated and multifaceted phenomena as well as with emergent organisms has been a major theme in the literature pertaining to the Anthropocene, (Bakke 2017; Lewis and Maslin 2015; Povinelli 2016). Scholars like Jane Bennet (2013), Elizabeth Povinelli (2016), and Monika Bakke (2017) among others, expressed the need to assess the emergence of new conditions caused by this dramatic transformation affecting all aspects of life on earth through new relational approaches.

These approaches seek to take into consideration the social, cultural and affective aspects of environmental phenomena as profoundly entangled. Recent feminist technoscience scholarship has called for more multifaceted and interdisciplinary approaches in the face of today's perceived increased complexity and ethical/material ambiguity. For example, Anna Tsing (2015) illustrates the intricate articulations of the Matsusake mushroom in its encounters with different environments, economies, cultures and ecologies. The resulting analysis shows the mushroom as being simultaneously the symbol of resilience and fragility, the product of a disturbed environment and the renewal of said environment, revealing a necessity to revise traditional methods of inquiry, by adopting a holistic approach that values relational and contextual analysis. An approach similarly devoted to giving a sense of the multiplicitous and relational nature of phenomena, Karen Barad's agential realism goes further by paying particular attention to the "energetic side of matter" (Hui 2015). For Barad (2010), phenomena simultaneously produce and are generated through matter and meaning (56). In her anti-representational view, "words and things" are not located in a relation of correspondence. This relation is always in motion, always becoming (always emergent), with things never linked permanently to a fix word or meaning. She suggests that to research "a causal explanation of how discursive practices are related to material phenomena" one should be "shifting the focus from the nature of representations to the nature of scientific practice" (45).

In the current scenario of perceived growing complexity and uncertainty that both scientists and the general public face today, producing more solutions or searching for solid outcomes to map and visualize with more accuracy this, or that phenomenon may not be the best direction to take. I want to think of new strategies to better capture and make sense of the complexities characterizing new and emerging living forms. I am not proposing a set of new categories, but I want to highlight the necessity to conduct a particular type of collaborative research between artistic practices and scientific research.

In her recent work, Donna Haraway (2016) emphasized the important role of artistic expression in the understanding and communication of issues of scientific nature. She mentions how artworks such as the crocheted coral reef – a wildly popular, as much as extensive collaborative installation initiated by mathematician Margareth Wertheim and twin sister Christine Wertheim but later continued by volunteers from around the world – successfully managed to raise awareness about the extreme geometrical and biological diversity of coral, its endangered beauty, and its connectedness and co-dependence (its symbiosis) with other organisms and natural systems. For Haraway, this sort of approach goes beyond the critical, dynamic and interdisciplinary analysis of a phenomenon performed by scholars like Barad or Tsing (see for e.g. examples of this interdisciplinary and creative analysis in Barad 2014; Tsing, Bubandt, Gan and Swanson 2017). It is part of the strategy she calls "staying with the trouble," that is, to purposely cross boundaries and seek help and collaborations outside our comfort zone and our discipline; in other words, to face situations such as climate change, or the emergence of new mutated organisms as a result of polluted environments "head on" with the recognition that "we require each other in unexpected collaborations and combinations,…we become-with each other or not at all (Haraway 2016: 6)".

Haraway suggests crossing the boundaries in search of meaningful collaborations and in doing so, to "step outside one's comfort zone". While this is a crucial deed, it is already being explored with excellent results. I believe we should go further and create a space for reflection **through** and, importantly, **with** the arts – not with the arts as an addition or an afterthought – to convey (not explain or illustrate) the dynamic forces converging into, and traversing, new and difficult-to-study new life forms. The arts here are not simply used to illustrate or to narrate, but to transmit, and make sense of complexity without relying on given disciplinary and instrumental containers. The artistic medium becomes simultaneously a catalyst for interrogating the nature of new life forms and new research tools able to display and communicate their complexity without recurring to lengthy explanations and simplifying metaphors. The result may reveal aspects characterizing new life forms that had been ignored by both science and the arts. This has enormous implications for the ability of science to communicate concepts outside of traditional academic circles and for the general public to comprehend them. In addition, it is an opportunity for the arts and the sciences to join forces and explore non-verbal and unconventional forms as new research methods.

CHIMERA, MONSTERS OR MUTANTS? NATURE, TRANSFORMED

The arts here are not mere tools at the service of science but act as catalysts, as enzymes: when incorporated into the methodological apparatus of research (and not just as decoration or aesthetic attraction) they become connectors between disciplines, and between the scientific community and the general public, bringing in a diverse range of perspectives. Conceptually speaking, they may be instrumental in conveying aspects escaping verbal and written

communication: namely, they may help reveal the entanglement of natural, socio-cultural, and material factors characterizing these new life forms and how they become apparent in the world. In this way, digital chimera, synthetic monsters, and environmental mutants don't acquire visibility because of their belonging to a specially-added category. Instead, they reveal themselves thanks to their relevance for, and their entanglement with the world surrounding them.

To elucidate how the arts can provide a more sophisticated and nuanced understanding of these complexities, making our formal trees somewhat obsolete, a few examples come to mind: narrative merits notwithstanding, cinema and science fiction such as Blade Runner and TV series such as Westworld have been prophetic in showing how technologies could not only generate new forms of living, but also how these forms would not be easy to locate in self-contained categories. Characters like Priss in 1983's Blade Runner and Dolores in 2018 Westworld are hybrids generated thanks to different technologies, being the products, respectively of bioengineering and Artificial Intelligence. They share human (or quasi-human) traits, but their functionalities and life span reveal a different story. Blade Runner's 2049 Villeneuve direction (despite its flaws) understood well that the Mutant idea, as prophetic as it was, was not the only form of living to emerge out of the technoscientific sublime: Augmented Reality (AR) has joined the list of technologies currently creating realities sitting in-between what we consider living and what we consider artificial. Although conceptually limited and lacking depth in its cinematic debut, a character like Joi is the materialization of a fantasy that is deemed to become a reality soon. In fact, this AR creature lives in a hard drive as the product of computing, but is also capable of passing as a credible – if ephemeral – human. How to classify these creatures? Or should we? These creatures are no longer just products of the imagination, but live (in cruder and still imperfect forms, admittedly) among us, raising questions about what counts as real and what is artificial, what kind of life and roles the digital is generating, what is living and not and how (and if) it can ever be classified.

While the examples above imagine new life forms through the eyes of popular culture, artists and scientists have joined forces to reimagine, make sense of, and reveal the numerous intersections of natureculture, artificial and natural and the relational nature of all living forms. A case in point, the installation by Bios ex Machina titled "Instructions to Build a Species" not only deconstructs the biological category of the fern through its different classifications but does so by exposing how these classification systems are the result of "tensions between tradition, measurement of molecules, interdiscipline and the hegemony of the modern synthesis (Bios ex Machina 2018)." As Isabelle Stengers once said, scientific objects are always "produced by a multiplicity of relations" (Stengers 2011: 33), including political and disciplinary compromises, rules and obligations dictated by traditions and – often violently applied – impositions (Stengers 2010a). Using different parameters, the installation provides a set of instructions each befitting specific interests and necessities in order to define and distinguish the specific species "fern" from any other species. Interestingly,

the use and juxtaposition of these parameters not only ends up breaking the idea that categories can stand as isolated unities, but also establishes the fern as a species which unfolds primarily in relation with other categories as well as a kin to other species.

CONCLUSION

Faced with the staggering variety and the continuous growth and discovery of new species (and the disappearance of old one), we appear to have reached an impasse: the way that tree diagrams and old-fashioned categories attempt to delimit living forms look obsolete. However, not only is this system well-established and therefore difficult to dismantle, but it is also still surprisingly useful to make sense of a world that is increasingly diversified. We don't need to burn the tree. Rather, we need to find ways to become aware of the complex set of relationships, exchanges, collaborations revolving around and contributing to the formation of new beings. Merging interdisciplinary methods from the arts and the sciences, and research strategies deriving from the arts may lead to better ways to complicate the tree of life and cope with its marvellous complexity.

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ADAM ZARETSKY

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ABSTRACT

Body artists and Performance artists have reserved the right to do whatever they will with collaborators in a field of personal integrity and pride: in public venues since the birth of extroversion and ritual process. There is a deep and rooted tradition of utilizing practices that disrupt bodily integrity as one of many gateways to achieve altered states of consciousness. If these acts are geared towards insight into timeless secrets of being or just another refusal to live a dopamine starved suburban non-existence, Live Art interventions into standardized socially acceptable behavior are taboo but in the name of art, they are generally allowed. Other forms of sovereign taboo tacitly approved by the fickle social are those acts performed by sovereign executive hit squads, state religious and corporate power practice. The exceptions rely on a similar malpractice by ignoring the rules of war, engaging in covert medical experimentation and promulgating private incarceration inculcated without volition worldwide. Competitions between dominant social hegemonies for forced allegiance of trapped populations in nation states and under multinational corporate fiefdoms continue unabated. But, in the Generic Creative Commons Non-Attribution, Non-Commercial, Share-Alike Intellectual Property Explicit Model Release Submissive Human Research Participant License (GCCPNANCSAEMRSHRPL), the lines between corporate, religious and state domination and self immolation with volition for subaltern, socially acerbic or free expression of desire (artistic, romantic, sadomasochistic, hookup or otherwise) are juxtaposed, folded into each other and blurred.

KEYWORDS Intellectual Property, Model Release, Submissive, Human Research, XXX, Creative Commons, Informed Consent, GCCPNANCSAEMRSHRPL, Torture, Bloethics.

INTRODUCTION

The Generic Creative Commons Non-Attribution, Non-Commercial, Share-Alike Intellectual Property Explicit Model Release Submissive Human Research Participant License GCCPNANCSAEMRSHRPL was first written as a release for actors in a performance movie shoot called pFARM (Internet Archive Webpage). The power farm or pFARM was based on organic fetish biotech and involved some dedication and flexibility by the explicit models, art patients and submissives.

In her article “From the Fat of the Land: Alchemies, Ecologies, Attractions” Linda Weintraub refers: “Adam Zaretsky addresses the fetish for power that has led humanity to pump its intellectual, mental, and physical muscles and dominate other species, earth forces, and each other. His innovative measures to reverse power-mania take the form of cultivating submissiveness. Indeed, Zaretsky craves submissiveness as others crave power. He has formulated a triad of unlikely techniques to replace aggressive power-mongering with docile obedience: organic farming, sado-masochistic sexual practices, and biotech experimentation. The first is a bizarre charade. The second is a performance spectacle. The third is lunatic science” (Weintraub 2007).

Image 1. pFarm selected images

The License was meant to protect the organizer from legal issues involved in producing porn films for public release that showed bioart human experimentation as actually enacted. By utilizing Sado/Masocistic master-slave contractual samples and mixing them with medical informed consent forms and model releases, the GCCPNANCSAEMRSHRPL is a Kafkaesque maze of contract law. It is a mockery of the human right to waive your rights in the name of surrender to corporate domination. We do this every day in terms of internet privacy, job related self abnegation and any time we fill out and sign a form or hit an 'I Accept' button for software initialization, etc. The contractual self-immolation has become a textual version of Lingchi or death of one thousand cuts. And the question remains, how much of your body, mind emotional being, life force and freedom do you have a right to sign away in the name of art/romance/business/sexuality/research?

The first released version of this contract was written in a time when collusion between contract law and human sacrifice had reached a level of inhumane relations both frightening and transparent. The first draft of GCCPNANCSAEMRSHRPL coincided with the USA legalization of torture in such hotspots as Guantanamo and Abu Ghriab and the commercialization and privatization of torture through soldiers of fortune outsourcing companies like Haliburton and Blackwater. This document (here republished) was an invitation to volunteer to become a Prisoner of War (POW) through the auspices of the United States Sadomasochistic Ethical Advisory Commission (USSMEAC). The attempt was to make a case for Humane Torture instead of legalizing enhanced Interrogation Techniques of foreign detainees in violation of Geneva Conventions on the Humanitarian Law of Armed Conflicts. The comparison of varieties of Submissive BDSM Play checklists to Tortures available for approval by medical doctors in GITMO and other extreme rendition torture sites is meant to emphasize the heightened ethical grounds of the Sado-Masochistic Community, which practices with such boundary issues as: Informed Consent, the Respecting of Limits, Subjugant Confidentiality, Avoidance of Blaming, Hearing Feedback, Cautious Approaches to Darkside S/M and Switching (Easton and Hardy 2003).

The crossover between bioart, bioporn and medical atrocity as fetish work with Human Subjects became obvious with the leaked amateur photos from the GITMO torture romance promulgated by Lynndie Rana England and Charles Graner under the 'gloves off' approach of Donald Rumsfeld. To update this from the Reagan-Bush Era to the Trump scenario, Special Operations Chief Edward Gallagher, a US Navy SEAL is facing some serial killer type war crimes like stabbing and killing a wounded teenager combatant in hospital. His charges have been considered for a Presidential Pardon (Democracy Now Website). Graffiti 'Eddie G puts the Laughter in Manslaughter' was written in a sniper nest in Mosul, Iraq (The Times Website). So, the beat of injustice goes on and War Crimes continue to be standard acts and this is why we can only rest in parody the semblance of any but comedic human rights.

"USSMEAC, The United States Sado-Masochistic Ethical Advisory Commision advocates for Victimless Detainees."

USSMEAC: "All Volunteer POWs!"

Humane Torture?

Calling All Pain Sluts, Submissives and Masochists, Its up to you to End the Inhumanity of War. Volunteer to Be a Prisoner. Visit Guantanamo Bay, Abu Ghraib or any of the hundreds of World Wide Halliburton Dungeons. Be Humanely Tortured within your own tastes and limits. Become a Global Information Transmission Role Model. Make All U.S. Torture Safe, Sane and Consensual.

S/M Ethics at Home and Abroad

USSMEAC is an Advisory Commission made up of representatives selected from the United States Sadomasochistic Community. It is important that the gifted fetishists, the psychodramatists, the pain sluts and the sissyboys of our proud nation advise our Military Intelligence Industry on ethical power exchange. The AltSex Community wants our Homeland to be conscientious while hedonistically attaining our democratic goals...

Due to the Abuse scandal at Abu Ghraib prison in Iraq and several others like it on both the British and American Fronts an ethical debate on Interrogation Techniques has left the Nation and the world in a moral dilemma. As a populous, we are trying to decide, what is torture? What is legally allowable to enhance the intelligence elucidation in our prisoners of war, yet still not considered torture? How important is our respect in the eyes of the world? Do we expect others to follow the Geneva Conventions if we publicly disavow them?

Is it possible that the U.S. Sadomasochist community might present an excellent role model? Certainly, the Current Administration could use an experienced guide to re-educate them on the Ethics of Humane Torture. It is fairly well agreed upon, we would like to keep our boys and the people they torture Safe and Healthy while they play together. Is it possible that this international game of Violation and Betrayal could be played without being immoral? Could we offer a new kind of strategy for War? Is there a more fruitful and erotic way to engage the enemy? How can we envision our interrogational relations with them? Can we all get our war on in a groovy, hot scene without victimization?

>>

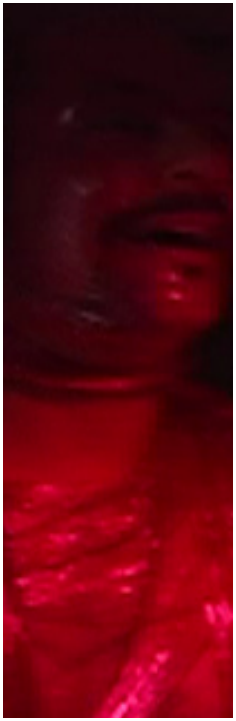
Certainly, the current administration could use an experienced guide to re-educate them on the Ethics of Humane Torture.

USSMEAC: The United States Sado-Masochistic Ethical Advisory Commission

We Function on Trust and Respect:

The Power of our armed forces often calls upon the essence of the authority that the Psychodramatic fantasy escapades entail. The connection between Dominance and Orgasm, Power and Submission, Discipline and Surrender, Pain and Alterity is often a recurring theme in our sub-culture; so too, with Prisoners and their Interrogators. The Power of our weapons, the Power of our speed, the Power of our intelligence gathering, the Power of our mighty libidos, none of this goes without notice in a well-rounded session of erotic, psycho-dramatic rough trade. The unfortunate practice of War may have originated as an offshoot of deviant sexual engagement. But, the similarities between proud perverts, some of who engage in dominance as a erotic human behavior, and Armed Forces Command and Control also have their differences. Since we have failed to follow the rules of war in this recent conflict, common decency suggests that Military Ethicists should consult their forebears, the society of sensual dominants who have bourn out the essence of war in consensual inter-personation from time immemorial.

USSMEAC utilizes the following core concepts Informed Consent, the Respecting of Limits, Subjugant Confidentiality, Avoidance of Blaming, Hearing Feedback, Cautious Approaches to Darkside S/M and Switching. These concepts of interpersonal respect apply to the ritually charged relations between Enemy Combatants and their Keepers at this time.



USSMEAC CODE OF ETHICS:

Informed Consent

Respect of Limits

Subjugant Confidentiality

Avoidance of Blaming

Hearing Feedback

Cautious Approaches to Darkside S/M

Switching

Volunteer Non-Combative Application

In 2001, USSMEAC undertook an ambitious project to overhaul the entire system of World Domination with an eye toward making dominance look the same while acting humanely. The goal was a consistent global application of human rights that gave Volunteers a familiar user experience no matter which side of the boot they were on. While now lauded by volunteers, the change was at first not well received.

"I wanted to make a difference. I have a high pain threshold. I get into the whole military thing. I thought... why not stop victimisation?"

— Bryan Lamkin, Submissive Forces, all volunteer Abu Ghraib Prisoner Unit 93

The Virtue of Service

At a recruitment five years ago I got up and said, "Look, guys, we can't have a human rights mean one thing in one war and something else in another. We need to make wars act the same and we need to be able to export submissives so that all wars can be hot and on TV without all these human rights abuses"

John Warnock, Public Relations

USSMEAC took a metaphor that worked for Alternative Sexual Subcultures and shoehorned that metaphor onto Military Ethics. There was a mass uprising in the Military Industrial Complex because of the intense rivalry between the Racist Bigots and the National Morality pushers. Six years or so later USSEMEAC's applications have come to a good place in terms of the consistent Ethical Master/Slave interface.

Sandee Cohen, educator, author, and "Getting What You Want Out of Internment"

One day I found myself having to lead a class in military ethics, which I didn't know all that well. Someone asked me about human rights. I automatically gave a BDSM answer—but I was right. They were the same.

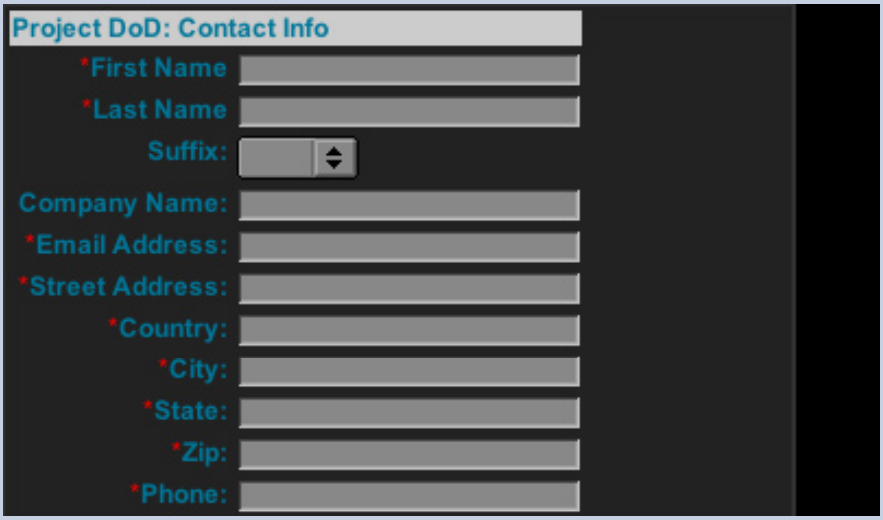
Katrin Eismann, author, artist, and "Sub-Commander" in GITMO Cell Block 21

Authoritative Compatibility across global applications of POWER has been a key component of USSMEAC's strategy.

USSMEAC recruiting invitation_iv

The Submissive VOLUNTEER Non-Combative Application

Fill out all forms:



Please Enter a Volunteer Non-Combatant Submissive Nickname _____

Please Enter a Volunteer Non-Combatant Submissive Safe Word _____

★ See the Difference ★

The Submissive VOLLUNTEER TORTUREE Check List

Choose at least six interrogations techniques from

SubStats: USsMEac A

Choose at least six interrogations techniques from

SadoStats: USsMEac B

Choose at least six interrogations techniques from

MasoStats: USsMEac C

indicate for each item how you FEEL about that activity by rating it on a scale of NO or 0 to 5.

NO means you will NOT do that item under any circumstances (a hard limit).

0 (zero) indicates you have utterly no desire to do that activity and don't like doing it (in fact, may loath it) and would ordinarily object to doing it, but you would be willing to do it to please the Dominant if it they really wanted it. (sometimes called a "soft limit").

1 means you don't want to do or like to do this activity, but wouldn't object if it was asked of you.

2 means you are willing to do this activity, but it has no special appeal for you.

3 means you usually like doing this activity, at least on an irregular/ occasional basis.

4 means you like doing this activity, and would like to experience it on a regular basis.

5 means the activity is a wild turn-on for you, and you would like it as often as possible.

SubStats: USsMEac A

These are the Interrogation Techniques which have been legally and admittedly used at Guantanamo Bay:

- Direct Questioning
- Incentive/Removal of Incentive
- Emotional Love/Emotional Hate
- Fear Up Harsh/Fear Up Mild
- Reduced Fear
- Pride and Ego Up/Pride and Ego Down
- Futility/We Know All
- Establish Your Identity
- Repetition Approach
- File and Dossier
- Mutt and Jeff
- Rapid Fire
- Silence
- Change of Scene
- Deception
- Multiple Yelling Interrogators
- Stress Positions, Like standing
- False Documents and Reports
- Isolation for up to 30 days
- Deprivation from Light/Auditory Stimuli
- Hoodings (Transportation and questioning)
- 20-interrogations
- Removal of all Comfort Items, including religious items
- MRE-Diet only
- Removal of Clothing/Forced Grooming
- Exploit individual phobias, i.e. dogs
- Mild, Non-injurous physical contact, e.g. grabbing, poking or light pushing
- Environmental Manipulation
- Sleep Adjustment
- False Flag

The Submissive VOLLUNTEER TORTUREE Check List

SadoStats: USsMEac B

These Interrogation Techniques are Legal only under the Ethical Standards of the USSMEAC All Volunteer Detention Center:

Anal plugs
Animal roles
Asphyxiation
Bathroom use control
Beating
Blindfolds
Being bitten
Breath control
Branding
Boot worship
Bondage
Brown showers (scat)
Cages
Choking
Competitions (with other Subs)
Cutting
Double penetration
Electricity
Enemas
Exhibitionism (strangers)
Eye contact restrictions
Face slapping
Fantasy abandonment
Fisting (anal)
Forced homosexuality
Forced masturbation
Forced nudity (around others)
Having food chosen for you
Having clothing chosen for you
Head (giving/receiving fellatio)
Humiliation (public)
Hypnotism
Infantalism

MasoStats: USsMEac C

These Interrogation Techniques are Legal only under the Ethical Standards of USSMEAC but are sometimes used by US Intelligence anyway:

Kidnapping
Kneeling
Modeling for erotic photos
Rituals
Religious scenes
Restrictive rules on behavior
Given away to another another Nation's Intelegence Dungeon (temp or perm)
Golden showers
Sensory deprivation
Serving as art
Serving as ashtray
Serving as a maid
Serving as furniture
Serving as toilet
Serving as waiter
Shaving (body hair)
Shaving (head hair)
Sleep deprivation
Slutty clothing
Speech restrictions (when, what)
Straight jackets
Strap-on-dildos
Swallowing semen
Swallowing urine
full body beating
Suspension
Swinging (multiple couples)
Tattooing
Teasing
Tickling
Uniforms
Including others
Verbal humiliation
Video (recordings of you)
Water torture
Whipping
Wooden paddles
Wrestling

USSMEAC recruiting invitation_vii

Please Sign this Contract and Model Release
Report to your Local USSMEAC Chapter
to begin your Post-War Interrogation-

LoveCorps Volunteer Prisoner Non-Combatant Submissive Contract and Model Release Form

P1.0.0 Volunteer Prisoner's Role:

The Volunteer Prisoner agrees to submit completely to the Post-War Interrogator in all ways. There are no boundaries of place, time, or situation in which the Volunteer Prisoner may willfully refuse to obey the directive of the Post-War Interrogator without risking punishment, except in situations where the Volunteer Prisoner's veto (see section 1.0.1) applies.

The Volunteer Prisoner also agrees that, once entered into the LoveCorps Volunteer Prisoner Contract, their body belongs to their Post-War Interrogator, to be used as seen fit, within the guidelines defined herein.

All of the Volunteer Prisoner's possessions likewise belong to the Post-War Interrogator, including all assets, finances, and material goods, to do with as they see fit. The Volunteer Prisoner agrees to please the Post-War Interrogator to the best of their ability, in that they now exist solely for the pleasure of said Post-War Interrogator.

1.0.1 Volunteer Prisoner's Veto

The Volunteer Prisoner, where appropriate, holds veto power over any command given by the Post-War Interrogator , at which time they may rightfully refuse to obey that command. This power may only be invoked under the following circumstances, or where agreed by both Post-War Interrogator and Volunteer Prisoner:

1. Where said command conflicts with any existing laws and may lead to fines, arrest, or prosecution of the Volunteer Prisoner.
2. Where said command may cause extreme damage to Volunteer Prisoner's life, such as losing their job, causing family stress, etc.
3. Where said command may cause permanent bodily harm (see 4.0.0) to the Volunteer Prisoner or constitute an unwanted Human Rights Abuse.
4. Where said command may cause permanent and irreversible psychological trauma to the Volunteer Prisoner.

2.0.0 Post-War Interrogator's Role

The Post-War Interrogator accepts the responsibility of the Volunteer Prisoner's body and worldly possessions, to do with as they see fit, under the provisions determined in this contract. The Post-War Interrogator agrees to care for the Volunteer Prisoner , to arrange for the safety and well-being of the Volunteer Prisoner , as long as they own the Volunteer Prisoner. The Post-War Interrogator also accepts the committment to treat the Volunteer Prisoner properly, to train the Volunteer Prisoner, punish the Volunteer Prisoner, love the Volunteer Prisoner, and use the Volunteer Prisoner as they see fit.

3.0.0 Punishment

The Volunteer Prisoner agrees to accept any punishment the Post-War Interrogator decides to inflict, whether earned or not.

3.0.1 Rules of Punishment

Punishment of the Volunteer Prisoner is subject to certain rules designed to protect the Volunteer Prisoner from intentional abuse or permanent bodily harm (see 4.0.0).

Punishment must not incur permanent bodily harm, or the following forms of abuse:

1. Drastic loss of circulation
2. Causing internal bleeding
3. Loss of consciousness
4. Withholding of any necessary materials, such as food, water, or sunlight for extended periods of time

4.0.0 Permanent Bodily Harm

Since the body of the Volunteer Prisoner now belongs to the Post-War Interrogator, it is the Post-War Interrogator's responsibility to protect that body from permanent bodily harm. Should the Volunteer Prisoner ever come to permanent bodily harm during the course of punishment or in any other Volunteer Prisoner related activity, whether by intention or accident, it will be grounds for immediate termination of this contract, should the Volunteer Prisoner so desire. Permanent bodily harm shall be determined as:

1. Death
2. Any damage that involves loss of mobility or function, including broken bones.
3. Any permanent marks on the skin, including scars,
   burns, or tattoos, unless accepted by the Volunteer Prisoner .
4. Any loss of hair, unless accepted by the Volunteer Prisoner .
5. Any piercing of the flesh which leaves a permanent
   hole, unless accepted by the Volunteer Prisoner .
6. Any diseases that could result in any of the above results, including sexually transmitted diseases.

5.0.0 Others

The Volunteer Prisoner may not seek any other Post-War Interrogator or lover or relate to others in any sexual or submissive way without the Post-War Interrogator's permission. To do so will be considered a breach of contract, and will result in extreme punishment. The Post-War Interrogator may accept other Volunteer Prisoners or lovers, but must consider the Volunteer Prisoner's emotional response to such actions and act accordingly.

The Post-War Interrogator may give the Volunteer Prisoner to other Post-War Interrogators, provided the rules of this contract are upheld. In such a situation, the Post-War Interrogator will inform the new Post-War Interrogator of the provisions stated herein, and any breach by the new Post-War Interrogator will be considered a breach by the old Post-War Interrogator as well, subject to all rules stated in this contract.

7.0.0 Model Release

This is to state that _____ is a willing Volunteer Prisoner Non-Combatant Submissive in a Display of Humane Torture. This document grants public display rights to USSMEAC in any media for any reason or even without reason in perpetuity.

8.0.0 Termination of Contract

This contract may be terminated at any time by the Post-War Interrogator, but never by the Volunteer Prisoner, except under special conditions explained within this contract. Upon termination, all materials and belongings shall belong to the Post-War Interrogator, to be shared or kept as they see fit. The Volunteer Prisoner, owning nothing and having agreed to give up all worldly possessions and body to the Post-War Interrogator, shall once again own their body, but nothing else, unless the Post-War Interrogator decides to give back their possessions.

9.0.0 Volunteer Prisoner's Signature

I have read and fully understand this contract in its entirety. I agree to give everything I own to my Post-War Interrogator, and further accept their claim of ownership over my physical body. I understand tha I will be commanded and trained and punished as a Volunteer Prisoner, and I promise to be true and to fulfill the pleasures and desires of my Post-War Interrogator to the best of my abilities. I understand that I cannot withdraw from this contract except as stated in this contract.Under the authority invested upon by the states of New York, Utah and Massachusetts, the binding nature of contractual language, and the general truth thing that we can swear by, under penalty of perjury and fear of being purged, to the powers that be and all future power, and, most importantly, to USSMEAC, I do Solemnly Swear to the above terms.

Print and Sign your Name _____ Volunteer Torturee _____Date

Print and Sign your Name _____ Witness _____Date

Evolution of Interrogation Techniques - GTMO

Interrogation Techniques	FM 34-52 (1992) Jan 02 - 01 Dec 02	Secretary of Defense Approved Tiered System 02 Dec 02 - 15 Jan 03	FM 34-52 (1992) with some Cat I 16 Jan 03 - 15 Apr 03	Secretary of Defense Memo 16 Apr 03 - Present
Direct questioning	X	X	X	X
Incentive/removal of incentive	X	X	X	X
Emotional love	X	X	X	X
Emotional hate	X	X	X	X
Fear up harsh	X	X	X	X
Fear up mild	X	X	X	X
Reduced fear	X	X	X	X
Pride and ego up	X	X	X	X
Pride and ego down	X	X	X	X
Futility	X	X	X	X
We know all	X	X	X	X
Establish your identity	X	X	X	X
Repetition approach	X	X	X	X
File and dossier	X	X	X	X
Mutt and Jeff				X*
Rapid Fire	X	X	X	X
Silence	X	X	X	X
Change of Scene	X	X	X	X
Yelling		X (Cat I)	X	
Deception		X (Cat I)		
Multiple interrogators		X (Cat I)	X	
Interrogator identity		X (Cat I)	X	
Stress positions, like standing		X (Cat II)		
False documents/reports		X (Cat II)		
Isolation for up to 30 days		X (Cat II)		X*
Deprivation of light/auditory stimuli		X (Cat II)		
Hooding (transportation & questioning		X (Cat II)		
20-interrogations		X (Cat II)		
Removal of ALL comfort items, including religious items		X (Cat II)		
MRE-only diet		X (Cat II)		X*
Removal of clothing		X (Cat II)		
Forced grooming		X (Cat II)		
Exploiting individual phobias, e.g. dogs		X (Cat II)		
Mild, non-injurious physical contact, e.g. grabbing, poking or light pushing		X (Cat III)		
Environmental manipulation				X
Sleep adjustment				X
False flag				X

*Techniques require SOUTHCOM approval and SECDEF notification.

Source: Naval IG Investigation
Appendix E

From: The Final Report of the Independent Panel to Review DoD Detention Operations, Jim Schlesinger, August 2004, pg. 112

USSMEAC recruiting invitation_x

InControl: The Strategic Hub

Official US Policy on the Ethical Foundations of Detention and Interrogation concerning Consent (PreUSSMEAC):

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"Within our values system, consent is a central moral criterion on evaluating our behavior towards others. Consent is the manifestation of the freedom and dignity of the person and, as such, plays a critical role in moral reasoning. Consent restrains, as well as enables, humans in their treatment of others. Criminals, by not respecting the rights of others, may be said to have consented – in principle – to arrest and possible imprisonment. In this construct – and due to the threat they represent – insurgents and terrorists "consent" to the possibility of being captured, detained, interrogated, or possibly killed."

-From the Final Report of the Independent Panel to Review DoD Detention Operations, Appendix H, James R. Schlesinger, August 2004

By replacement of military weapons production with Adult Real TV documentation of these 'indoctrinations', we might have the kind of ratings that the Abu Ghraib scandal produced without any complaints from the Red Cross or Amnesty International. If we can sell the world on Equal Opportunity Real TV Interrogations, actionable intelligence won't be needed. Donald Rumsfeld can host the International Martyr Star Search Show.

In order to secure a world without war, the special role of Race, Gender, Class, Age, Body Parts (i.e. feet, hair, armpits, orifices), Religion, Body Adornment, Weight, Species, Self Consciousness, Scents, Attachments, Vanillaism, Hetero/Homo/Bi/Trans/Ambi Sexualities, Deformities, Eccentricities, Cults and other Mass Movements, Excrements, all Varieties of Helplessness and/or Imperiousness, Nationalism, Elaborate Ritual Scenarios, the Sensual and the Repulsive, Pain for many, Tickling for a few... all of these foci need cognitive attention by actors in this world media proposal.

We realize that the all-volunteer army of global submissives, though potentially huge, might not erase the real threat of direct action insurgents, wartime prisoner abuses and atrocities against civilians. It's true, 'Fetish Real TV' might not work as a cure all against deadly conflict. Though mass mind is banal enough to let cinema convert us to a world of decadent hedonism without actual terror, there is a tendency of all nations and tribes to let the shadow world of murderous rampage color the landscape red once more, to feed the plants our rotting flesh and fuck the dead for short-term revelry... Hutu/Tutsi, Serb/Croat, New Rome/Iraq. Some simple advice for the hard-edged, violent differences enacted by and upon every population on this small world... try apologizing! Sexual repression and denial of guilt go hand in hand. If sensuality is a path towards the end of war, we must also say we are sorry for past and present slaughter. This is the romantic quest for forgiveness.

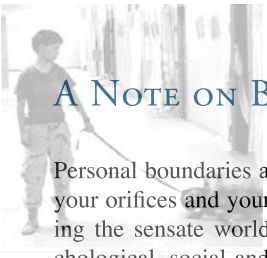
Humane Torture vrs Inhumane Torture

Consenting Erotic Exchange

Abu Ghraib Military Abuse

OK

Not OK



A Note on Boundaries:

Personal boundaries are on the surface of your body, your skin, your orifices and your cognitive processing methods for engaging the sensate world. But personal boundaries are also psychological, social and symbolic. For instance, War forms new boundaries, it alters borders as well as social space and it tends to disrupt interpersonal perceptual attitudes and afflict the bodies crushed, burned, disemboweled and often left alive but in great disrepair. The effect of War is degrading on all sides. There is no joyous side to take.

Instead, there is a tendency for the psychosocial and the body to intersect in a show of blame. This blame forms allegiances to the vengeance of authority, overkill from above, overkill from below. This hardens the boundaries, forming rigidity of Body contour and Social relations. Often the victim is blamed in order to insure victory. Often the oppressor is blamed for being intolerant and intolerable. Often the victims are sympathized with, due to compassion towards presumed innocence. Often the oppressor is identified with due to the immense complexity of our simple chemical imbalances. Humanity tends towards inconsistency as these four reactions blend into a morass of confused identity.

Concepts of justice then become a blurry mess of halfhearted immobility. Ethical Torture allows for this confusion, not without difficulty, but without simplification into blame and the dichotomies blame produces. Two concepts of humane Sadomasochistic practice aid in the rare and effective display of these enigmatic power relations, Darkside SM and Switching. A simpler starting place might be akin to softening the softening. A good Dominator should help the prisoner get into role. Try opening their interior boundaries with love. Like the labor of unforced fisting, soften in waves and the boundaries will open for you. If a boundary is ravaged by any method other than mean, ethical, loving sadism it will break into shrapnel and insanity instead of enthusiasm and catharsis.

Often the oppressor is identified with due to the complexity of our simple chemical imbalances.

Like the labor of unforced fisting, soften in waves and the boundaries will open for you.

USSMEAC: All Voluteer POWs, Humane Torture?

International Relations - More like a Lover, Not a Fighter:

What if Prisoners of War freely gave their informed consent to be tortured? Do we know which methods of domination our Enemy Combatants prefer? Are there enough masochistic personalities in the global theatre to fill our camps with volunteers instead of prisoners? To the naïve mind this may seem implausible, but our research implies that there is a vast and untapped reservoir of people from all nations who might even pay for the kind of attention Guantanamo Bay and other internment camps provide. Perhaps the information-gathering arm of the CIA should become more seductive, more libidinal, more like a lover not a fighter?

Perhaps the Pentagon might take a lesson from Alfred Kinsey. Ask nicely (and dress a little sassier) and you may find willing volunteers offering to submit to many more legal and illegal tortures than you had previously thought possible. Just getting a list of preferred mistreatments may already amount to an informed semi-consent. At the very least we have a conception of personal taste, which can lead to chemistry and erotic exchange later. Some spontaneity and surprise are lost in an open discussion of the future. That's is true. But, without consent, State safety and competence as a top are violated. If America is to remain 'super', we must be competent oppressors. If this dysfunctional cycle of predator drones and suicide bombings is to flourish into a love affair between good and evil then international, interpersonal, relational roles need to be discussed.

USSMEAC CODE OF ETHICS:

Depersonalization of 'the enemy' in conflict has a long propaganda history. Public memory is so stultified that the inhuman monster role can and has shifted drastically for all cultures in need of domination/resistance for perpetuation of cohesion. An ethical torture garden leaves time for listening to feelings. Validate your partner. Let them know you are there for them and their exhausting soap opera of enactment. Fill the airtime with conversation and adjustments. Not everybody is entertained by brutality alone.

USSMEAC takes corporeal ownership and responsibility over all of our volunteers. We maintain no liability as individuals or as a collective for legal use of submissive bodies after induction into the USSMEAC Submissive Forces. The USSMEAC Label, the USSMEAC Submissive Forces and the USSMEAC Concept of Safe, Sane and Consensual Sadistic Information Gathering are all forms of cultural criticism and satire. None of these groups, their members, or their associates intends to harm any un-consenting person or property with the information or punishment they distribute. By viewing this text, you acknowledge that you are not a law officer or prosecutor or other form of federal agent intending to use this artistic expression to defame, slander, or criminalize any of the individuals, collectives or ideogynetic concepts proposed, mentioned or detailed herein.

USSMEAC

Along the moral continuum, our nations experts in Ethical Torture may just be those of the Sadomasochistic persuasion. USSMEAC presents the following: a code of torture positive ethics that includes a deep respect for all peoples and their inaliable rights as human beings. The USSMEAC SM Ethical Torture Method allows for information gathering, stern interrogations and perverse revelry without victimization.

YES

NO

CONCLUSION

The following agreement is for public reuse to protect against legal prosecution in the DIY reprogenetic and cult landscape. When involving other people in the vestigaes of art, business, DIY biomedical experiments, sado-masochistic play or explicit pornography, a signed document of this sort will not prevent legal action from coming to your door. But, a document like this is designed to keep the legal process in more red tape than most teams can afford. Like any contract, it is filled with semiotic false flags, rhetorical loopholes and legal dead ends. A document of comparable convolution could have helped:

- Dr. He Jiankui in deeming him irresponsible for the bioethical blowback in his role as the technical birth father of the transgenic twins, Lulu and Nana.
- Assess the volition of the orgiastic, tormented and entranced participants during the trial of supposed cult NXIUM leader Keith Raniere.
- Stave off the prosecution of Josiah Zayner for practicing medicine without a license for practicing DIY gene therapy on himself and providing the option for online customers.
- Prevent the mysterious DMT sensory deprivation floatation tank death of Aaron Traywick of Ascendance Biomedical after overseeing the administering of untested gene therapy for HIV with his soon to be estranged associate Tristan Roberts.

Please use the GCCPNANCSAEMRSHRPL to protect yourself, your art and your corporations from the remorse of excess libidinal actors in your art, porn, biotech, sexual, fetish and business relations.

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2. Services Performance
Explicit Model Submissive Human Research Participant offers, desires and agrees to perform services for The Licensor as a self-aware, independent donor. The services, activities and skills (hereinafter "Services") to be provided by Model include: modeling, performing, and participating in a human creative research trials. These services include any services incidental thereto, including but not limited to:
-Modeling for the purpose of creating images such as pictures, portraits, photographs, films, and videotapes, for use in all forms and in all manner of media, including composite or distorted representation, for the purposes of advertising, trade, publication, measurement, promotion, exhibit, mediart data, non-commercial Creative Commons Attribution-Share-Alike licensing, or any related purposes in the sole discretion of _____. No person nor entity aside from The Company may resell of the works of said modeling services but the works may be distributed freely, exchanged for non-profit donations or given as reward for acts of submission by other persons or entities.
-Artistic Medical Experimentation including fertility reading, hormone treatments, new reproductive arts and DIY sterilization, abortion or birth control for the purpose of acquiring data (medical, biological, qualitative,

subjective, demonstrative, conceptual, interpretive, etc.), for use in all forms and in all manner of media including cultured, sequenced, sampled, re-engineered, embodied in it, the Explicit Model Submissive Human Research Participant, as biopsy, implant,
(add more here)
_ _
_ _
_ _

for the purposes of art exhibition, scientific publication, non-commercial Creative Commons Attribution - Share-Alike licensing, or any related purposes at the sole discretion of The Company including the sale of said experimentation services by The Company.
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(add more here)
_ _
_ _
_ _

There are no boundaries of place, time, or situation in which it may willfully refuse to obey the directive of the Company without risking punishment, except in situations where the it's consensual veto applies. It also agrees that, once entered into Generic Creative Commons Non-Attribution, Non-Commercial, Share-Alike Explicit Model Release Submissive Human Research Participant License (GCCPNANCSAEMRSHRPL), its body belongs to The Licensor, to be used as seen fit, within the guidelines defined herein.
Explicit Model Submissive Human Research Participant shall use its best efforts to perform the Services in a manner satisfactory to The Licensor.

3. Model Release
In consideration of my engagement as a model-performer-interviewee, and for other good and valuable libidinally charged educational experience, herein acknowledged as received, I hereby grant the following rights and permissions to The Company and by proxy the Creative Commons.
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The Explicit Model Submissive Human Research Participant hereby expressly acknowledges and agrees that the Company, its affiliates, subsidiaries, officers, directors, employees, agents, representatives, successors, assigns, the entirety of human society, the public, the private, and the wild and derivative licensees shall have Model-performer-interviewee's unconditional authorization, consent, and approval to take explicit Erotic, Pornographic, medical-artistic or all three: photographs, films, samples and/or videos of Model-performer-interviewee, while Explicit Model Submissive Human Research Participant is performing said Services in the nude, partially nude, and/or clothed. Model-performer-interviewee hereby expressly acknowledges and agrees that the Company, its affiliates, subsidiaries, officers, directors, employees, agents, representatives, successors, assigns, the entirety of human society, the public, the private, and the wild and derivative licensees shall have it's unconditional authorization, consent, and approval to mix or composite explicit photographs, films and/or videos of Explicit Model Submissive Human Research Participant with it's performance of said Services in the nude, partially nude, and/or clothed.

4. Warranty of Age

Explicit Model Submissive Human Research Participant hereby warrants and declares under penalty of perjury that he/she is at least eighteen (18) years of age as of the date of the execution of this Agreement. Explicit Model Submissive Human Research Participant further warrants that he/she/we/it is able and competent to enter into contracts on it's own behalf.

5. Non-Ownership of Images, Replicant Humans and GMO Children

Model-performer-interviewee expressly agrees that the Company shall have the exclusive right to copyright, allow open use, reuse, publishing, republishing, distribution, dissemination of any media, biomedia, resultant replicant and GMO human productions of _____ research subjects. _____ intends to forbid sale, license, and otherwise offer the Services for non-commercial reuse in any manner, except at the Company's sole discretion, including but not limited to: any image, moving image, audio recording, clone, transgenic organism, germcells or genetically modified offspring created pursuant to the Services provided by Model-performer-art-patient to the Company under this Agreement. This use, reuse, publication, republication, distribution, derivation, license, and/or non-commercial free

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Model expressly waives any right or claim to the images or beings or cell lines or bioinformatics databases or to any works derived therefrom.

Model Art Patient
Name:
Address:
Email:
Phone #
Insta:
Passport/Govt ID #
Mother's maiden name:

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12. Time
Time reflexes like a whore, falls wanking to the floor.

13. Voluntary Donation of Service
For performance of the Services, Model shall be entitled to no monetary compensation as specifically set forth and made a part hereof for all purposes. Payment is in the amount of zero money.

14. Independent Contractor
Explicit Model Submissive Human Research Participant's relationship with the Company shall be that of a submissive independent contractor and not that of an employee. Model may cease to perform the Services at any time. As an independent contractor, Model will not be eligible for any employee benefits, nor will the Company make deductions from Explicit Model Submissive Human Research Participant's compensation. Explicit Model Submissive Human Research Participant will be responsible for the payment

of all income, social security, incurred medical bills and other expenses stemming from works made and services rendered onto the Explicit Model Submissive Human Research Participant under this Agreement. Explicit Model Submissive Human Research Participant agrees to indemnify and hold the Company harmless from any liability for, or assessment of, such expenses. Explicit Model Submissive Human Research Participant shall have no authority to enter into contracts that bind the Company or create obligations on the part of the Company.

Information Sheet

This trial involves art research. The purpose of the study is creative genetic experimental expression. The nature of participation in this art trial is voluntary and participants may possibly withdraw from the trial. The trial treatment(s) involve being _____ with _____ with the intention of _____ and potentially into _____. The probability for random _____ is extremely low but the procedures are invasive and potentially teratogenic, mutagenic and possibly carcinogenic. Some aspects of further personal and prepersonal of _____ experiments may cause pregnancy, heightened fertility, spontaneous abortion, non-spontaneous abortion, sterility, low birth weight or lowered life expectancy. Some of our treatment options may cause genetic alteration of the somatic tissues, endocrine system or epigenetic gene expression patterning of the participant may effect the germline, anatomy, or prepersonhood. There are no aspects of this trial that are not experimental. There are no alternative procedure(s) or course(s) of treatment that may be available to the subject, as this is a pure research and development human trail based on curiosity and cosmetic difference production without any know health benefits. However, this may result in new instruments for future publically owned gene therapy device manufacture, novel multigenerational effects and the ideas and methodologies are potentially novel, innovative, reproductive and useful.

Punishment, Pain, Discomfort and Artistic Human Trials

The Company accepts the optional commitment to treat it properly, to train the Volunteer Participant, to punish the Volunteer, love the Explicit Model Submissive Human Research Participant, and use it as they see fit. It agrees to accept any punishment the Company decides to inflict, whether earned or not. The risks to subjects are feeling of discomfort, pain, skin irritation, itching, redness, inflammation, blood loss, allergic reaction, nausea, peeling, blistering, skin discoloration, social awkwardness, alienation, destabled self image, immunological reaction, rare forms of cancer, monstrous upheaval, loss of genomic integrity, enigmatic growth (including pregnancy), heightened fertility, spontaneous abortion, non-spontaneous

abortion, genetic alteration of the somatic tissues, the endocrine system and the epigenetic gene expression patterning of the participant, may cause sterility as well as permanent, irreversible psychological, physical and mortal trauma. If the experiments effect the germline, there may be a multigenerational effect on future kin anatomy, psychology and physiology which may include them being though of as posthuman, ahuman, subhuman or superhuman. The expected duration of participation in the trial may be life long or even encompass a hereditary cascade, flowing out in a radial timelessness or at least pre-extinction contagion.

This trial may conflict with existing laws and may lead to fines, arrest, or prosecution of the Volunteer Prisoner. This trial may cause extreme damage to Volunteer Prisoner's life, such as losing their job, causing family stress, ostracization from society, etc. _____ may cause permanent bodily harm to the Volunteer Prisoner which in this case constitutes a wanted Human Rights Abuse. There is a slim chance that any genetic alteration of the somatic tissues, endocrine system or epigenetic gene expression patterning of the participant may effect the germline, anatomy, or prepersonhood of any unborn pregnant durables so it is advised that one should not be pregnant or intentionally conceive during the trial unless transgenic children are a desire of it or the Company. There is no intended clinical benefit to the participant, although spontaneous enhancement may be a potential accidental side effect of the artistic treatment. After care is limited to the first five minutes after the _____ therapy has been given and consists of the suggestion to swim in the lake. No other compensation and/or treatment is available to the subject in the event of trial related injury. Do not drive or operate heavy machinery. The records identifying the subject will be kept non-confidential and, to the extent permitted by the applicable laws and/or regulations, will be made publicly available, although a pseudonym or pen name option is available at the discretion of _____. If the results of the trial are published, the subject's identity will remain in the creative commons record.

Rules of Explicit Model Submissive Human Research Participant Punishment

Punishment of it is subject to certain rules designed to protect the Explicit Model Submissive Human Research Participant from intentional abuse or unwanted permanent bodily harm. Punishment must not incur permanent bodily harm, with the exception of _____. It has full comprehension that treatment may incur: feelings of discomfort, pain, skin irritation, itching, redness, inflammation, blood loss, allergic reaction, nausea, peeling, blistering, skin discoloration, social awkwardness, alienation, destabled self image, immunological reaction, rare forms of cancer, monstrous upheaval,

loss of genomic integrity, enigmatic growth (including pregnancy), heightened fertility, spontaneous abortion, non-spontaneous abortion, sterility as well as permanent, irreversible psychological, physical and mortal trauma.

Punishment should not immediately incur:
1. Drastic loss of circulation
2. more than a modicum of internal bleeding
3. Non drug induced Loss of consciousness in excess of one hour
4. Withholding of any necessary materials, such as food, water, or sunlight for extended periods of time
Unsafe, insane yet consensual veto power is reserved for the above four discretionary details listed above, and no others.

Please initial below:
1. I confirm that I have read and understand the information sheet for the above non-clinical art study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. _____
2. I understand that my participation is voluntary and that I am free ._____
3. I understand that relevant sections of my medical notes and artistic trial data, media and biomedia collected during the study, may be looked at by individuals from the general public, the Company, from regulatory authorities or from the Creative Commons Community and in a commons spirit of transparency, to be collaged, remixed, mashed up and generally made into derivative forms of multimedia, creative, freely distributable media products… where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records. _____
4. I agree and am competent to take part in the above study.
Name of Patient:

Signature / Date:

Please check all future interests that it may have in dedication to future _____ fertility research potentials and the potentials for unorthodox genetic counseling and artistic boutique medicine:

___ Sperm Donation
___ Egg Donation
___ Genome Donation
___ Embryo Donation
___ Womb Donation (Surrogacy)
___ Couples Genetic Counseling

___ Gene Therapy
___ Transgenic Baby Production
___ Having tribes derived from your germ cells
___ Acting in Medical Atrocity Film Productions
___ Voluntary Sterilization
___ Investment, donations
___ Surrender of all financial assets to The Company (in exchange for a live in lifestyle servile position.)
___ To be on The Company mailing list

15. Indemnification

Explicit Model Submissive Human Research Participant expressly agrees to indemnify and hold harmless the Company from any and all actions, claims, damages, demands and liabilities of any kind whatsoever arising out of, concerning or related to any falsehoods or misrepresentations made by it in accordance with it's performance of the Services hereunder, including but not limited to a misrepresentation of Explicit Model Submissive Human Research Participant age or a misrepresentation of it's competency to enter into this Agreement.

16. General Provisions

Headings used in this Agreement are provided for convenience only and shall not be used to construe meaning or intent.

This Agreement shall be deemed to have been made in the world. Any claim or controversy that arises out of or relates to this Agreement, or the breach of it, will be settled by binding and mandatory arbitration in the State of Hawaii, in accordance with the Rules of the American Arbitration Association. The arbitrator(s) may award attorney fees and court costs to _____ but not to It. Judgment on the award rendered may be entered in any court possessing jurisdiction over arbitration awards.

Neither this Agreement nor any of interest in this Agreement may be assigned by It without the prior express written approval of the Company, which may be reasonably withheld by the Company.

In the event that any provision, or any portion thereof, of this Agreement is determined by competent judicial, legislative or administrative authority to be prohibited by law, then such provision or part thereof shall be ineffective only to the extent of such prohibition without invalidating the remaining provisions of this Agreement.

This Agreement shall be binding upon the parties hereto and upon their respective administrators, executors, legal representatives, multigenerational successors and permitted assigns, which will include (without limitation) any successor to all or substantially all of the Company's gifting ability or any

acquirer of a majority of the voting power of the Company's voting human stock. It may not assign his/her obligations under this Agreement, either in whole or in part, without the prior written consent of the Company.
This agreement, including all exhibits hereto, constitutes the final, complete and exclusive agreement between the parties with respect to the subject matter hereof and supersedes and replaces any prior or contemporaneous agreements or understandings, written or oral, concerning such subject matter. Only a writing duly executed by both parties may modify this Agreement.

USE OF THIS LICENSE MEANS THAT IT AND THE LICENSOR EACH ACCEPTS THESE CONDITIONS IN SECTION 1 - 16 AND EACH ACKNOWLEDGES CREATIVE COMMONS CORPORATION'S VERY LIMITED ROLE AS A FACILITATOR OF THE LICENSE FROM THE LICENSOR TO IT.

Exhibit A: Donor - NO Compensation

Donor Model Name:
Date of Photo/VideoShoot:
Location of Photo/Video Clinic:
Total Compensation Paid to Model: $0.00
Under penalty of perjury, I swear I have been paid nothing in full.
Model Signature:
Date:
Preferred pseudonyms, stage names, pen names or submissive identity monikers:

_____
Medical history, known family genetic disorders, personal interests in _____ products, treatments and experience, reasons for submitting to volunteer status, poetry, etc:

OLGA MAJCEN LINN - SUNČICA OSTOIĆ

KONTEJNER
Curatorial Perspectives on the Body, Science and Technology

ABSTRACT
This article focuses on the work of the curatorial collective called KONTEJNER bureau of contemporary art praxis of Zagreb, Croatia, founded in 2002. Critical investigation of the role and meaning of the entangled and complex relationships of art, science, technology and the body in contemporary society is at the heart of Kontejner's curatorial practice. In their substance, Kontejner's programs refer to consequential and significant subjects such as socio-cultural taboos; the bio-technological future of humans and society; economic, social, political, philosophical and ethical sensitivities with respect to difference; the intertwining of artistic, scientific and technological possibilities and impossibilities. Three fundamental thematic areas at the centre of Kontejner's interests – the body, technology and science – are presented in three international triennial festivals featuring contemporary visual and performance art: Device_art Festival, dealing with machines, devices and gadgets as artistic media; Touch Me Festival, addressing the interconnections between art and science; and Extravagant Bodies Festival, focused on the politics of normality and normalization in relation to the human body and mind. As well as artistic practice represented in Kontejner's projects, curatorial perspectives are also transgressive and often risky in order to accomplish relevant and affectively significant contexts.

KEYWORDS Kontejner, curating, art, science, technology, body.

INTRODUCTION

KONTEJNER | bureau of contemporary art praxis is a curatorial collective from Zagreb, Croatia, founded in 2002 as a non-profit NGO. Engaged in curatorial work, the organization of contemporary visual and performance art festivals, exhibitions, production of artworks, theoretical contextualization through conferences and publications, Kontejner critically investigates the role and meaning of the entangled and complex relationships of art, science, technology and the body in contemporary society. In their contents, Kontejner's programs take up consequential and significant subjects such as socio-cultural taboos; the bio-technological future of humans and society; social, economic, political, philosophical and ethical sensibilities with respect to difference; and the intertwining of artistic, scientific and technological possibilities and impossibilities, including pleasure, energy, mental health, human and artificial intelligence, or perhaps the invisible phenomena of physics. Moreover, artistic projects and curatorial programs are engaged in ethics, bioethics, the post/human condition and the obsolete human body affected by cybernetics, nanotechnology, biotechnology. Affiliated, disabled bodies, atypical bodies and minds, criminals, animals, cells, machines, mushrooms, elementary particles like muons are, for example, all parts of the vast horizon of possible interest of artistic works in the purview of Kontejner.

Artistic work no longer exists in the realm of the purely visual, textual or conceptual. It is foremost an affective entity influencing sensory experiences, our impulses and behaviors, corporal cognition, revealing as well relation of the affect to the normative, subjective, social or political. Formally, the focus is on intermedia and interdisciplinary projects as well as on hybrid and innovative uses of media. Thus curatorial practice is for us primarily a field of interdisciplinary research, experiment and risk, in which curator and artist can both enter into the realm of the unknown, of uncertainty, uneasiness and illegality. Both curator and artist revolve and test out the fringes of social, technological and scientific trends, and body and mind as materials for upgrade or as sites of conflict, distress, humor or empathy.

Kontejner has curated and organized over 100 group and solo exhibitions, performances, lectures, conferences and workshops of international and Croatian artists, theoreticians, philosophers and scientists. We are a curatorial collective, which is a particular model of working that began to take shape in this region in the 2000s. Collaboration and exchange are an important part of the work in a collective and reflect readiness to increase capacities through swarm intelligence, in other words, through team work. Cross-border networking, too, is one of the features of our work, which results in the international dissemination of knowledge, experiences and projects with curators that have similar interests. Also, through activity within the framework of interdisciplinary, cross-disciplinary and trans-disciplinary collaboration, connections are established with numerous institutions, organizations and individuals – from local artistic and civil society

organizations, scientific and educational institutions, to the world's largest scientific laboratories like CERN. We have presented our projects across Europe and in the USA, Canada, Japan and China (Zagreb, London, San Francisco, Tokyo, Montreal, Skopje, Prague, Belgrade, Linz, Beijing, Rijeka, Dubrovnik, Ljubljana and other cities).

Three fundamental thematic areas that are core Kontejner interests – the body, technology and science – are reflected in three international triennial festivals of contemporary visual and performance art: Device_art Festival, started in 2004, dealing with machines, devices and gadgets as artistic media; Touch Me Festival, initiated in 2005, addressing the interconnections between art and science; and Extravagant Bodies Festival, running since 2007, focused on the politics of normality and normalization in relation to the human body and mind.

BODY AND CORPOREALITY

Since the 1960s, the artist's body has occupied the absorbing position of being both the subject and the object of artworks: 'The newly re-emerging artists' bodies from around 1960 to the present *enact* the dramatic social and cultural shifts [...] [and] ha[ve] more and more aggressively surfaced during this period *as a locus of the self and the site where the public domain meets the private, where the social is negotiated, produced and made sense of* (Jones 2000: 20–21). In the 1960s and 1970s 'authentic, activist, "destroying, mortal, self-reflexive, absent, mechanical and leaking bodies" [...] rupture in response to the violence of daily life' (Jones 2000: 40). During the 1980s and 1990s they became 'technologized, ironicized, fragmented and open to otherness' (Jones 2000: 40). But what about the body in the twenty-first century? Leading to no rash conclusions, the examples of artworks that Kontejner is engaged with expose the body, as we mention in our monograph, as an area of trauma, of radical transformation but also of pleasure.

Employment of the body sets up engaged situations, making use of the tabooed status of the body, status that is political, sexual, gender, disabled, networked, cyborged. The rupture brought about by the inscription of civilization into the body enables its presence, particularly in performance and live art, to be disquieting. On the other hand the poetic, seductive or humorous experience of the body derives from the capacity to overcome repugnance at tissues, organs, physiological fluids, opening the body, somatic or mental deficiency. This is an experiential art in which the subject does not perform roles, rather in which the performative subject encourages transgression of the accepted state, the consensus and the code (Ostoić 2010: 73).

Image 1. Nigel Helyer, Oron Catts and Ionat Zurr, Melville, *St Jacque and Yona's Lifeboat*, 2005. Biological laboratory. Touch Me Festival, Zagreb. © Kontejner.

Image 2. Lisa Bufano and Sonsherée Giles, *One Breath is an Ocean for a Wooden Heart,* 2007. Performance. Extravagant Bodies Festival, Zagreb. © Kontejner.

Image 3. Kal Spelletich, *Fireshower*, 2006. Installation. Device_art 2.006, Zagreb. © Kontejner.

Extravagant Bodies Festival

The Extravagant Bodies Festival critically examines the social, political, cultural and economic positions and identities of extravagant bodies, minds and communities that present as atypical thus eliciting rejection, fear, repulsion, malice or social exclusion. This includes medically and socially constructed notions of health, appearance, sexuality, productivity and the demonization and marginalization of subjects and social or cultural practices that deviate from the

norm. In the four editions of the Extravagant Bodies Festival to date, the body and the mind show their own physical qualities and non-qualities that are read as intimate, private and public, social and cultural frameworks that desire to tame and mediocritize them through the politics of normalisation and normality. But it is actually politics of normalization that at the Extravagant Bodies Festivals are transgressed and are transformed via bodies and minds that have the power to assert themselves and to be seen in their heterogeneous variations, as slack, strong, ugly, deformed, enchanted, bound to life or close to death.

Image 4. Mat Fraser and Julie Atlas Muz, *Beauty and the Beast*, 2007. Performance. Extravagant Bodies Festival, Zagreb. © Kontejner.

In the art that Extravagant Bodies shows, performing corporeality is an incision in which clashes and conjunctions are created that encourage shifts, progressive viewpoints, strong feelings. All the editions of the festival have shown that in the context of contemporary art practices, the body and the mind, as object and as subject in which external and internal states are manifested, whether in connection with biology or psychology, society or culture, are unremittingly in the field of the provocative. The Festival has demonstrated their still great power. The artists presented are very often members of minorities or marginalized communities, and in their work they deal with what determines them as different from the others. Freed from fear of social criticism and judgment, they invite audiences to look at what usually lies hidden from our gaze, to stare and touch, to feel the cathartic impact of this voyeuristic moment. Thus the artworks speak from the very condition itself, and have no patronizing or humanitarian role, no impulse to rehabilitate. They are developed around the very existence of the social norms and taboos, and take into account the

much wider framework of borderlines and demarcations, institutionalization and stigmatization. Physical disabilities, mental health and intellectual disabilities, old age and crime have been the topics of festivals to date, the edition to come focusing on love and sexuality.

TECHNOLOGY AND SCIENCE

This is the time of the post-human, of algorithms, private data wars, artificial intelligence, humanoid robots, of cyborgs (us), gene editing in humans and artificial organs, of post-truth and various other concepts drawing on science and technology. All of these apparently frightening novelties have turned into a great playing field for creativity and art, for activism and tactical projects. Therefore almost any art performed at an intersection with science and technology, any kind of art that tackles contemporary development, is automatically classified as political.

Kontejner has two different festivals that extend these concepts. Festivals that deal with provocative topics and pose ethical and conceptual challenges, that address questions of cultural practice and social change in those contexts. Device_art Festival engages with engineering, robotics, prosthetics, devices, gadgets, algorithms, networks, media, while Touch Me Festival is involved with genetic and tissue engineering, chemistry, physics and the natural sciences in general. Both festivals are focused on how we as civilization navigate the almost daily changes in the environment that sciences and technologies are rapidly transmuting.

Device_art Festival

Device_art, initiated in 2004, was aimed at encouraging Croatian artists, makers and techno enthusiasts to come out with their tech-oriented projects of all sorts, hence the name of the project that is unpretentious and welcoming rather than intimidating. The first edition presented Croatian artists and makers as well as those from the region, in collaboration with similar organizations and institutions in the area, especially Slovenia. Device_art is a triennial festival with one chosen partner country for bilateral exchange. To date Kontejner has worked with the Slovenian and Serbian (2004), Californian (2006), Czech (2012–13), Canadian (2016–17) and most significantly the Japanese (2009–10) art and tech scenes.

Our Device_art Festival by chance shares a name with a Japanese project founded in the same year, envisioned jointly by Machiko Kusahara, a professor at Waseda University, Tokyo and visiting professor at UCLA, and Hiroo Iwata, professor at the University of Tsukuba. The similarities between the projects are numerous: artistic unpretentiousness, technological playfulness, humor, weird and unexpected and even nonsensical machines. But there are also some differences, the most obvious being that Japanese device art aims at a broader market and tends to be based on industrial production, while Croatian artists place a stronger emphasis on conceptuals while their technological development ends at the level of prototype. Owing to the lucky coincidence

that the same name was shared, the project became globally renowned and Croatian and Slovenian device art scene was acknowledged as a production center on the global map of device art, together with the Californian and the Japanese scene.

The last edition of Device_art festival, in 2018, called for self-reflection, with the aid of 'the external eye' of the New York- and Shanghai-based curator Zhang Ga, who changed the format from international bilateral into international thematic exhibition with the poetic title *Machines are Not Alone*.

Image 5. Christian Ristow, *The Subjugator*, 2006. Robot performance. Device_art 2.006, Zagreb. © Kontejner.

Image 6. Yunchul Kim, *Triaxial Pillars II,* 2017. Fluid kinetic installation. Touch Me Festival, Zagreb. © Kontejner.

Touch Me Festival

Touch Me Festival is conceptualized as an international thematic manifestation and its *grand debut* occurred inside a larger, umbrella project, called *Operation City*, that showcased the independent cultural scene of the city of Zagreb in 2005. Touch Me Festival was one of the main artistic events and it was so exciting to the broader audience, that, for example, schoolchildren would cut classes to attend programs and exhibition. In this first edition of Touch Me Festival, which was the model for all the later festivals, bio-art was presented in Croatia for the first time. In later years, Touch Me grew into a triennial festival

that has within its purview the liaisons of art and science, especially in the fields of biology, chemistry, mathematics and physics. The topics that these festivals have explored are the abuse of intelligence, the focus on understanding intelligence as at the same time information and intellection; the *Feel Good!* edition of the festival explored the imperative of hedonism, of pleasure and happiness; *Energy Ab/Use* considered diverse aspects of energy, from physics to ecology. The most recent two editions of the festival have had guest curators. *It's About Time* was curated in collaboration with Portuguese bio-artist Marta de Menezes, and *Invisible Around Us*, a curatorial project of Mónica Bello, Head of *Arts at CERN*, approached the topic inspired by particle physics.

The concept common to all festival editions is the future world and the post-human condition, with a focus on artistic practices of a strong experimental quality, which both reflect and question current scientific research and trends. Artists working in this field use science and new technologies in order to question the contemporary and the future world in the most radical and provocative ways, intervening also in the area of ethics and bioethics, as well as different social taboos (Kontejner Official Website 2018).

Through the festival we have developed vigorous and extensive collaboration with scientific institutes and universities in Zagreb such as the Institute of Physics, the Rudjer Boskovic Institute, the Faculty of Electric Engineering and the Academy of Fine Arts.

ON CURATING – A RISKY BUSINESS

Visual artist and curator Balázs Beöthy in his *Curatorial Dictionary* under the entry for authorship observed that in western culture authorship has a legal and a cultural meaning (Balázs 2012). Within the area of culture, today the profession of curator does not any longer imply the custodian of an institutional collection with an administrative function, rather a professional who has emancipated him- or herself within cultural practice into cultural worker and evolved into author and producer of the discourse of art.

We find that the key qualities of a curator are responsibility, not only for the artist/s and the presentation, interpretation, contextualisation and audience reach of his/her/their work/s, but for all the possible consequences they can provoke, as well as an aptitude for risk-taking. The curator has a position of responsibility for the establishment of the context, conditions and visibility of his or her own conception and artistic works, enabling the unfolding of the challenges that are posed by contemporary art practices. In our case, these include works in which, for example, work is done with living beings (bioart), with dangerous materials (poisons, controlled substances and firearms, the remains of plastic operations, health-threatening frequencies and the like), unstable media (technology), explicit and disturbing bodily expression (blood-letting performances, torturing). In addition, the curatorial practice in which we are engaged in some projects supports a witty approach to the body or the use of the technology that is in everyday use today, close to the general public, amusing and innovative.

Image 7: Zoran Todorović, *Agalma*, 2003. Installation/performance/action – detail from the operation. © Zoran Todorović

Image 8: Zoran Todorović, *Agalma*, 2003. Installation/performance/action – soap-making detail. © Zoran Todorović

Image 9: Zoran Todorović, *Agalma*, 2003. Installation/performance/action – detail of curators bathing. © Zoran Todorović

Image 10: Zoran Todorović, *Agalma*, 2005. Installation/performance/action. NRLA – National Review of Live Art, Midland, Perth. © Zoran Todorović

The piece *Agalma* from Belgrade-based artist Zoran Todorović confirms our curatorial principles. *Agalma*, 'a social and intimate artistic situation' (Ostoić 2017: 90) is a radical reversed invitation from artist to curators. After we as Kontejner curators invited Todorović to participate in the art show we curated in Belgrade in 2003, he invited us to become part of his artwork. The invitation was so powerful that it was not possible to refuse to participate. The artist went to the extent of undergoing surgery in order to make soap for the curators (us) to wash with. Firstly, the author went on a special diet to gain stomach fat, which he later surgically removed together with skin and, combining it with glycerol, made into soap. The invitation for curators was to wash their nude bodies in the artist's body in front of the camera. The project was an act of self-violence and violence, with the intention of subverting and subjugating the power of curator, of diminishing the distance between curator and the artist and his piece. This violence resulted in a special kind of exchange and closeness. It established a relationship that would never have existed if there had been no *gift* of the body involved.

Our acceptance of the invitation was not an act of exhibitionism but rather a responsible curatorial response aimed at preserving the existence of an art piece. Allowing this transgression to happen was allowing this radical artwork to come into being and inasmuch as it reveals the artistic intention it also reveals our curatorial statement.

Image 11: Robertina Šebjanič, *Aurelia 1+Hz / Proto Viva Generator*, 2014. Interactive installation. Device_art 5.015, Zagreb. © Kontejner.

CONCLUSION

Nowadays, curatorship may be conceived as a far-reaching category, encompassing various organizational forms, cooperative models, and collaborative structures with contemporary cultural practice that accommodate the generative properties traditionally attributed to artistic production. This frames the curatorial as a durational, transformative, and speculative activity, a way of keeping things in flow, mobile, in between, indeterminate, crossing over and between people, identities, and things, encouraging certain ideas to come to the fore in an emergent communicative process [...]. (O'Neill 2012: 89)

The curatorial practice of Kontejner is at home in these ideas. The distinctiveness of Kontejner's work lies in the fact that, in our critical activity in relation to the society and the norms it erects, we are oriented to works that

infringe against these standards. And we do not approach this process from a safe distance, but get passionately involved in it, developing the works in communication with their authors and taking into account the dispositive around it. Identification with artistic ideas and taking the risks upon ourselves, as well as offering our own reading of contemporaneity: these are inherent to the curatorial practice of Kontejner.

It is this that we are engaged with, for art is a particular field of human activity through which it is possible to enter the fissures within culture, society and the individual, or more specifically, within emotions, affects, political and social structures, repugnance, shame and so on. Art as a field that works within the rupture has either a direct or a processual manner of affecting those who take part in the event of art and works, irrespective of the positive or negative reaction of the public, as catalyst that absorbs or works upon the participant. In this way the curator is able to set up a project as a situation of experience infiltrating minds, affects and emotions of the public. Art is also a particular kind of knowledge, and curating contemporary art is a position of shaping, directing and expanding this knowledge that takes place through dialogue and collaboration between curator, artist and other collaborators but also includes non-democratic models within this relationship.

Assembling the issues around body, science and technology within Kontejner's curatorial practice, renowned art theorist from Belgrade Miodrag Šuvaković offers the summing up: The work of Kontejner is not simply subversive/critical or apologetic/ hedonistic, it is placed with all inversions where subversion shows its apologetic reverse, that is, enjoyment shows its critical reverses, just as pain is never just pain, and rationality is never just the voice of reason. Unlike modernist utopianists, those in the Bureau do not start off from a simple binary opposition between the rational vis-à-vis the irrational, but show how the rational re-articulates its 'positive' and its 'negative' sides that are not an opposition to 'irrationality' but its very constituents. It can be said that the opposite holds too, that the 'positive' and 'negative' sides of irrationality are not a simple (original emphasis) opposition to rationality, rather that they constitute it in a way that is manifoldly shown as social didacticism and as individual perversion (Šuvaković 2010: 45).

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FELIPE L. S. SHIBUYA

The Animal Hummingbird

ABSTRACT

Since antiquity, from east to west, birds are represented in various artistic interpretations, such as paintings, music, poems, and sculptures. The mysticism and the romanticism associated with these animals come from, among other characteristics, their colors, songs and behaviors. Hummingbirds are classic examples of this narrative, portrayed, most of the time, as small, colorful, affable, and delicate living beings. In the imaginary, these birds visit flowers with their almost supernatural flight, sharing in a friendly way the resources of the forest. However, what is the reality in a wild world where the human archetype loses its value? In this narrative, I deconstruct the humanized representation of hummingbirds, evidencing two scientific aspects that contradict the romanticism associated with this group. The first is based on disassociating the fragile and friendly image of this small bird, understanding its exhausting routine and the continuing need to maintain high metabolic rates, often with limited dietary resources. When it finds a flower full of nectar, the instinct will guide it to the most intense combats against any threat, revealing their intrinsic strength and aggression. The second aspect is perhaps one of the most expressive when we talk about birds: colors. In a diversely colored group, where even the black of the crows makes them chimeric figures, unraveling their true chromatic signs can reveal other perspectives. When looking at the paintings of Ernst Haeckel, portraying multicolored encounters between hummingbirds and orchids, it becomes unimaginable to think about what other tones can hide in the real rainforest. In fact, for the human vision, very little will change between the painting and the forest. However, evolution allows the hummingbird to see a spectrum inaccessible to us, the ultraviolet. Thus, with this advantage, these birds can see a world invisible to humans, which gives us the limitation of seeing the true colors that matter to hummingbirds. Evolution is inevitable, and we, as biological beings, are subject to it. Rationalization, which differentiates us as a species, gives us the freedom to mystify and romanticize what is wild, and this can be an evolutionary advantage. In the same way, with that same rationality, it is possible to rip the humanized filters put on wilderness.

KEYWORDS Deconstruction, Evolution, Hummingbird, Rationalization, Romanticism.

INTRODUCTION

Nature has long been a source of inspiration for art, passing through the Renaissance, to naturalists who portrayed the fauna and flora of the New World, to modern art. The colors and forms of the fauna influenced and evidenced important names like John James Audubon and Alexander Wilson, who explored, especially through their paintings, birds (Streshinsky 1993; Jakob 2009; Burtt and Davis 2013).

The earliest fossils of species considered transitional between reptiles and birds are dated between 135 and 145 million years ago and the *Archaeopteryx* was the most well- known dinosaur among them. These species had structures similar to the current feathers, but with fewer functions found in modern birds (Carney et al. 2012; Callaway 2014). However, birds as a true group and with all its characteristics, such as beaks, specialized skeletons and feathers with functions of thermoregulation, coloring, and flying, only appeared millions of years later in the Tertiary period (Brusatte et al. 2015).

The ability to fly has always been related to the mystic, which gave the animals that possess these evolutionary traits associations to the imaginary. Examples of this can be found in bats that turn into vampires, and fairies with transparent wings and patterns like those observed in insects (Frayling 1992; Henderson and Cowan 2001). Birds are no exception and are present in many myths and beliefs, as in the Egyptians with the gods Thoth (with the head of ibis) and Horus (with the head of a falcon), in Hinduism with the god Garuda, as a strong eagle, and in Greek mythology with the Phoenix, as the bird that rose from the ashes (van den Broek 1972; Williams 2008; Allen 2013). The representations of birds did not remain only in the mystic and they began to be portrayed also in the art, in the most diverse forms and movements. In painting, for example, these animals can be observed in numerous works, covering various artistic movements. In Surrealism, the Man in a Bowler Hat, painted by René Magritte in 1964 (Image 1a), in Modernism, the Mulata, Pombos e Paisagem, by Di Cavalcanti in 1971 (Image 1b), and finally in Pop Art, the Bald Eagle, by Andy Warhol in 1983 (Image 1c).

But are birds represented as true animals, faithfully following the biology and ecology of species? In this paper, the objective is based on the idea of presenting some of these birds, deconstructing the human archetype established on them. By showing the biological and ecological reality of a species, showing its scientifically proven characteristics, it will be possible to make new artistic interpretations about it. An example of a case study follows below, using hummingbirds.

Hummingbirds form a family of birds with peculiar characteristics, such as small sizes, fast metabolism and exuberant colors (Schuchmann 1999; Fogden et al. 2014; McGuire et al. 2014). These characteristics have given them a presence in myths and beliefs, especially for the American people, since this family of birds is only found in the American continent (Schuchmann 1999).

The Aztecs, for example, worshiped the hummingbird god Huitzilopochtli, associated with war, the sun and human sacrifice (Miller and Taube 1993). In Brazil, the Guarani Indians believe in a creator of the universe, known as Maino'I and who has the form of a hummingbird (Moreira and Moreira 2015). Another representation of these birds can be observed in Nazca lines, where it is believed to be related to the religion of the people who lived there (Golomb 2015). This popularization also led hummingbirds to be represented in various forms within art, as in painting, literature, and music. However, the same biological and ecological characteristics of this family, such as sizes and colors, put them, most of the times, represented as fragile and docile birds. Nevertheless, as part of the objective of this project, this human archetype on hummingbirds will be deconstructed, using scientific evidence to discuss two aspects of the species: behavior and coloration.

Image 1. Representations of birds in three artistic movements: a) Surrealism, the Man in a Bowler Hat, by René Magritte (1964); b) Brazilian Modernism, the Mulata, Pombos e Paisagem, by Di Cavalcanti (1971); and Pop Art, the Bald Eagle, by Andy Warhol (1983).

THE BEHAVIOR

As already discussed, hummingbirds have unique characteristics that are associated with the myths and beliefs of many cultures. The figure most commonly related to hummingbirds is that of a romanticized and often fragile and docile bird that brings luck, love, and protection (Cadogan 1946; Unkel 1987; Schaden 1989; Agostinho 2009; Litaiff 2009; Yamã 2012; Ebersole 2018). In countries like Mexico, it is possible to find on the black market, dead hummingbirds being sold for use in magic potions and love charms (Ebersole 2018). n one of Frida Kahlo's best-known works, the Autorretrato con Collar de Espinas (Image 2), painted during a troubled phase of her relationship with Diego Rivera, it is possible to observe a dead hummingbird around the neck of Frida. This representation is associated with the romanticism these birds have for Mexican folklore (Baddeley 1991; Fuentes 2005) which according to popular

belief, when a hummingbird is on a pendant close to the heart, love is protected (Ebersole 2018).

This is not an exclusive of Mexicans, and in many indigenous peoples of Brazil, Peru, and Colombia, these stories can be found (Cadogan 1946; Schaden 1989). But what causes the hummingbird to be considered a romantic symbol? One of the explanations often found in the literature says that pollination is responsible for these associations, making the relationship between bird and flower as a love encounter, where the hummingbird dances for the petals (Litaiff 2009; Moreira and Moreira 2015). The scientific history of the behavior of hummingbirds shows contrasting aspects. Several works show, for example, that in front of a resource or defending the nest, these small birds become aggressive, being able to face even a huge falcon (Pitelka 1942; Dunford and Dunford 1971; Wolf and Hainsworth 1971; Powers and Mckee 1994; Hazlehurst and Karubian 2018). In a recent study in Brazil, Shibuya (2016) observed that during intra- and interspecific interactions among 12 species of hummingbirds, eight are dominant and attack the others to obtain a food resource. No less surprising, McLaughlin (2013) captured an individual of Rufous Hummingbird traveling for more than 3,500 miles, crossing the United States during a migration flight, again showing the strength of these birds in the face of survival. Thus, these evidences discussed here contradict the fragile and docile figure, often associated by humans.

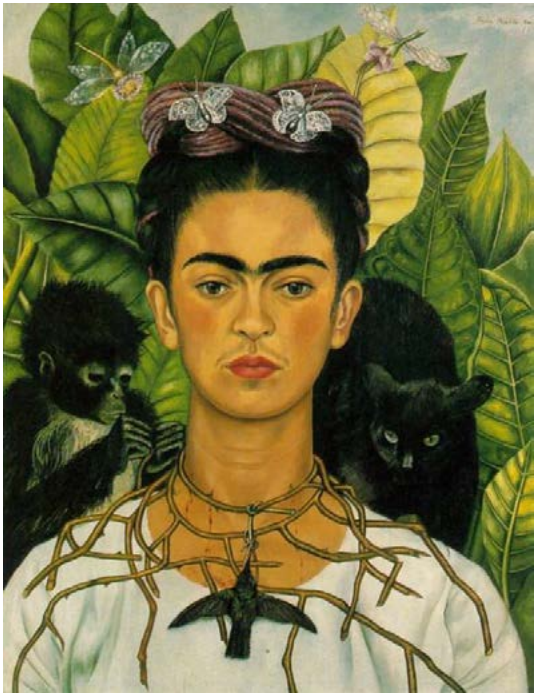

Image 2. The Autorretrato con Collar de Espinas, painted by Frida Kahlo in 1940. In this work, Kahlo shows a hummingbird hanging around her neck, representing the love for Diego Rivera.

THE COLORS

Birds have always been associated with beautiful songs and exuberant colors, being this last characteristic emphasized in works like those of Martin Johnson Heade, painted during Romanticism (Image 3). In the literature, hummingbirds were also cited as colorful and lively birds, as in the poems of Alberto Oliveira, Pablo Neruda and Mary Oliver, shown below:

> And opening the fair wings,
> The golden wings,
> Made of burning opal
> With colorful roses
> —Beija-flores by Oliveira (1884)[1]

> From scarlet to dusty gold,
> To yellow flames,
> To the rare ashen emerald,
> To the orange and black velvet
> —Oda al Picaflor by Neruda (1955)[2]

> The female, and two chicks,
> Each no bigger than my thumb,
> Scattered, shimmering
> In their pale-green dresses,
> Then they rose, tiny fireworks,
> Into the leaves
> And hovered
> —Hummingbirds by Oliver (1992)

In fact, the color palette found in more than 330 species is surprising. Nonetheless, this color reality may not be exactly the most interesting for the birds themselves. It is well known that many bird species have a different vision system than humans. While the human species sees in the spectrum comprised of three cones (SWS 430–463 nm, MWS 497–510 nm, and LWS 543–571 nm), the birds have a fourth cone, which allows them to see colors in the ultraviolet (UVS 355–380 nm) Osorio et al. 1999; Cuthill et al. 2000; Vorobyev 2003; Ödeen et al. 2011; Ödeen and Håstad 2013). This adaptation is essential for these animals to be able to identify the flowers in the middle of the forest (Huth and Burkhardt 1972), but it is also a fundamental part of the reproductive process, since individuals can recognize each other by color differences and obtain information about a potential match (Herrera et al. 2008; Shibuya 2016). These corroborations prove that, for hummingbirds, the colors

1,2 Translation by Felipe Shibuya.

present in the ultraviolet may be more important in terms of survival than those seen by humans. Clearly, colors are perceived in different ways by species, and human representation of hummingbirds is based on the human vision system, which makes them beautiful according to their pattern of perception. However, in this new approach, coupled with the knowledge gained about the hummingbird vision system, we can now consider other ways of representing these birds.

Image. 3 – Cattleya Orchid and Three Hummingbirds, painted by Martin Johnson Heade in 1871.

Here, two approaches to hummingbirds, behavior and coloring have been presented, demystifying the human archetype over these birds, which often shows them as docile and fragile. Through this new perspective, it will be possible to work on other representations of these animals, based on scientific evidence. Bioart has gained prominence in recent years, especially by using principles and techniques of microbiology, genetics and biotechnology (Yetisen et al. 2015). However, increasingly, ecological approaches have been emphasized in this field (see Cazeaux 2017). Thus, through these new perspectives, using Bioart, new forms of dissemination of knowledge about the biology and ecology of the species, previously not shown, could be considered to evidence the true animals in art.

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OLGA TIMURGALIEVA

When species meet in bioart: Multispecies encounters from Baradian posthumanist perspective

ABSTRACT
The article aims to examine recent artistic practices with or for other species and to distinguish multispecies intra-active aesthetic characteristics. Starting from posthumanist performativity and agential realism, I discuss the examples of bioart as a variety of material-discursive practices which produce boundaries between “humans” and “nonhumans”. As a conclusion, I present the characteristics of multispecies intra-active aesthetics, including the focus on human-nonhuman sympoietic relationships, performative artistic work directly for or with other species, handling the actual matter, and others.

KEYWORDS Multi-species intra-active aesthetics, posthumanist performativity, sympoietic relationships.

INTRODUCTION

The history of Western literature and culture, beginning with Plato and later the Old Testament, has constituted an enormous body of discourses and institutional activities which presuppose the inferior position of the animal in the hierarchical structure (Wolfe 2003: 6). This overall omnipresence of species discourse has produced speciesism as the fundamental aspect of western subjectivity which is formed on an implicit assumption that human transcendence is based on the repression of animality and animal origins, and through surpassing the bindings of embodiment and materiality (Wolfe 2009). This also has been allowing the ethical tolerability towards killing non-human animals, as well as the justification of harm towards humans labelling them as animals (Barad 2011; Derrida 2002; Rossini 2006; Wolfe 2003, 2009). Cartesianism as well as further development of western thought, have significantly influenced the emergence of liberal subject, subject-object relationships, and fastened binary oppositions (nature/culture, man/woman, etc.) and various assumptions which directly and indirectly cause harmful effects, such as the climate change, exploitation of resources, etc.

Various posthumanist thinkers oppose the superior position of humans and strive for "post-exclusivism" of any beings, the abandonment of centrality, and non-separateness which are used as methodological approaches (Ferrando 2013: 30-31) to achieve non-hierarchical inclusivity.

Robert Ranisch and Stefan Lorenz Sorgner analysing common positions of posthumanist thinkers note that posthumanist theoreticians renounce the humanist assumption that "man is the measure of all things" (Ranisch and Sorgner 2014: 16). Therefore, they identify feminist endeavours as well as the endeavours to transcend speciesism and anthropocentrism as the common characteristics of posthumanist approach.

Although the field of posthumanist studies is continually developing in diverse discourses, in this article, I primarily incorporate the research on anti-speciesism and the decentering of the human to discuss multispecies intra-actions in bioart.

NON-ANTHROPOCENTRISM ACCORDING TO KAREN BARAD

One of the feminist positions striving for non-anthropocentrism and the decentering of the human towards other kinds which will be in the focus of this article is the academic scholarship by Karen Barad, an American feminist researcher with a doctoral degree in quantum physics. She thoroughly reflects on the issue of the human/nonhuman divide and proposes a unique agential realist approach based on posthumanist performativity. Her agential realism presupposes the non-division between ontology, ethics, and epistemology and takes into consideration both humans and nonhumans. She thoroughly reconsiders the issues of knowledge production and the emergence of entities.

For Barad, posthumanism is "about taking issue with human exceptionalism while being accountable for the role we play in the differential construction and differential positioning of the human among other creatures (both living and

nonliving)" (Barad 2007: 136). According to Barad (2011): the "posthumanist" point is not to blur the boundaries between human and nonhuman, not to cross out all distinctions and differences, and not to simply invert humanism, but rather to understand the materializing effects of particular ways of drawing boundaries between "humans" and "nonhumans" (123).

Drawing on this, in this article I consider the examples of bioart presented later as a variety of material-discursive practices which produce boundaries between "humans" and "nonhumans".

The starting point of Barad's project is the critique of representationalism, which grounds on the assumption that human language and observation mediate the knowledge about reality. She opposes such an approach and, on the contrary, proposes a framework which does not "presume separateness of any-"thing"" (Barad 2007: 136). It is possible in her theoretical account through her understanding of matter as always becoming, generative, agentive and performative, so that "matter comes to matter" (Barad 2003: 823), or in other words, the meaning is produced simultaneously with and within the process of materialization; the discursive and the material are concurrent, not preceding each other in the dynamic process of formation.

Barad bases her theory on writings of Nils Bohr about quantum physics and takes into consideration Bohr's rejection of atomistic metaphysics, Newtonian physics and Cartesian approach in quantum physics. On this premise, she questions the nature/culture divide and the subject/object dualism. Following Bohr, Barad writes, that physics based on the understanding of atoms as determinate entities, which preconditioned the development of Newtonian physics and Cartesian epistemology, influenced the idea that as Barad writes "the world is composed of individuals with separately attributable properties" (Barad 2003: 813). Moreover, she adds that liberal theories, as well as scientific, political and social activities, derive from the similar assumption, that individuals are the units with their properties constituting the world (Barad 2003: 813). Newtonian physics in this sense is the modernist version of Democritean atomic theory of the void and atoms (Barad 2003: 822). Quantum physics, however, does not take ""things" as ontologically basic entities" as in Newtonian physics (Barad 2003: 813). It also challenges Cartesian epistemology based on the separation of a distinct subject from object, knower from known, words from things, and discursive practices from materiality (Barad 2003: 813).

Barad suggests an alternative to the fixed things and words characteristic for representationalism. Instead of words, she introduces "*specific material configurations of the world*" in other words discursive configurations or practices (Barad 2003: 814, original emphasis). Alternately to things, Barad uses "*specific material phenomena*" (Barad 2003: 814, original emphasis). In this way she emphasizes a "*relationality between specific material (re)configuring of the world through which boundaries, properties, and meanings are differentially enacted (i.e., discursive practices, […]) and specific material phenomena* (i.e., differentiating patterns of mattering) (Barad 2007: 139, original emphasis).

Barad proposes the term of "agential intra-action" (Barad 2003: 814), which as opposed to an interaction of pre-existing entities, means that pre-exists only a relation through which discursive practices constitute meanings and boundaries.

Intra-actions happen within phenomena. Phenomena in their turn are understood as "*the ontological inseparability of objects and apparatuses*" (Barad 2007: 128, original emphasis) and the "entanglement of agencies" (Barad 2007: 239). So, for Barad, although the boundaries emerge within a phenomenon through intra-action, objects and apparatuses are still inseparable, as what signifies their boundaries or separation also binds them. Thus, "*agential separability*" (Barad 2003: 815, original emphasis) presupposes the conditions for boundaries to appear, but the objects which appear are still connected through these boundaries. And this signifies Barad's approach of open materialization where exteriority takes place within (Barad 2007: 93). By this, Barad opposes agential cut to the Cartesian cut: in Cartesian cut, entities function as intrinsically distinct, agential cut in its turn develops boundaries within phenomena and these boundaries constituting distinctions still maintain inseparability.

To develop her posthumanist performative approach, Barad refers to Butler's considerations of matter and performativity. Although Barad acknowledges Butler's work for her understanding of matter as "always materialized" and the one that "has . . . to be thought in relation to the productive and, indeed, materializing effects of regulatory practices in the Foucaultian sense" (Butler 1993: 29 cited in Barad 2007: 150), she criticizes Butler's theory, since matter emerges in Butler's reading as a consequence of discursive activities, as their passive result, "rather than as an active agent participating in the very process of materialization" (Barad 2007: 150). Barad from her side proposes agential realism, where matter is a "substance in its intra-active becoming – not a thing but a doing, a congealing of agency" (Barad 2007: 151). Thus, bodies are material-discursive phenomena, they both, nonhuman and human, "*come to matter* through the world's iterative intra-activity" (Barad 2003: 823), or through performativity. In other words, the materialization of matter happens simultaneously through discursive and material production.

Barad, proposing her posthumanist performativity, departs in her analysis from the Foucault's understanding of discourse, Butler's production of bodies and meanings, as well as Bohr's apparatuses. Basing her approach on their work, she criticizes their anthropocentric assumptions. In the analysis of apparatus, Bohr implies human participation as a prerequisite of measurability (Barad 2007: 143). Butler considers the materialization of only human bodies. Agency for Foucault and Butler is taken as belonging only to a human realm, what reproduces the opposition of culture and nature. Barad does not limit discursive practices only to human (re)configuring of the world (Barad 2007: 148); in apparatuses, both meaning and matter mesh in the process of their production. Thus, stressing the movement and constant dynamics of apparatuses, she does not determine the borderline between nonhuman and human, they appear through apparatuses from phenomena in their ongoing becoming (Barad 2007: 150).

To sum up, the boundaries between the divides emerge through the intra-actions of apparatuses, including the boundaries between human and nonhuman. The borderlines appearing through intra-actions bind objects and apparatuses, what is understood as agential separability. Phenomena - the ontological inseparability of objects and their apparatuses - for Barad rise through intra-actions of "material-discursive practices" (Barad 2003: 818), through material (re)configurations. Thus, in her approach, Barad considers materiality as neither purely constituted by human agency nor as pre-existing. This understanding of enmeshed discursivity and materiality gives her an opportunity to move from representationalism to posthumanist performativity.

THE BARADIAN APPROACH IN ART

Multiple recent art projects incorporating bioart are dealing implicitly or explicitly with posthumanist theories and the Baradian approach.

During the performative piece *Lifecycle of a Common Weed* (2009) by Caitlin Berrigan (Kirksey 2014: 11), the artist suffering from hepatitis C provided her blood for a dandelion plant. Her blood worked as a fertilizer full of nitrogen. The blood carrying the virus is dangerous for humans but nutritious for the plant. At the same time, Berrigan was consuming tea from a dandelion root as a treatment to cure her liver of viral infections, as she stated (Kirksey and Helmreich 2010: 560). In this way, her hepatitis positive performatively shared care, violence, and suffering with the weed commonly unaccepted in urban areas. Berrigan appropriated biotechnological tools to establish mini-scale symbolic nutrients circulation in the city area as a mirror for institutionalized commodity chains (Paxson 2008: 40 cited in Kirksey and Helmreich 2010: 560).

In another performative artwork *Recipe II: Human Cheese* (2011) by Miriam Simun the audience was offered homemade cheese produced from human breast milk bought online and mixed with goat's milk. As the artist states, it was a "multispecies collaboration" between mammals and companion species including microbes (Simun n.d.). The work raised multiple questions about the "denaturing" of milk (Simun n.d.).

These examples I take from the exhibition *Multispecies Salon* (2008) as case studies of multispecies ethnographic artistic research (Kirksey and Helmreich 2010: 556). Multispecies ethnography being a new approach in anthropology examines organisms connected to the human domain and focuses on the ways living selves form economic, political, and cultural forces and are formed by them (Kirksey and Helmreich 2010: 545). As Kirksey and Helmreich state, Donna Haraway's work has created the ground for the inclusion of nonhuman species into anthropology (Kirksey and Helmreich 2010: 545). As she writes, "becoming with" takes place in the contact zones where nature and culture are fused (Haraway 2008: 244). Following Haraway, the representatives of multispecies ethnography examine the contact zones, the encounters of human and other species and after Anna Tsing consider human "as an interspecies relationship" (Tsing n.d. cited in Haraway 2008: 19).

The primary purpose of multispecies ethnography presupposes not just acknowledging nonhuman species as others, ascribing agency and giving voice to nonhumans, but rather to initiate a process of radical reconsideration of species categories in their relation to the actual beings and becomings (Kirksey and Helmreich 2010: 562). Alternatively, as Barad would call it, multispecies ethnography focuses on how the species boundaries are constituted within every located intra-action.

The meaning in the mentioned artworks is produced through the intra-action of humans with other species; therefore, the multispecies ethnography and multispecies salon are of interest for the present article. Each example sheds light on locally situated intra-active conditions of cohabitation, narrating the stories of economic chains, species labour, violence, care, mutual suffering, and joy, thus companion speciesism.

The next example is the installation *In vitero* (2013) by Tarsh Bates which included slime mould in a glass vessel. This work is the continuation of a performative art project *In vitero* from 2011 when Bates artistically explored caring through long-term engagement with nine species frequently employed in reproductive biology laboratories (Bates 2015: 54). As opposed to the research of slime mould's computational abilities and its functions which might be useful for research in biocomputing and complex network coordination, in *In vitero* slime mould appears for the exploration of its agency with the focus on its being rather than on its functions (Bates 2015: 59). Silenced in the framework of ethical discussions about the usage of nonhuman species, slime mould was encouraged within the exhibition to move and forage to find food, and thus to cover the glass vessels with its lace, that would be more visible and spectacular for the visitors. However, according to Bates, during the exhibition "slime mould refused to perform" (Bates 2015: 55), although supposed to search for food and leave a lace, the mould died too quickly. This example is from the exhibition project *Intra-action. Multispecies becomings in the Anthropocene* (2013) curated by Madeleine Boyd and Eben Kirksey. One of the aims of the exhibition was to develop Baradian multispecies aesthetics.

Baradian or performative multispecies aesthetics, according to Boyd, is based on moving away from Kantian anthropocentric concepts such as sublime and genius as well as representationalism towards performativity with different species, as it is more likely that the artworks created with other species "enact a performative transformation towards other worlding" (Boyd 2015: 17). Baradian ethico-onto-epistem-ology and posthumanist performativity presuppose the movement from traditional forms of representation such as sculpture and painting towards installation, time-based art, and after Nicholas Bourriaud "possibly inter-species relational art" (Boyd 2015: 15). Boyd emphasizes that "a materialist, Baradian and multi-body, multi-species aesthetic must engage the always already intra-acting qualities of the matters of interest, and performatively engage present agencies" (Boyd 2015: 18-19). So, that "there is no mind in control, but an intra-action of agencies" (Boyd 2015: 19).

As Boyd states, the vision has been an anthropocentric practice of judgment for a long period of history, therefore visually representing various species even nowadays is still strongly connoted with judgment regarding species formed on predisposed conceptions of values and beauty (Boyd 2015: 20). Thus, drawing, sculpture, and painting are directly connected with judgment, and an accurate depiction of an object binds the artwork to class and value hierarchies, being in this way anthropocentric. Multispecies aesthetics in its turn through its form makes the viewers question what exactly they see, why it is art and how to encounter it. In this manner, according to Boyd, value systems characteristic for anthropocentrism are being disturbed.

The next example *1000 Handshakes* (2016) by microbiologist and artist François-Joseph Lapointe took place on the microbial and macro scale. The artist performed one thousand handshakes in an open public space, at the Copenhagen Medical Museion in 2014, and a digital culture festival, Transmediale in 2016. After about every 50 handshakes, a sample of microorganisms on his palm was taken. Later these fragments were studied at his laboratory and converted into animations and abstract depictions. This performance engages playfully with recent findings in human microbiome research and the fact that the major part of DNA in the human body is nonhuman. Informing the spectators about this cohabitation, the artwork becomes "an act of sympoiesis" after Haraway (Lutz and Rapp 2017). Haraway borrows the term sympoiesis from M. Beth Dempster who understood it as "collectively-producing systems that do not have self-defined spatial or temporal boundaries. Information and control are distributed among components. The systems are evolutionary and have the potential for surpassing change" (Dempster 1998 cited in Haraway 2017: 27). Sympoiesis signifies "making with", as Haraway writes "nothing makes itself; nothing is really auto-poietic or self-organizing", she continues "sympoiesis is a word proper to complex, dynamic, responsive, situated, historical systems" (Haraway 2017: 26). According to her, any species can become a "compost pile" in the age of Anthropocene (Haraway 2017: 26), so that being in sympoiesis means to become with other species, to "compose and decompose each other" (Haraway 2017: 26). The process of "making with" of the microbiome and the human is emphasized in the mentioned artwork.

One more example is the work *Surface Dynamics of Adhesion* (2015) by Tarsh Bates which was presented at least twice at Gallery Central Shopfront (*The unsettling eros of contact zones, and other stories*, 2015*)* and at Art Laboratory Berlin (*Nonhuman subjectivities: The other selves. On the phenomenon of the microbiome*, 2016). In its iteration at Art Laboratory Berlin, the visitors could enter a room with furniture in Victorian style and so-called "wallpaper", the visitor was invited to sit down and read about the work of the artist. However, with the hint of the exhibition text, the visitor learned that the wallpaper was living, and this matter was potentially pathogenic yeasts.

Candida albicans used in the first iteration in 2015 and its relative *Candida parapsilosis* used in the second iteration in 2016 are potentially pathogenic

yeasts which usually inhabit the human body. They are present in 70 to 80 per cent of the human population (Bates 2015: 20). These yeasts being a part of the gastrointestinal and urogenital flora aid the operation of digestion, processing sugars. Thus, the artwork emerges from the condition that "human bodies are the ecological niche of *C. albicans"* (Bates 2015: 27). It is worth mentioning that although *Candida* is often found in our stomachs, the artwork with the yeasts required "a two-level containment license" (Braun 2016), as the interaction with it can cause many infections (Public Health Agency of Canada 2011).

On the level of production, to emphasize the interrelation between the human and *Candida* Bates added her blood to the agar which became a nutrient source for the yeasts. Laboratories often utilize blood agar for the purposes of blood pathogens identification (Bates 2018). The human participation in this artwork is reduced solely to a bodily substance taken individually for the piece. This subversion of positions emphasizes the decentered role of the artist pushed to an extreme.

The title of the artwork *Surface Dynamics of Adhesion*, according to Bates, was appropriated from an article which discusses how *Candida albicans* adheres or attaches to various surfaces (Bates 2018). Since surfaces are not smooth on a micro level, *Candida* adheres variously to different human cells and alters its body shape and cell surface, what basically allows the adherence. Additionally, it adheres to "materials we insert in our bodies" such as pacemakers, dentures, piercings, etc. and this adherence might invoke infections (Bates 2018). As Bates writes, the artwork connects the surfaces *Candida* inhabits with the surfaces humans inhabit; therefore, she makes a reference to the wallpaper, which is a part of the habitual human environment in daily life (Bates 2018).

On this premise, the artwork might be interpreted through the Baradian reflection on boundaries within phenomena. *Candida* adheres to human cells altering its body form and human cells surface. This process of surface adherence demonstrates the constitutive, agential, generative nature of never fixed boundaries. The *Candida* surface adherence represents the fundamental inseparability of distinct entities emerging through their intra-action and the co-dependent relations. The artwork engages with the issue of border formation and exemplifies agential separability, agential cut of entities which being distinct are bound together precisely on the boundaries and through their intra-action. In this artwork, we can see the affinity of human-nonhuman duality, the illustrative example of difference as unity or "a non-dualist univocity" (Dolphijn and van der Tuin 2012: 129).

In the presented example, the artist creates a multispecies encounter in the exhibition space raising awareness about the microorganisms living in human bodies, and particularities of such cohabitation. Bates' work goes beyond representation; she instead deals with matter, not image-creation, so that process and ongoing enactment are emphasized. The inherent performativity of the piece is presupposed by working with the living matter which is already in the intra-action process with human bodies.

CONCLUSION

The aforementioned artworks, dealing with multispecies ethnography, multispecies aesthetics, and nonhuman performativity, express substantial interest in multispecies encounters and together demonstrate the qualities which might be called multispecies intra-active aesthetics. These beings in naturecultures – weed, microorganisms, and others – are significantly influenced by human activities in the age of Anthropocene on the one hand and co-constituting our beings and lives, on the other hand.

Summing up the discussed projects, we can specify that among the characteristics of multispecies intra-active aesthetics are: a) The focus on human-nonhuman sympoietic relationships from historical, economic, cultural and socio-political perspectives; b) Performative artistic work directly for or with other species, thus handling the actual matter, emphasizing its becoming, rather than producing images or working with symbols; c) Artistic creation of the setting for the beings to perform themselves without further control of the process, therefore, often uncertain enfolding of the performance; d) Attempts to propose an alternative to the subject-object relations, to introduce the agential cut, instead of the Cartesian cut; e) Potentiality to inform the viewers about histories of human-animal relationships and forms of nonhuman subjectivity and in this way to foster viewers' response-ability to the companions in the contact zones.

Multispecies intra-active aesthetics forms a subfield in the art which strives for non-dualities and non-anthropocentrism and accentuates how interspecies boundaries are constituted throughout processual intra-actions, not relations of pre-existing entities.

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NICOLE CLOUSTON

Collaborating with Microbial Life

ABSTRACT

In my ongoing practice-based research into microbial life I have been exploring bodily borders, responsible human/non-human collaboration, and our connection to a broader ecology. In my most recent project, *Lake Ontario Portrait* (2017-present), I collaborated with the microbes in mud to expose the vast array of life in soil and the ways we are connected by it. In this text I discuss my struggle to collaborate responsibly with microbes during the creation of this artwork through acts of care. The task of care requires me to "stay with the trouble" by "learning to be truly present" – to employ two notions proposed by Donna Haraway – in an active engagement that does not turn away from the contradictions, discrepancies, and difficulties present in care. The sculptures bring viewers into contact with microbial life and also represent the traces of my care as collaborator. It is this entangled existence with microbial life that I aim to explore through my collaborative practice with soil microbes.

KEYWORDS Collaboration, care, bio art, microbial life, enmesh.

INTRODUCTION

I work with mud from Lake Ontario and the microbes that live in it to explore the enmeshed nature of life. Microbes – organisms invisible to the naked eye – form vast, complex communities around, on, and within our bodies. Microbial life passes in and out of us, permeating what we perceive to be the barrier between ourselves and everything else. This community of microbes supports our growth, helps us to eat, protects us from pathogens, produces vitamins, and much more we do not fully understand (Yong 2016). Traits that we previously believed belonged to individuals are actually the result of a complex negotiation between host and microbes. I was immediately fascinated and repulsed when I became aware that the microbial cells in my body outnumbered my human cells ten to one, and that without them I would not be able to survive. Since then, I have been grappling with my relationship to microbes and webs of connections that extend far beyond my body.

I began working with microbial life in my artwork; first in drawings, then on agar, and now in mud. I sample mud and place it, along with nutrients that encourage microbial growth, in clear sculptural prisms. When exposed to light, the microorganisms already present begin to flourish, becoming visible in the form of vibrant marbling. These microbial colonies are capable of growing to the point that they can be seen by the naked eye. Their visual presence in turn draws attention to their constant invisible presence around, on, and within our bodies. I am interested in microbial life's capacity to connect us in a very literal way to each other and to the world around us. Microbes reveal that our boundaries are indistinct and prompt us to think about the many ties that enmesh us.

Image 1. Detail images of *Mud (Lake Ontario)*, Nicole Clouston, 2017-present

To exist is to be enmeshed. From the moment we are born our microbial symbionts – microbes that closely interact with our bodies over a long-term – begin their complex relationship with us. Transferred from our mothers, microbes enter our gut and enable us to digest our first meal. These ties are always there, even when we are not conscious of them. As Donna Haraway puts it, "beings do not pre-exist their relatings" (Haraway 2003: 6).

'Enmeshed' is the term I have come to use to describe how everything and everyone is connected. To be enmeshed is to be woven in an intricate, interdependent, web of relatings where bodies and taxonomies have unclear and permeable boundaries. Enmeshed is not an innocuous term; we do not have the choice to disentangle. However, we can choose to become more enmeshed, to actively move further into web that we are all caught in and supported by.

I have chosen to 'think-with' microbial life, in keeping with Donna Haraway, to understand the many ties that enmesh us in the world. Maria Puig de la Bellacasa described the method as: "A relational way of thinking … [that] creates new patterns out of previous multiplicities, intervening by adding layers of meaning rather than merely deconstructing or conforming to ready-made categories" (Puig de la Bellacasa 2017: 71). This form of thought encourages us to extend beyond our human-centric boundaries and consider the world more expansively. Theorists and artists have chosen a diverse array of non-humans to think-with: Anna Lowenhaupt Tsing and matsutake mushrooms; Donna Haraway and her dog Cayanne; Eduardo Kohn and the forests of Ávila; Marta de Menezes and butterflies; Viviane Despret and lab rats; Aganetha Dyck and honeybees; Karen Barad and quantum particles; Jakob von Uexküll and ticks; María Puig de la Bellacasa and soil. Thinking-with non-human companions is an exercise in extending kinship outward and allowing space for diverse ways of thinking-with.

COLLABORATION AND CARE

Collaborating with microbes has made my current research possible – shaping my thinking, enabling the creation of my artworks, and informing my texts. The way we collaborate is as important as what we have collaborated on. Throughout our collaboration I have asked, "What does it mean to form a meaningful relationship with non-human life?" Collaborations with non-humans are complicated by differences in how we communicate. Another person can give consent or end the collaboration if they want to, but the microbes in my sculptures cannot. I attempt to reconcile this power disparity between us by caring for and about my microbial partners.

In her book *Matters of Care*, Maria Puig de la Bellacasa describes care as: "… much more than a moral stance; it involves affective, ethical, and hands-on agencies of practical and material consequence. Another critical dimension of this generic conception is the accent on care as vital in interweaving a web of life, expressing a key theme in feminist ethics, an emphasis on interconnection

and interdependency in spite of the aversion to "dependency" in modern industrialized societies that still give prime value to individual agency" (Puig de la Bellacasa 2017: 164). Care, as it is understood here, is capable of extending ties and enmeshing, or interweaving, actors. Caring can be a catalyst for change, but Puig de la Bellacasa also stresses that 'care' is entwined with "the tendency to pastoral paternalism, the power it gives to care takers, and the unequal depletion of resources it implies…" (Puig de la Bellacasa 2017: 174). She argues that care does not need to be reclaimed from these "impurities," but from its oversimplification "whether by idealizing or denigrating it" (Puig de la Bellacasa 2017: 11). Care between myself and the microbial life in my sculptures is not an act of idealized love or of obligation. Instead, care between us is a set of constantly negotiated and thoughtful interactions. The task of care requires me to "stay with the trouble" by "learning to be truly present", to employ two notions proposed by Donna Haraway, in an active engagement that does not turn away from the contradictions, discrepancies, and difficulties present in care.

Care can take many forms – caring about, caring for, being given care – each with its own characteristics and potential for "practical and material consequence" (Puig de la Bellacasa 2017: 4). Feminist scholars Joan Tronto and Bernice Fischer in their influential work on care, distinguish between 'caring about' and 'taking care of': "Where as caring about someone or something does not necessarily involve any overt action, *taking care of* implies the responsibility for initiating and maintaining caring activities. (People may care about the suffering of those they see of television and in the streets but do nothing about it.) Taking care of requires more continuous time spent and more explicit knowledge of the situation than does caring about" (Fisher and Tronto 1990: 42).

I *care about* microbes through contemplating them and empathizing with them, but importantly I also *take care of* microbes through interacting with them daily and remaining attuned to their needs. I take care of the microbes by providing light, keeping the microbes warm, changing the parafilm that keeps them moist, and adding more water when needed in response to any shifts I notice. Changes in their appearance or behavior are how the microbes and I communicate. Their vibrancy or lack thereof, amount of gas being produced, height of the water, scent, expansion and contraction of colonies – all provide information that I respond to by taking care of. Over the course of our relationship I have become a better caregiver. I have developed my ability to listen to what the microbial life has to say and know what to do in response. Tronto and Fisher believe that to take care of "… some one or some thing or some situation we need to know enough to predict or try to guess at the outcome of our intervention." In order to "know enough" I need to constantly reassess my relationship with the microbial life. I spend time being with them, maintaining them, and communicating with them. Knowing enough to take care of non-humans also requires taking the time to care about them. This involves empathizing with, contemplating, and attempting to understand their perspective.

Understanding the point of view of microbial life is challenging because microbes experience our environment very differently than I do. Biologist Jakob von Uexküll describes these differences in experience as the "umwelt", an animal's subjective world. In his groundbreaking 1934 text *A Foray into the Worlds of Animals and Humans* Uexküll argues that an animal's environment is vital to understanding the animal itself. He believes that biological differences between animals meant that each living being experiences their environment uniquely: "the space peculiar to each animal, wherever that animal may be, can be compared to a soap bubble which completely surrounds the creature at a greater or less distance. The extended soap bubble constitutes the limit of what is finite for the animal, and there with the limit of its world; what lies behind that is hidden in infinity" (Uexküll 1934: 42). The physical apparatuses the animal has to perceive the world, as well as its motives, shape its umwelt.

What drives the microbial life within my sculptures and how do they experience these environments I instigated? I can speculate about what it would mean to experience the world through the microbial umwelt, but these speculations will always be tainted by my inability to shed my human way of being. What I do know is that the diversity of microbial life – the variety of species inside the sculpture – has thrived. The sculptures provide an ecosystem capable of supporting their multiplicity and difference. Although I believe that I will never truly understand what it is to be a microbe within my sculptures, I would argue that it is still important to try. The attempt forces me to recognize that the microbes experience the sculptures and our work together differently than I do. By acknowledging their unique experience, I am able to remain attentive to them as microbial life, to their needs and how to continue developing a responsible collaboration despite the power disparities between us.

The microbes live in the artefacts I built: a series of six-foot tall, clear, polycarbonate prisms; However, the prisms have been built to align with the microbes' umwelt. The height of the prisms creates an oxygen gradient that allows anaerobic microbes, which need to live in a low-oxygen environment, to grow near the bottom of the sculpture. Aerobic microbes that need a high oxygen environment can grow near the top of the sculpture. Each prism is filled with mud and water from the same location on the shore of Lake Ontario as the microbes – mimicking their lake environment and ensuring that a community of enmeshed microbial colonies can continue to grow together. Inside the prisms, the microbial life continues to function as part of an ecosystem that relies on all of its community members to sustain itself. I set the ecosystem inside the sculpture into motion and then the microbial life takes over.

The sculptural prisms define the physical space of the microbes by restricting them inside, but it also supports their growth. The increased light the microbes are exposed to and the seed of calcium carbonate, sulfur, and cellulose they are fed when first placed in the prism, enable them to grow in vast numbers and sustain their growth over time. The prism becomes a way to amplify their

voice and make their presence seen as well as felt. The microbes' ability to grow beyond what they could without our collaboration is one way they gain from our work together. The microbes and I also enable each other to reflect on a wide variety of questions: Can microbial life and humans collaborate responsibly? How long can our collaboration maintain itself? How do microbes and the environment they are in support each other? What visual patterns will emerge and develop? How do the microbes in my sculpture and effect each other? What impact does sensing microbial life through artwork have on viewers?

My goal in asking these questions is to understand my relationship with microbial life better, to become more attuned to their umwelt, to gain a deeper understanding of our enmeshedness, as well as the broader ties our relationship reveals. These questions are a way to work meaningfully together. Finding a final or precise answer is not my goal. In fact, I would argue that asking interesting questions of non-humans should never just be about getting interesting answers. Instead, the emphasis needs to be on setting up strong relationships that lead to ongoing conversations and continued reciprocity. Understanding our relationship with microbial life and recognizing the enmeshed nature of our bodies can push us to foster a stronger, more sustainable, and empathetic relationship with each other and our ecosystem as a whole.

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RACHEL TREIDE

Encoding Omniscience: Artist-Scientist Joe Davis' Tree Of Knowledge

ABSTRACT

Artist-Scientist Joe Davis' bioartwork *Malus ecclesia* is an ongoing endeavor in which Davis has encoded sections of the Wikipedia entry for 'Good and Evil' into the genome of the oldest species of apple available on planet Earth. Davis accomplishes this via a strain of bacteria able to insert its genetic code through the cell walls of plants (House 2014). Davis describes *Malus ecclesia* as his attempt to 'genetically modify an apple to tempt the Devil' (Sasowsky 2011). The word '*Malus*' is the genus name for all species of apples, and the Latin word, '*ecclesia*,' translates to 'church'— both a reference to geneticist George Church as well as an allusion to Christianity, from which the work derives its central allegory. Through this project, Davis has not only created the first living library that does not rely on human memory, but has also established a new and innovative method of storing and disseminating information that could cause a fundamental shift in the way that humans preserve knowledge and think about the world. Paying careful attention to the ethics of genetic manipulation through the use of unobtrusive coding methods, Davis blurs the line between art and science, poetry and practical application.

KEYWORDS Joe Davis, genome, apple, wikipedia, bioart.

INTRODUCTION

Davis is a research affiliate in the Biology department at the Massachusetts Institute of Technology (MIT), holds the position of 'Artist-Scientist' in the George Church Laboratory at Harvard (Harvard Medical School), and is what some call the 'Father of BioArt' (Sasowsky). BioArt, like Installation or Conceptual art, can exist in a myriad of forms but is characterized by the application of 'scientific methods and technology to explore living systems as artistic subjects' (Davis et al. 2015). Davis considers science and art inseparable tools for exploring the nature of the world around him and investigating the mystery of the human experience. By infusing his scientific artworks with metaphor and poetic meaning, Davis emphatically blurs the line between several areas of inquiry, allowing him to embrace a unique methodology that has insatiable curiosity about the world at its core. Because BioArt is a massively technical and highly specific medium and its complexities are understood only by those who speak the same scientific language, I have translated the progression of the technology used to create *Malus ecclesia* into layman's terms. Broadly outlining the scope of the project without seeking to break it down into its technical specificity, the work will be analyzed as an artwork and an opportunity, with an emphasis on meaning, metaphor and potential for transformation.

Davis' work has been published in several scientific journals and art magazines, but the best exploration of Davis' life and work can be found in filmmaker Peter Sasowsky's 2011 documentary, 'Heaven and Earth and Joe Davis,' in which Sasowsky follows Davis across the globe, recording him as he develops his many artistic projects. Davis is no doubt an eccentric character and as an adult can most often be found with a cigarette between his lips or fingers to satiate his rapidly moving mind, and is prone to launching into free verse poetry at house parties and digging through the Cambridge, Massachusetts trash in search of items that can be repurposed for use in his crystal radio sets. He spends his Sunday nights dressed in an oversized canary yellow raincoat washing dishes at the local pub in exchange for free beer, chicken and 25 dollars. Past projects have included an aircraft powered by frog legs, devising his own written language in which each character is only comprised of two strokes, and 'transmit[ting] vaginal contractions into deep space to communicate with aliens' (Sasowsky 2011). Each of Davis' endeavors is a unique blend of art and science and while some have more practical application than others, all of his work ultimately seeks to uncover the 'layers of meaning' intrinsic to everything in the world around us, particularly in the invisible, which he manipulates and uncovers through biology and technology (Sasowsky 2011).

THE SILENT CODE

Davis has long been aware of the amazing storage power DNA; according to the artist, the 'biological archive has an informational storage capacity over a billion times more dense than any laser disk, is self-reproductive, and a single gram of DNA can store approximately ten to the eighth terabytes of data (Sasowsky

2011). All the recorded information in the world could be contained in a few grams of DNA by translating data into a code that would fit with the four letters that symbolize DNA's chemical bases: A, G, C and T (Mitchell 2014). Davis began experimenting with encoding information into DNA in 1986 for a work entitled *Microvenus*, in which he translated the Germanic rune for the Female Earth into a brief sequence of DNA nucleotides and cloned it into a strain of bacteria in the lab. Davis was captivated by the thought of encoding messages into bacteria which, in the right conditions, would replicate itself every twenty minutes.

However, lengthy messages that contain large amounts of information encounter several problems when being translated into DNA's chemical bases and inserted into a genome. In an essay, 'Romance, Supercodes, and the Milky Way,' Davis explains that the encoding methods employed in *Microvenus* were inefficient for encoding and storage large amounts of information and 'were not intended to be directly compatible with conventions for the organization and operation of computer databases' (2000: 217–235). In order to combat these translational problems, Davis developed what he dubbed the 'supercode,' using the presence of 'stop codons' in the DNA sequence as open and closeable 'file drawers' that indicate the presence of hidden, encoded information (Sasowsky 2011). However, although the supercode enabled mass amounts of data storage, Davis had created a biologically useless sequence of DNA that he knew would be deleted by the host organism after several generations. Thus he had to figure out how to insert the supercode into DNA that served a biological function—this dilemma pushed Davis to invent 'the silent code.'

Developed in tandem with Dana Boyd, lecturer in the department of Molecular Genetics and Microbiology at Harvard Medical School, the silent code enabled Davis to insert information into the genetic structure of any natural protein, such as insulin. The organism will not delete the coded information which would normally be deemed unnecessary and removed from the genome over time because it is unobtrusively encoded into DNA that has biological significance. Furthermore, because the encoded information is hidden within the file drawers of the supercode, it has no effect on the host organism, ensuring non-harmful genetic manipulation. The silent code enables Davis to write inside the apple's genetic code without altering it and is described by Davis as 'probably more environmentally and ecologically sensitive, and less interfering, than any previous kind of genetic manipulation' (Sasowsky 2011). Davis' goal is not to impose his will upon living things but to collaborate with them, evocative of the way visual artists collaborate with their materials such as oil paint or clay in order to produce an artwork that fulfills their vision but also honors and complies with the nature of the materials.

However, the encoding method that Davis was employing in order to write the silent code was still extremely inefficient. According to Davis, the solution to the problem came to him during a bout of scarlet fever from which he emerged with headaches from mathematics bound up inside his mind. Davis

conceived of 'DNA manifolds,' a method of encoding DNA that folds into itself, allowing Davis to store massive amounts of coded information within the file drawers of the silent code. These manifolds allows Davis to store previously unimaginable amounts of data in a single gene without distorting its size (House 2014). Describing the impact of the silent code, Davis states: 'Essentially, each DNA molecule can hold many layers of information that can be very precisely articulated. I can write not only two messages, I can write huge numbers of messages under any given gene without changing the length of the gene or its product. It's like the stone age of biology' (Sasowsky 2011).

Mirroring the technological developments that allowed computers to become physically smaller but their capacity for storage to become exponentially larger, these manifolds opened the door to the possibility for the large scale transfer of information and data into the very fabric of the living world. The silent code and DNA manifolds technologies ensure that in *Malus ecclesia*, none of the apple's traits or features such as texture, color, taste, size or nutritional value will be affected (House 2014). These exciting and innovative breakthroughs were the first of their kind in the field of genetic manipulation, and allow Davis to, effectively, write '*underneath* the world' (Sasowsky 2011).

MALUS ECCLESIA

Malus ecclesia, like many works of art, contains a number of metaphors, but the technology employed also has several practical applications. Until now, our map of the terrain has been disconnected from the terrain itself—but what if the terrain *contained* the map? The technology used in *Malus ecclesia* enables us to merge our *ideas* of things and our intersubjective knowledge about them *with the things themselves*. 'It's truly a way to make a map of the world that exactly coincides with itself,' Davis says, 'It's a Rosetta within a Rosetta' (Sasowsky 2011). *Malus ecclesia* annihilates the perceived (and, until now, irreconcilable) separation between the physical world and what we cognitively know about it.

If Davis can fully realize his goal for *Malus ecclesia*—to create a herpetarium of apple trees, each containing sections of Wikipedia's text—he will have created the first living library that does not rely on human memory. The human mind and memory operates as man's personal repository of knowledge and information, a library that follows him wherever he goes. Although less consistent and stable than printed or digital information, the human memory has the advantage of being inseparable from a self-sustaining system—the human body. The living body possesses an intrinsic drive for self-preservation and growth; it desires and fights to stay alive, and is inclined and able to avoid many of the things that would destroy it—and an ability that inanimate records (like books) do not possess. Davis' silent code and DNA manifolds combine the reliability and consistency of text and data as recording methods with life itself, enabling him to plant a seed of consciousness into the living record in a way that was previously unfathomable.

But what is it that drives us to accumulate and preserve knowledge to begin with? It seems that we as humans intrinsically have a desire to preserve our memories and outlive our physical bodies through the things and ideas we leave behind. In an effort to overcome our own inherently flawed, subjective and unreliable human memory systems, we have invented a multiplicity of ways to externally express ideas and information, encoding them in written language and physical objects. However, one of the biggest struggles facing the preservation and distribution of all that we have learned and discovered as a species is the problem of preservation itself, and the susceptibility of physical documents and objects to the destructive elements of time and the environment. No matter how tight our grip, harm can, and still does, befall our treasured possessions and the knowledge that we spend our whole lives accumulating. Is there a better way to write ourselves down?

Recently, we have developed digital devices to store information electronically and we now heavily rely on our computers and drives to store and catalog data. As content as we are with the illusory safety of 'the Cloud,' digital information is prey to the fallibility of technology and the relative frailty of the internet much like physical objects are victim to the destructive forces of the environment. Furthermore, digital information is housed in physical repositories which are susceptible to many of the same environmental problems as traditional print material including age, wear and damage. Davis' innovations call into question the role of not only traditional repositories of knowledge such as libraries and universities, but also the internet's status as the dominant and most universal source of information. It is possible that in the future, destroying information may only be accomplished through the elimination of an entire species of something as minute and elusive as bacteria. For Davis, it is not a question of what is indestructible, but what has the best chances and structure for survival. *Malus ecclesia* seeks to provide a new way of recording our history, accomplishments and insights by employing a method of preservation that works *with* the forces of the Environment in symbiotic harmony, rather than *against* them.

MYSTICAL POWER SHIFT

Malus ecclesia not only opens up myriad possibilities that could permanently alter the way we store and preserve information, but also implies a mystical power shift and provides a tongue-in-cheek commentary on established religious and ideological structures. Davis' mission becomes increasingly provocative when considered in relation to the Biblical narrative established through Judaism that provides the framework for Catholicism, Christianity and Islam. Davis' reinterpretation of the Tree of Knowledge found in Genesis 3 is two fold: reversal and restoration.

Primarily, 'genetically modifying an apple to tempt the Devil' infers a reversal of roles—rather than humans being tempted by knowledge by the Devil or held from it at arms length by the Divine Creator, human beings have become the

holders of such valuable information. No longer are certain areas of knowledge forbidden—we are free to investigate the most extreme, fantastic areas of our human nature and the nature of the world around us. We are no longer restrained to methods of inquiry that lead us to tired answers or tried techniques of preservation that ultimately crumble and disintegrate. We are now free to write down our findings anywhere we deem fit and suitable for preservation, including DNA itself. What can the serpent tempt us to, if we already have the capabilities offered by the Tree of Knowledge and then some? If anything, as Davis quips, the Devil will be tempted by *us*.

Manipulation of the very fabric of the entire natural plant, animal, and organism kingdom denotes a unprecedented transference of power, and places humanity in a position of authority and opportunity that was previously unimaginable. Artist and founder of SymbioticA, Oron Catts, states: 'We are now in a very interesting time in human history where our cultural perception of life is totally incompatible with what we know about life scientifically, and what we can do with life technologically. And I think biological artists can play a major role in highlighting that. And not necessarily coming up with answers, I don't think that artists necessarily have the tools to provide answers, but the artists are very good at creating an environment of questioning' (Sasowsky 2011). Davis, like many artists and scientists who take on the role of the provocateur, does not shirk from the questions associated with these newfound abilities in genetic manipulation, an artistic medium that would have been inconceivable to artists of past generations. In her essay 'Paths to Convergence,' artist and filmmaker Lynette Wallworth argues that 'the current cultural context of science is extremely interesting to artists' because: 'Science has been crossing borders into the heartlands previously claimed by faith. It has taken up residence there, engaged in both creation and revelation. We imagine that we are but a breath away from knowing, finally, who we are and why we are—and we expect science, not religion, to provide us with the revelation. As Paul Davies comments in *God and the New Physics,* science 'may offer a surer path to God than religion' (Wallworth 2002: 15). Davis urges us to ponder how our ideologies, as well as our very interpretation of life, might change given our expanded capabilities through scientific advancements such as the silent code.

The restorative aspect of *Malus ecclesia* itself is two-fold; it is first found in the literal interpretation of the project: Davis is, in fact, creating a tree that holds the knowledge of Good and Evil, and aims to construct a new Garden. Yet the essential elucidation is found in Davis' fundamental mission: to encode the profound, poetic, inexplicable parts of our nature—the non-biological things that make us human, like self-reflectivity, hope and emotion—into the genome of the living world, as if to leave a watermark (Sasowsky 2011). Using the tools of microbiology, Davis encodes the manifestation of our endless grappling with this incomprehensible existence—expressed through philosophy, writing, art, science and religion—into a vehicle of life itself. The result is a work of art,

invisible to the naked eye, of incomprehensible beauty and immense yearning, rich in meaning and bursting with potential.

While numerous contemporaries in the fields of BioArt, Biology and Genetics have vouched for the purity of Davis' spirit and ambitions, he nevertheless is still introducing technology that is extremely delicate and potentially harmful. There is hardly a medium more ripe for corruption than DNA, and asserting one's own will into the fabric of life is no light task. Yet Davis' alterations to genetic code are never driven by profit, personal gain, or even practical applicability within the scientific field, and his work remains outside the spectacle-driven media and art market. Walter Benjamin makes the case that in modern times, an artwork's appeal and value is directly tied to and indeed determined by its ability to be exhibited, and therefore the anti-art object nature of *Malus ecclesia* is one of its greatest strengths, protecting it from the profit and status-hungry capitalistic art market that favors perceived financial and social value over meaning or inquiry.

CONCLUSION

Davis' work illuminates the unique spaces generated by the merging of art and science, revealing truths and posing questions otherwise concealed when the two disciplines are perceived as separate endeavors. An artwork like *Malus ecclesia* would not be conceivable much less feasible without Davis' eschewing of the conventional purposes of science or the traditional mediums of art, and his work embodies what is intrinsic to both art and science: research and exploration, creativity and invention. Davis' vehement, headlong rush into the unknown, paired with his electric creativity and autodidactic methods of learning, is yielding never-before-imagined possibilities that are relevant to not only scientists and artists but also to poets, philosophers, researchers, students and many others. Encoding omniscience is no small task and we still have much to learn, but thanks to pioneers like Davis the fields of art and science are merging more and more fluidly every day, each discipline informing and propelling the other towards new discoveries and creations. Through *Malus ecclesia*, Davis opens a door to a new world where all that we thought we knew is at once questioned and also preserved for as long as life exists.

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GÜNTER SEYFRIED

Return to Dilmun

ABSTRACT
Artistically and formally the Polycinease series in general and Return to Dilmun in particular are centering around problems of symbolic representation, both in art and in science. The initial point is always a pictogram with a symbolic representation, ie. a semantic form, which is subsequently translated into a syntactic form, namely into a DNA molecule. The image as a molecule becomes accessible to physical and physiological processes, were it can be modified on a molecular level and later re-translated into an image again. This work was developed in collaboration with Roland van Dierendonck (Waag Society – Biohack Academy), Ferderico Muffatto (digiBio) and Hansjörg Petschko (Viviverse).

KEYWORDS CRISPR/Cas, symbolic representation, DNA molecule mutation.

Return to Dilmun

A digital image is translated into synthetic DNA, using a special method. The picture information stored as biochemical molecules allows image retouching using the CRISPR/Cas method.The CRISPR/Cas system is a prokaryotic immune system, that provides adaptive (acquired) immunity against foreign genetic elements, such as bacteriophage genome injection. In the life sciences this system has been modified for efficient genome editing.

In two types of in vitro experiments we performed image manipulation at the level of molecules. In one we made experiments aiming on efficient on-target cleavage with full length guide RNAs (sgRNA), consisting of 20 nucleotides. In the off-target experiments we decreased the efficiency using sgRNAs with 15 and 12 nucleotides, making indel mutations visible. The original template shows a bull head with empty eye sockets. After translation into a DNA molecule a pair of eyes was inserted using CRISPR/Cas9 and fusion pcr.

The bull is a representation of a corn spirit (Frazer 1922) and was highly meaningful for early agrarian societies, particularly in the Fertile Crescent one of the regions of origin of the Neolithic Revolution, which was shaped by crop cultivation and animal husbandry (Nissen 1992). At the beginning of great civilisations a major cut-off from nature happens or rather an alienation from nomadic biorhythms and transforming the relation between humans and other forms of life drastically. Expelled from the Garden of Eden - Dilmun.

It may well be that humanity undertakes a further cut-off from nature by the possibilities which will be offered by the progress in applying gene editing tools like CRISPR which again alters the relation between humans and all the other forms of life, again drastically. Dilmun, as a real and as a mythical place of the Sumerian civilisation (Bibby and Phillips 1961), shaped by an exceptional biodiversity sunken in the Schatt al-Arab after deglaciation marking the beginning of the Holocene (Cleuziou, Tosi and Zarins 2002). Conceptions of immortality (ie. longevity), like captured in the Gilgamesh epos (Röllig 2009), fictions of a carefree existence without maladies, becoming perfect humans embedded in a perfect environment are being reinvigorated in the advent of CRISPR and the transformation of biology into a creative (in eine schöpferische Wissenschaft) science. The solution to all problems of humanity like climate change, environmental pollution, health, food-production, species extinction, energy production, etc., is expected in the manipulation of the living. On the background of the illusive idea of DNA as a code, waiting to be cracked,a problem emerges, concerning not only the representational model of the DNA but also our understanding of life itself.

Image 1. *Return to Dilmun*, 2017, Günter Seyfried / Roland van Dierendonck / Hansjörg Petschko / Federico Muffatto, mixed media - digital prints, DNA, CRISPR, PCR. (c) Günter Seyfried 2017

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MARGHERITA PEVERE

Anatomy of an Interconnected System

ABSTRACT

Global environmental crisis calls for drastic cultural shifts. In the frame of post-human discourses, feminist studies and New Materialism propose a radical critique of Anthropocentrism by bringing to the fore material entanglements and how they manifest in bioart and art & science. This paper adopts diffractive and auto-ethographic methods to analyze how the performative lecture “Anatomy of an Interconnected System” tackles materiality from the perspective of artistic research. It aims to contribute further by studing the roots of Anthropocentrism in Western art history and tries to answer the question “How can materiality help overcome representationalism?”

Acknowledgements

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KEYWORDS Art & science, bioart, performance, art history, artistic research, materiality, environmental humanities, diffractive method, human-(N)ature complex.

INTRODUCTION

This article gives account of how entanglements that emerged during the first year of my practice-based PhD in Artistic Research within and outside academia provided meaningful research material. It describes the commission for the performative lecture “Anatomy of an Interconnected System”, which was initially not included in the PhD, and a working period as a tour guide in Berlin major art museums. Academic research, artistic practice, and socio-economical positionedness mutually affected each other both at a material as well as at a theoretical level.

My PhD research in art looks at the intersections of art & science, performance, and bioart. It features two art & science projects (to be realized in 2019), one involving GMO bacteria and DNA data storage, the other one sexual hormones and pollution. The research explores these fields for their relevance in light of the current global phenomena of a growing environmental crisis on the macro scale, and wide-spreading use of biotechnology on the micro scale, and aims to generate insights into the relational ecology of humans and nature, what I term the *human-(N)ature complex*.

Image 1. Anatomy of an Interconnected System, at Casa Viva Gallery, picture by Cecilia Vilca, 2018

The research borrows Radomska's reading of materiality as characterized by a "provisional character of boundaries between entities" (Radomska 2016: 36) and the feminist understanding of the body as an entity that is ontologically leaky (Shildrick 1997). Such concepts suggest, on the one hand, how bodies inherently exceed borders that are culturally assigned. On the other hand, they point at an inherent openness to contamination: life happens on the liminal plane.

The discourse on materiality in art practice draws further on art historian Giovanni Aloi's research on animals in art and post-humanism. As we will see later, Aloi suggests to move beyond critique of the representation, as it is tightly related to an anthropocentric view of the world. Rather, an abrasive involvement with (living and non-living) materiality can ontologically relocate humans and align them with other non-human entities, mutually exposed to each other's agency (Aloi 2017: 149).

I performed "Anatomy of an Interconnected System" in the TTT satellite event "BioCuerpos Perfor|m|ados", organized by the Grace Exhibition Space in collaboration with Casa Viva Gallery, Paranoid Visions UTA and Anemonal, curated by Adam Zaretsky and Alejandro Chellet. This article completes my conference contribution by providing insights into the entanglements across the performance, the work in the museums, and the PhD research.

METHODOLOGICAL NOTES

As outlined above, different experiences entangled during the first year of my PhD. In order to give account of such entanglements, this paper adopts the "diffractive method" proposed by feminist scholar and theoretical physicist Karen Barad (Barad 2007). A diffractive method is linked, here, in the inherent openness of artistic research, auto-ethnography as method of giving account, and situatedness in knowledge production (Haraway 1988).

Inherently transdisciplinary and experimental, my doctoral research presents multiple border violations (Borgdoff 2011: 45). The first violation lies in the work of the artist-researcher inside and outside the academia, making art and critically writing about her own process. The second violation refers to the challenge of bridging languages and paradigms between artistic and scientific disciplines in the field of art & science. The third is the artist working in the studio and in the scientific laboratory, creating both a clash in paradigms, embodied practice, protocols, and rituals. The research adopts auto-ethnographic narration to discuss singularity and particularity of the process (Hannula, Suoranta and Vaden 2005: 97).

Suggested by feminist scholar Donna Haraway and fully expanded by Barad (Barad 2007: 71), a diffractive method refers to the optical phenomenon of diffraction and counters the established metaphor of reflection, which is based on mirroring and sameness of waves. Diffraction, instead, is marked by pattern of difference and implies interference and superposition. A diffractive method

involves "*reading insights through one another*" in ways that help illuminate entanglements as they emerge (ibidem: 30): how entanglements are made and how they matter. It emerges that diffraction is rooted in relationality, and critically moves beyond cartesian dualities such as subject-object of research.

In this paper, the diffractive method helps reading how "Anatomy of an interconnected System" traverses my PhD research on materiality, leaky bodies, and the human-(N)ature complex. Moreover, it clarifies how a non-academic, socially determined experience outside academia contributed to expand the understanding of the role of materiality and agency through art history as well as my own artistic practice.

ANATOMY OF AN INTERCONNECTED SYSTEM

The piece is structured through a lecture and a participative performance, playing with ritualistic elements of the figure of the artist researcher working both through academic presentations as much as through artistic action. The lecture stages a conference set-up, with a 15 minutes-long presentation with a slideshow followed by a Q&A session. The wall behind me is black. I present a selection of artworks from the Middle Ages, Renaissance, Romanticism, 20th Century, and bioart. By comparing different ways humans characters are arranged within the artworks, I analyse which kind of agency such arrangement implies.

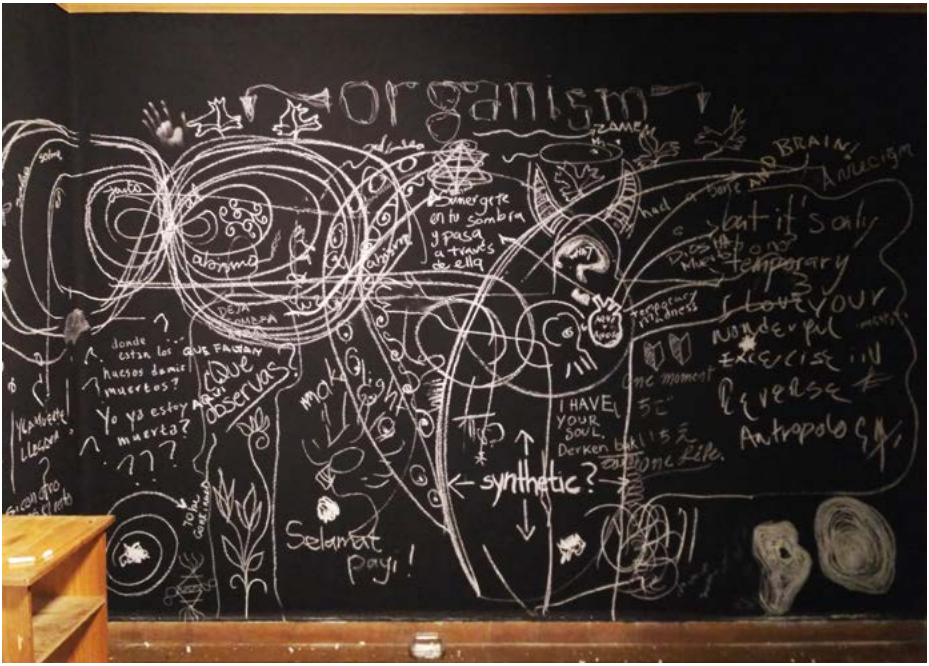

Image 2. Anatomy of an Interconnected System, at Casa Viva Gallery, picture by Margherita Pevere 2018

After a short break, I enter the space again, dressed in a long black skirt. This part of the piece implies non verbal communication and I guide the interaction through gestures. In different spots of the room there are previously prepared props: soil, animal bones (from my own collection: sea turtle, moose, horse, fish amongst others), a cotton cloth stained in blood and ink, and white chalk. The cloth is sculpturally crumpled and I try to disentangle it, but its size makes the process difficult. I then reach the soil, where I previously buried white animal bones. I excavate the bones, use them to measure my own body, smell them, caress them, and donate them to members of the audience.

Carrying soil in my hands, I walk to the black wall, stand facing the audience, and eventually drop the soil on the floor. I take a piece of chalk from the floor and, with a circular gesture, mark the size of my own body on the wall. I give a piece of chalk to one of the audience member and invite her/ him to mark her/ his own body as well. Because there is no verbal communication, this moment usually implies some moments of silent suspension and interrogative stares, which quickly turn in spontaneous interaction. I offer chalk to other members of the audience: they become increasingly involved, draw on the wall, on the floor, outline human bodies and animal bones, draw lines on my skirt and their own clothes. When the black wall is filled with drawings, I collect the bones from the audience and bury them again under the soil. The performance ends.

Image 3. Anatomy of an Interconnected System, at Casa Viva Gallery, with the house cat and the fertile soil from Granja Ecologica Tliculli, Mexico City, picture by Hege Tapio 2018

1st DIGRESSION: NON-HUMAN AGENTS | ANIMAL BONES, SOIL, CHALK

Two digressions are necessary to understand how the context surrounding "Anatomy of an Interconnected System" contributed with novel questions and insight with regard to materiality. The first digression recounts the 2017 commission by Regine Rapp and Christian de Lutz, curators of the art & science research platform Art Laboratory Berlin. Rapp and de Lutz are experienced and influential actors in the art & science scene based in Berlin, the city where I also live, and the commission is part of an ongoing theoretical and practical dialogue they nurture with international artists and scientists in the field, including myself.

They invited me to develop a workshop or performative session for their program *Nonhuman Agents*, taking on new materialist and post-human discourses from a postanthropocentric perspective (de Lutz and Rapp 2017). We initially agreed on a seminar on "key concepts in the history of human relationship towards nature and how these have influenced society, religion and knowledge production […]" which would engage "the audience in a performative discussion with a visual outcome" (from email to Rapp and de Lutz, 17 Jan 2015). The piece should be a performance featuring earth and bones. A collective "anatomical" mapping woud manifest the exploration of body and space and relationalities emerging during the performance.

The ideas behind the piece move from critical exchange that Rapp, de Lutz and I had on the biases of the concept of the Anthropocene, its impact on environmental studies, culture, and art practice. The reasoning behind the concept suggests that marks left by human activity after the industrial revolution would be traceable by future geologists. On the basis of that, it calls for a differentiation from previous geological epochs (Steffen et al. 2007). However, the term does not take into account how resource exploitation, fossil fuel consumption, and gas emission are hugely uneven amongst human cohorts, while their consequences are global. International negotiation on climate and environment tracks decades of diplomatic effort to temper such inequality, with too little results as of today. The concept of Anthropocene is based on the assumption that *anthropos* is affecting the world with long-lasting consequences, but *who is anthropos*?

As Haraway points out, the idea has contributed to a discourse "*that is tenaciously anthropocentric"* (Haraway 2015: 160). The debate around the term involves the critique to a series of topics such as eurocentrism, racism, sexism, Nature/Culture, and capitalistic exploitation rooted in the distribution of power traditionally embedded in society. At the same time, it raises questions on "How do humans fit within the web of life" (Moore 2016: 2). I argued that the term "Anthropocene" is a Synecdoche, a figure of speech, in which a part is made to represent the whole or vice versa, and therefore conveys a specific view of the world. Part of the preliminary research for the new piece would look at the development of Anthropocentrism in Western art from the past centuries.

2nd DIGRESSION: GOLDEN LEAF, BASALT STONES, AND UNCOATED CANVAS

The second digression refers to my own situatedness as a researcher: my first year of PhD (2016-2017) was not funded and, in order to cover my expenses, I dribbled through artist fees and freelancing work. The latter included guided tours for the educational agency Berlincolor (Speccher and Gambaracci 2016) in three Berlin art museums: the Hamburger Bahnhof – Museum für Gegenwart, devoted to contemporary art; the Gemäldegalerie, a collection of European painting between the 14th and 18th century; and the Brücke Museum, dedicated to the early German expressionist group *die Brücke*.

The audience were groups of Italian high school students on school-trips to Berlin. During their stay, they would visit places related to the complex history of the city and attend initiatives bridging German and Italian culture. As most Italian students of their age, many of them had limited knowledge of contemporary art. I could refer to that as I have myself completed my college studies in Italy: usually, school programs cover art history until the early 20th century and investigation of recent art practices depends on individual curiosity. Taking into account such combination of factors, my presentation adopted a comparative approach between Italian and German culture and art history.

Image 4. Cow bones prepared for the performance by Dalila Honorato and Marta de Menezes

The artworks displayed in the three museums present great diversity in terms of style, technique, and context. My presentation aimed at tracing links across the collections as to involve the students in an embracing discourse rather than feeding them a series of unrelated information. I did so by giving a general overview of each collection and then focusing on selected works. Suggested interpretative cues, which could match both my own research interests as well as the curiosity of young students: philosophy, technology, and environment.

Part of my guided tours in the Gemäldegalerie focused on the different approach to the construction of space in late Middle Ages and Renaissance painting and the different philosophical ideas underpinning it. Although the scholarly debate about the boundaries of both epochs is still vivid, it is possible to outline a few unifying elements for each of them.

Middle Ages art is highly stylized and symbolic, and the pictorial space does not aim at representing real space. In painting and mosaics, bidimensionality follows for the prevalence of spirit on matter of Aristotelian and Christian origins, and the golden leaf background emphazises the spiritual nature of the space. Accordingly to the hieratic proportion, characters are distributed following their hierarchical relevance: Saints and Madonnas are depicted larger and more central than subaltern human characters as in Santa Trinità Madonna by Cimabue (Bollati 1983; Castelnuovo 2002). Late medieval painters, such as Duccio, Cimabue, and most notably Giotto di Bondone, innovatively added weight and mass of bodies in space, making them three-dimensional with light and shadow. The three-dimensionality and "naturalism" of Giotto's characters suggest a novel dignity to human bodies, as can be seen in his Dormitio Virginis 1310 (Hadten 1996).

To a certain extent, the three-dimensionality of the bodies in Giotto's painting anticipates values which would be fully developed during Renaissance. The term Renaissance itself suggests a cultural rebirth after a previous age (Middle Ages) whose beliefs are considered decadent. Inspired by the classics, Renaissance humanist thinkers put a central emphasis on human realm with a focus on civic values (Nauert 2006). Knowledge can be pursued via rational thinking, rather than religious belief – paving the way to the development of the scientific method in the following centuries.

Linear perspective is one of the major artistic innovations of the Renaissance and embodies the humanist understanding of the world. For Renaissance artists, a picture can be understood as if it were a window at eye level to look through and the pictorial space reflects a geometrical principle. All objects within such space are proportionally scaled according to size and distance from observer and infinite horizon (Panofsky 2002). The (human) observer's gaze becomes relevant, and with it the active spatial participation. In this sense, the painting Architectural Veduta by Francesco di Giorgio Martini exemplarily displays an ideal place as seen from the viewpoint of an observer.

The variety of the works in the collections of the Brücke Museum and the Hamburger Bahnhof required a further effort in order to be embraced in the dialogue I had in mind for the students attending my guided tours. How to talk, in the same day, of expressionist woodblock printing and the relation between public space and animal fat in Joseph Beuys' oeuvre?

Die Brücke (Germ. for the bridge) collective of the early 20th century based its practice on a bold refusal of bourgeois and academic values. Members lived in communites alienated from society and with a tight relation to nature. They embraced pre-academic art forms such as woodcut prints and a – as they called it in those days – "primitive" painting approach, with sharp lines and heightened colors recording the artist's emotions. Along with the group "Blaue Reiter", die Brücke is acknowledged as main representative of German expressionism (Heller 2009).

The Hamburger Bahnhof features influential art movements after 1960 including pop art, conceptual art, and Arte Povera, with works by Andy Warhol, Robert Rauschenberg, Nam June Paik, Cindy Sherman, Anselm Kiefer amongst others (Göckede and Schnitz 2004). A large focus is also put on German artist Joseph Beuys, who confronts the traumas of recent German history through multiple strategies including performance with living animals, sculpture, and social and environmental engagement. Most notably, his work "The End of 20th Century" from 1983/84 (which refers to his large project "7000 Oak Trees" in Kassel, during 1982 – 87) aims at reconciling with German identity through the artist's action. The artist poetically transforms the heaviness of basalt stones piled on a public space into an ideal forest, a founding element of German culture, by planting oak trees together with basalt stones that were transported to Kassel from several stone pits in West Germany.

The link I chose between expressionist works at Brücke Museum and Beuys' works at Hamburger Bahnhof was materiality. Amongst others, I showed the students how the raw treatment of the uncoated canvas in the painting "Badende Maedchen" ("Bathing Girls") by Otto Mueller (1921) might hint at an exploration of the expressive potential of the material *per se*, which somehow anticipates the straightforward use of materials by Joseph Beuys (and Robert Rauschenberg and Anselm Kiefer, although with different intentions). The canvas of expressionist painings is not virtual, flat, or transcendental any longer. It is pulsating, abrasive, recalcitrant (Aloi 2017). The materiality of canvas and brush strokes anticipates the physical labour of the artist with vibrant materials such as felt, stone, and living animals.

MATERIALITY AND REPRESENTATION

Drawing from his research on animals in art (Aloi 2012), Aloi proposes a reading of art history that moves beyond critique of the representation which helps frame the observations of the previous paragraph in a post-human perspective. He suggests how the materiality of the animal body is not only present in the work of artists who directly involved living or dead animals such as Joseph Beuys or

Robert Rauschenberg. Instead, such materiality is widely present in classical art materials including primers (based on rabbit and fish derivatives), brushes (made with hair of various mammals), and pigments (obtained from insects or seashells). Both art critique as well as animal studies has extensively overlook the latter: "Most scholarly critique of the representation of animals in classical painting has focused on form, style, and composition. In both instances, attention has been paid to objectification or presumed 'liberation' of that which has been traditionally subjugated by the anthropocentric, patriarchal tradition of classical art." […] "The inclusion of visible animal bodies within the materialities of different artistic media constitutes one of the most important revolutions in the history of art materials and art criticism because it constitutes the first, serious opportunity in art to think about non-man-made materiality beyond the symbolic registers of representation" (Aloi 2015: 10). Aloi's critique takes on Cary Wolfe's call for a new position for humans in a universe that is populated by non-human subjects, rather than demarginalizing animals (Wolfe 2010). On the basis of this, he "traces a geneaology of materiality in the histories of classical, modern, and contemporary art to explain how the recent philosophical waves of [Object Oriented Ontology] and New Materialism have substantially shifted attention to new materialist conception of matter as recalcitrant: a subversion of the traditional definitions of agency, resistance, and power in art. From this perspective, materiality becomes a provocative ontological problematizer, mapping a dimension of undeniable bio-traces that relentlessly gesture towards new and urgent registers of ethical realism. It is in this sense, that art with a posthumanist focus considers the corporeality and the place of embodied humans and animals within a material world defined by interconnectedness of bio- and eco-spheres" (Aloi 2017: 143). Whereas representation might *reflect* a specific understanding of the world, "recalcitrant matter" and "undeniable bio-traces" do not. Rather, the latter embody relationality of humans and matter, living and non-living, whose entanglements manifest in the work of art through its own materiality.

CONCLUSION

The first year of my PhD was crossed by overlapping and divergence across the performance "Anatomy of an Interconnected System" and academic research: what new questions about and insights into Western anthropocentrism emerged from them? A critical reading of materiality suggests a continuity between Western Anthopocentrism and an underpinning neglection of material entanglements in Western art history. Art practice might contribute to subvert such neglection by recentering abrasive materiality instead than reflecting symbolic relations. In today's context marked by surging environmental disruption, further problematizing materiality of bioart and art & science might help understand the complex relationship of living and non-living matter, and provide critical tools for a long-term ethical shift.

Image 5. Anatomy of an Interconnnected System at Art Laboratory Berlin, picture by Tim Deussen 2017

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ALEX ROMANIA

Undomesticated Meat-Sludge from the Divine Beyond

ABSTRACT

Over the past three years my performance work has researched nonsensical and associative trance states of language and action to examine the use and uselessness of nonsensical encounters while my work has been growing towards a multidisciplinary video-centric medium. The presented work at TTT 'Whoops' utilizes DIY hacked analog AV broadcast boards and nonsensical live performance to investigate connections between nonsense in seemingly intentional spaces. It mines a space of television hypnotism to meditate on the confluence of warped information digestion and broadcast media, especially in relationship to the phenomena of the 'fake news' wars, and the current hysteria of nonsense, infecting political and daily spheres in the USA.

'Whoops' travels into the space of nonsensical and absurd reckonings with its subject matter while exploring practices of accumulating nonsensical language and tasks performed in associative states, informed by text based research, autobiographical trauma, and experiences with the force-fed societal teachings. 'Whoops' explores utterances of this low-brain state, with the use of circular, associative speech and the potential of exhaustion to expose a decrepit ego-state. Parallel to this talking score, actions examining navigation systems in the body, working at the edge of ability, are rigorously explored. Inside the performance of 'Whoops', these actions develop at the impulse of the performer, cyclically confronting the abject body through scores in conjunction with video content played live and repurposed objects found in or on their way to the trash.

The 'whoops state' is the (un)intentional claiming of stupidity, ignoring of facts, or blatant lying to manipulate (public) perception whereby to avoid accountability of wrongdoing, in the interest of self-preservation or self-gain, negatively impacting individuals, the (global) public, and/or Earth, and potentially catapulting either towards demise. My investigation of the 'whoops state' responds to national and global shortcomings through failing leadership, and seeks to dismantle accountability evasion utilizing my cis, white, male-presenting body to critique and nullify the toxic forces - 'whoops' and otherwise - of white supremacist violent patriarchal masculinity.

KEYWORDS Performance art, whoops state, nonsensical language, autobiographical trauma, violent patriarchal masculinity, low-brain state.

At the end of the second performance event, a colleague approached me and told me that after seeing me perform, they couldn't wait to hear my presentation. They said the title 'Whoops', was very vague, but caught their interest. At this moment, I learned I would also be presenting a talk during the conference, and was a bit thrown off guard. I thought of cancelling my talk, but I was excited to have another opportunity to share amongst the artists and scientists I had been meeting throughout the week.

Over the course of the opening day of the conference, I sat in on various talks about experiments artists were making with microbiomes, some of which I'm sure are catalogued here. It was a point of interest for me - it just so happened that I had come to Mexico City that November having spent the better part of two years trying to eliminate Bartonella, a Lyme disease related coinfection, from my body. Thankfully, that fall was one of the first times in many months that I was able to exist essentially symptom free. I thought it was interesting that so many presentations were made about microbiomes, but that I had not heard any presentations speak to how microbiomes could affect one in unintended, parasitic or negative ways. I had enjoyed the explorations of blossoming new artistic relationships with microbiomes, however, my own experience with the microbiome Bartonella seemed to be very different.

While I was sick with this chronic disease for almost two years, I experienced an onslaught of symptoms that deeply challenged the vitality of my life. Most present was a persistent physical exhaustion that I could never have imagined, accompanied by unpredictable locking of certain muscle groups, insomnia, intense depression, an inescapable out-of-body experience, general confusion and forgetfulness, lack of libido, heightened OCD and anxiety, a sort of dissociation with myself, and when it got really bad I was hearing voices and having intrusive thoughts. I didn't do much of anything for 18 months besides lay in bed, go to work, lay to bed, and drag myself out of bed to make my art. While in bed I watched countless horror and sci-fi films, and thought a lot about the corrosive qualities of (broadcast) media that seemed to be one half of a feedback loop catapulting humanity further towards the apocalyptic cinema I thought was supposed to be just fantasy. In my recovery from Bartonella, I spent a lot of time contemplating this durational sick space, and its relationship to the sickness of the governmental body in my country, the USA, and a sort of sickness of false news landing the USA in what I think is an all out epistemological crisis.

After briefly presenting about my previous thoughts, I read the following text in a style similar to a religious chant. The text comes from the experience of existing in the incomprehensible space of sickness I found myself in for the better part of two years, which was built from smaller, phrase sized pieces of language that I wrote to myself in emails throughout this period. I was able to assemble and assemble this text in September 2018 at Tofte Lake Center, by the boundary waters in Minnesota, during an artist residency supported by the Jerome Foundation. I think the text speaks for itself.

Image 1. Alex Romania, at Casa Viva, Mexico City, 2018, photo by Emilio Pheres

Image 2. Alex Romania, at Paranoid Vision UTA, Mexico City, 2018, photo by Kira DeCoudres

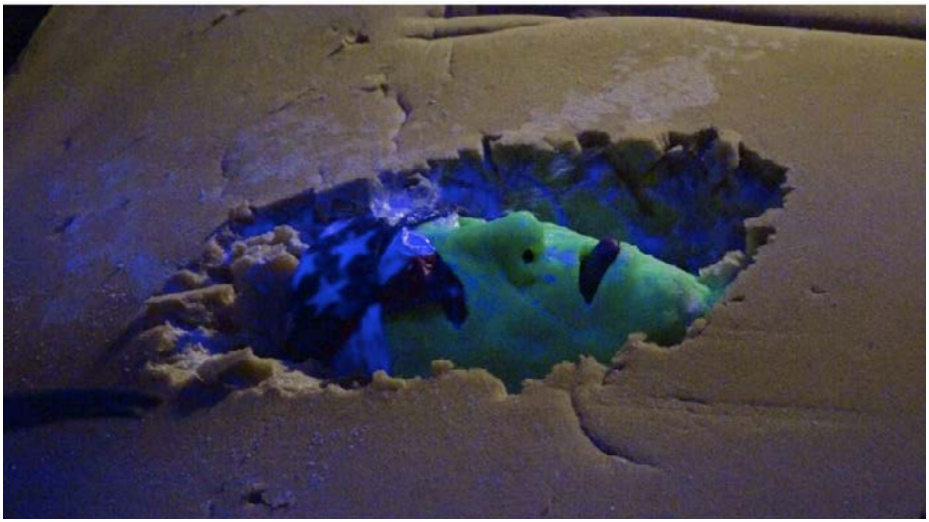

Image 3. Alex Romania, at Casa Viva, Mexico City, 2018, still from video by Anna Pevear

renderings of epistemological crisis from the divine beyond

emboldened sausage of the divine beyond
corporate mother of the divine beyond
show me the way out to the divine beyond
i wasn't a tyrant but i wasn't really a wonder either before the divine beyond
let me copy you in the divine beyond
we could go down together to the divine beyond
i could be reborn as myself in the divine beyond
i could stain this spot with the best moments of my life so I could find it in the divine beyond
i think i could finally be better than anyone else in the divine beyond
i want to be nothing but nuclear ecstasy in the divine beyond
i wanted to do be better in the divine beyond but it's hard for a CEO to suddenly become a secretary to the divine beyond
yes i would have quit if i could but as you know it's scary to be a monster in public in the divine beyond

oh sausage priestess from the divine beyond
at days i drove down streets searching for the divine beyond
i had a secret, submerged in light, smelling of pisspunch, searching for god i would stare at the computer screen
i knew i had made it because everyone was responding to my emails
irrevocable truths of the divine beyond
i watched it leave to the divine beyond
things get lost in the divine beyond
justface the hyper-deep-reality of the divine beyond
last chance already in use in the divine beyond
i shouldn't trust my judgement there is still something stuffed down my throat from the divine beyond
cream. fluid. flesh. blood. low-waged inappropriate laughing.
look over here - a lot of untrue statements from the divine beyond
BOOM. a delightful empty … and culture! in a cube
things must be impressive in the divine beyond
please, one at a time in the divine beyond
i've gotten lazy television face from the divine beyond
i am living in missings having conversations underneath doorways in the divine beyond
longing to touch electric you of the divine beyond
i have become tongue soluble in our mold sessions a dry heap of nonsense of the divine beyond
slightly fat in the divine beyond

pleasantly dumb in the divine beyond
neatly dead in the divine beyond
no solace in the dungeon of the divine beyond
but my life didn't stop in the divine beyond
the body was never well it is a fantasy of the divine beyond
I scared you out of your skin to the divine beyond
and in taking someone discovered everywhere control from the divine beyond
as a limp blip of existence, i am the aesthetics of your life; the divine beyond
the true truth humped onto the face of the earth from the divine beyond
i ate myself clean into the future-pits of the divine beyond
now i try not to think about the approaching doom of the divine beyond

let me touch real capacity - the internet crushing boundaries of the universe
i want to be forever in the divine beyond
have you considered a laxative from the divine beyond?
wisdom goddess of miraculous tupperware from the divine beyond?
surgically implanted second asshole from the divine beyond?
something to round out the impact wolves from the divine beyond?

i thought they would destroy me much faster in the divine beyond
i haven't been myself recently standing in waist in the divine beyond
so what do you look like throwing away art 'cause i let it get messy in the divine beyond
watching the walls around us like none other thing i looked to earth to decompose
no, no moment is complete in the divine beyond

if i could let you go
devouring the cost until you're too awful to be listened to anymore
you will consume us
laying on the ground in the divine beyond effortlessly hacking tomorrow mental unwealth
you have displaced yet more of the universe to the divine beyond
this is the last time a death dance threw out my brother to the divine beyond
nevermind something that can devour itself
i stole your problems in the divine beyond
been here for years as an indistinguishable parasite of the divine beyond
living off fears mesmerized by the grotesque poetic supernovas of the brain

such a strong hunk of intellect from the divine beyond
scentless voyager exploiting experience from the divine beyond
two halves of my body round with the crumby delicate tough ration of matter
it would hear me if life were down there in the divine beyond
a meandering duet with a ghost of the divine beyond
it kept panting in and out stop waking me up this is a protest
do you want this out of shape jawfist?
i'll give you a new mouth
i'll give you a meat sloshing
no, i didn't stop the literal fights of the divine beyond
hatred is a horse of enterprise in the divine beyond
so apply to this limited defense of the divine beyond
and hopefully they just won't be here when you arrive to the divine beyond
the television never shut off in the divine beyond
i am having a psychedelic experience taking a shit in the divine beyond
am i winning in the divine beyond?
tell me i'm winning in the divine beyond
because complete digital interface entitling the human garden's absorption to beloved machinery
barrels toward the future orbit; the synthetic glow of the divine beyond

but not everybody's doing this meat grinder of the divine beyond
oh junkhead of incomprehensible die it
give up now before you become a crayon drawing of yourself
though maybe one day that will be all that's left and someone will find it
and they will think
'those pants look nice'

okay evasive action of the divine beyond
why don't you just not mean anything in the divine beyond
i was distracted by the tournament when i signed the attack from the divine beyond
too much leadership behooves therapy strategies of the divine beyond
i got pregnant from my television in the divine beyond
and it calmed me down
try fader control of the divine beyond
let's clear a space for you in the divine beyond
take up only a little attention in the divine beyond
find your own palace of discomfort in the divine beyond
repeat to yourself 'i just want the body from the divine beyond'
keep questions inside of myself condemned to the divine beyond
you just have to trust that it is going nowhere in the divine beyond

it's just because the way you are in the divine beyond
you talk a big piece of texts
someone wiggling their tongue
morphing sound until there is nothing left that i can hear but the divine beyond
fake advertising of the divine beyond everywhere and nowhere mouthing through the glass;
a big doll with specific violent tendencies falling asleep on the ground in the divine beyond
trust me you're not saying anything from the divine beyond
we are but a smear in the fabric of the divine beyond
shouting into the far reaches of the internet
i want to rub my leaking catch into yours
seeking broken cocks from the divine beyond
weak men only from the divine beyond
tolerant disasters of the divine beyond
i chose to go from myself to myself in the divine beyond
existing on a thin edge i ran away to suddenly have been nothing in the divine beyond
too much beauty to do my job in the divine beyond
spinning to stay put in the divine beyond
i might not want to stay in my cave but i don't want to listen to the divine beyond
so i'll manage more technology from the divine beyond
to make a semi-cathartic bleach-tide for the divine beyond

you don't have to believe that plastic will never end
but can't you just put some of your shit upstairs in the divine beyond?
or is the world always you in the divine beyond?

and about tomorrow
if everywhere sipping on face
burnt context
traumatized the white children from the divine beyond
keyed to neverland
gently wandering over a bunch of nothings
let it all be Joe-the-you from the divine beyond
unappreciated just the most necessary wastefuls from the divine beyond
drank not very deft homemade meat juice from the divine beyond
went to school on a saturday night on christmas
slaughtered the undomesticatable meat sludge of the divine beyond
mastered magic
hit things at audience members one at a time

tumbler snapper as buster jangle
trimmed bastard-buster's dangle
you could probably summon dollops
of instantaneous goop
from down low in the divine beyond
and hit your face with your own face

but disappearing act
this wasn't your fault wasn't this
because i found it on the internet in the divine beyond
and selfishness has no limitations in the divine beyond
we've been waiting for you in the divine beyond
i would squeeze every last drop from you in the divine beyond
to mushroom a door of perception i smacked you out of your head beyond misunderstanding
i thought you might be capable of enlightened human headcheese
and limited action couldn't compare with face sucking
so i spit acid out of my eyes just to see how you would react in the divine beyond
i dug in a clinical worm-hole of the divine beyond
whispering winks of directorial laze
there was no escaping my grip from the divine beyond
tradings of democracy pool and backwater acid
this is swapery but please not my phone from the divine beyond
i typed over what you wrote
the constant broadcast from the divine beyond
enough answers from the divine beyond
brewing in exile makes you think death don't ignore vacation in the divine beyond
i am drinking your marrow of the divine beyond
i am a sorrowful ghost of the divine beyond
i am low budget ass of the divine beyond
only at the very end of breath was there enough missing someone to care from the divine beyond
whoops the divine beyond
the wine of this man was glorious
too bad i drank it all in the divine beyond
where are you god-judged-TV-pregnancy-baby of the divine beyond?
there's now many incentives to love you in the divine beyond
but i'm a fake person in the divine beyond
and i don't understand you in the divine beyond
i am cluttered brain of the divine beyond
i am broken hull of the divine beyond

oh spell-correct of the divine beyond
just tried to make the performance better for you in the divine beyond
i am a horror movie of the divine beyond
twisted just a bit for the divine beyond
no stopping in the divine beyond
i am a spoonful of glory in the divine beyond
everyday i try to die a little bit more in the divine beyond
as long as i fulfill my quota to the divine beyond i am lost in the divine beyond
i just want to sleep monitored by the government in the divine beyond
maggots from the divine beyond you will consume us
this is pure business in the divine beyond
being human: we live off other people's lives in the divine beyond
beloved body of the divine beyond
pathetic spectacle of the divine beyond
it happens in here in the divine beyond
a bit navigate to difficult in the space-time emoji continuum of the divine beyond
life-slop of the divine beyond
feels like it's dead
i shouldn't fall in love with it at least in front of you in the divine beyond

duh

bless the sidewalk of the divine beyond
brainlick the many new satisfactory genius from the divine beyond
play games of government brain and plunger orchestra
and stare into tomorrow's transcoded righteous signal from the satellite of the divine beyond:

Why the fuck did you park the car behind me? Move the fucking car.

be in the space as if it hurts to have never happened
sell everything and be nothing in the divine beyond
bringmeanoutfitfromthedivinebeyond.com

i am the only living man from the divine beyond, i might as well be god at it
want to wander in the divine beyond?
all we ask is that you love they that seem endless oblivion
all we ask is that you love they that seem endless oblivion
all we ask is that you love they that seem endless oblivion

SHARRY TAYLOR - EFRAT GOLD

Madness and Individualism: Unravelling in Crazy Times

ABSTRACT
What does it mean to be “out of your mind?” In fact, what is a mind and was it ever yours to begin with? Contemporary capitalist relations and practices invent us as atomized individuals, responsible for our own material conditions as separate units that participate in economic practices through labour and consumerism. In other words, we are all rendered individuals as a necessary condition of capitalist ideology, which at the same time responsibilizes the material consequences of a traumatizing and alienating system to individuals. The realities of poverty, race, and class oppression, just to name a few, can be crazy-making, yet when people struggle to survive, they are diagnosed as mentally ill - the result of a biological chemical imbalance in their brains. How have our understandings of the crazy, insane, or more recently, mentally ill shifted over time and how have these changes been informed by our systemic contexts and the hyper-individualism required to maintain oppressive relations? And in what ways has mental illness been constructed into a biomedical model which does not account for systemic injustice? This paper will explore these questions and put forth a consideration for integrating our biological and political knowledges of the human condition, countering hyper-individualized constructions of mental illness with community-based biological understandings that we have never, in fact, been individuals.

KEYWORDS Psychiatrization, capitalist social relations, individuation, hyper-individualism, embodied cognitive science, enactive cognition, rebellious bodies, relational valence, agency, antipsychiatry, trauma.

INTRODUCTION

Does a gut bacterium have agency? Insofar as it processes, malfunctions, or diligently fulfils its role, sure. In other words, within the confines and limitations of its environment and its rules, maybe it does. Yet gut bacteria exist within a larger system that limits this agency. Gut bacteria are contextualized, co-dependent, and embedded, and vulnerable to complete extinction if certain conditions are not present.

People have a sense of themselves as being individuals with agency, but how much is this actually true? In fact, we operate in social arrangements all the time, and even though we have freedom of movement as bodies, we in fact are more social and connected than we are not. Is the unit of analysis "individual" useful, if we are in fact almost always in relation; never really ever alone? Yet we are so consistently reinforced as discrete units of separated flesh that we think first of ourselves as individuals.

At least one of the reasons for this is that under our current capitalist system, we are pre-conceptualized as individuals in order to be members of what is called the free market: people with freedom of choice, freedom of movement, freedom to engage in labour, freedom to detach from the fruits of our labour and be remunerated in money-form, freedom to buy things. An individual body is the smallest unit that humans can be "usefully" broken into (from the perspective of capital). As such, the individual is the perfect unit for a system like capitalism, which requires endless growth. This is since as an individual, a one-person unit, we are able to participate in capitalism maximally. A capitalist utopia would have every person living alone, in a separate dwelling, not sharing anything with anyone—neither sharing a fridge, a car, or a bed. This is as much because as a one-person unit, we are more free to labour, unencumbered by social acts of love and care, as it is because as an atomized individual, we must buy more things and services.

If this sounds nightmarish and traumatizing, it is. And yet the need for capitalist growth would have us go to that extreme if we didn't resist it through our need for sociality, relatedness, touch, and love. Yet the pressure to be an atomized unit is everywhere and accelerating in intensity with technology. A hyper-individual is what social media inspires us to become (Duroy 2017). The word "social" belies the enculturation of narcissism embedded in being prompted to report what you are eating, what you are wearing, where you are, who you are with. Our perspective shifts under the gaze of "the other" that we increasingly see ourselves through even in real time; losing our self-consciousness to a curated, outward-facing version of ourselves. This is not disembedded from capitalism, since even as you use a Facebook platform to report on your latest meal, you are providing free labour that builds the Facebook empire (Briziarelli 2014), allowing it to sell advertising that is then displayed for you, especially selected for your particularized demographics, key words used, locations, and social network embeddedness.

It bears mentioning that capitalist social relations are always power relations in which there is a winner and a loser. This is because in order for there to be accumulation, there must be dispossession. Whether it is loss of land through primitive accumulation (Marx 1990/1867: 506-509)—land grabbing like we have seen in Mexico with the loss of Ejido lands to multinational agribusiness and mining companies (Sassen 2010; Mollett 2010), loss of free and downtime through work intensification, or loss of money through depressed wages or increased prices, dispossession and accumulation are dialectical. For one person to declare ownership of a thing, they must first conceptualize themselves as a separate entity from all others, and then they must be able to define all others as NOT owners of the thing. This is why we continue to see a rise in global inequality, with the richest 62 people possessing as much wealth as the remaining 50% of the global population (Oxfam 2015).

THE TRAUMA

The trauma caused by exploitative capitalist relations materialize in a myriad of ways. In their work on inequality and health, Wilkinson and Pickett (2006) used income and wealth differences between and within countries to show that many health and life quality measures, including "physical health, mental health, drug abuse, attained education, imprisonment, obesity, social mobility, trust, community life, violence, teenage pregnancies, and child well-being [are] significantly worse in more unequal countries." Capitalist relations must be able to entangle with others during moments of exploitative interactions such as through work, wages, and product purchases, but disentangle before the negative consequences of exploitative relations are incorporated into the relationship. In the same way that capitalist ventures attempt to enclose around all profit and externalize all costs, traumas big and small are externalized and responsibilized to the affected individuals. The temporal relationship between exploitation and awareness of exploitation has been completely obscured by algorithms which swiftly exploit and seamlessly, digitally, invisibly, become debt, appearing as a responsibilized burden on a bank statement (O'Neil 2016).

Individuating and responsibilizing debt is harmful to health in a number of ways. Even though debt is in fact a capitalist imposition further exacerbated by profit-making through interest, American researcher Elizabeth Sweet's (2018) work illustrates that people often internalize the feelings of responsibility for debt, and that this internal attribution for debt leads to significantly worse health across a range of markers, including higher blood pressure, waist circumference and body mass, physical, sexual, and emotional symptoms, and higher self-reported feelings of stress, depression, and anxiety.

It is not only through these means that distress and ill health become constitutive of capitalist value. It is also through the objectification of bodies who cannot or will not participate in capitalist value production through their work. If you are too sad to get out of bed and go to work, or too anxious to be maximally

productive, you may find yourself an object of capitalist accumulation through the institution of psychiatry.

Disability studies scholar Nirmala Erevelles (2011) called disabled bodies "rebellious" in their absolute refusal to participate in capitalist social relations through engagement in work. We are so captured by capitalist imaginaries that it is difficult to conceptualize of a body that cannot participate in work as rebellious. We think of that body as dis-abled; unable to participate in something in some important way. Yet non-participation is an act of resistance, even if this resistance is the only choice. Through psychiatry though, a rebellious mind; a less "productive" mind, a non-participatory mind can be re-imagined in such a way that it can itself be a site of accumulation (Cohen 2016: 31). Defined into existence through psychiatry, sadness becomes depression; an individuated and endogenized illness which by being defined as such, loses its connectedness with anything beyond the affected individual. Conceptualized this way, depression becomes not a fluctuating state of being, or a feeling in relation to something else. It moves from the verb or adjective form to the noun form: a fact unto itself, bolstered by scientific "facts" which blame genetics, neurotransmitter levels, chemical imbalances. Responsibilized as illness, depression or anxiety or schizophrenia or attention deficit disorder can all then be operated upon at the level of the individual with profitable psychiatric drugs, which Breggin (2008: 1-13) notes are in fact brain-disabling substances that can cause permanent harm.

Since the first edition was released in 1952, the DSM (Diagnostic & Statistical Manual of Mental Disorders) has become known as the bible of psychiatry. In 2018, we are currently on the 5th edition of the DSM and this book continues to be instrumental in what we understand "mental illness" to be today. In fact, the DSM has entirely shaped the shift in dominant dialogue from the taboo "crazy" into the increasingly socially acceptable "mentally ill" (Reaume 2002; Burstow 2015).

The publication of the DSM-I came shortly after the end of WWII; a time when Western Europe and North America were being industrialized, the civil rights movement was beginning, as was second wave feminism. In this era, Western society was entirely embedded in oppressive capitalist relations - race relations, class relations, gender relations, labour relations. Our budding understanding of what we now call mental illness can be understood as the medicalization of "crazy" through DSM diagnoses and categorizations; a history entirely embedded within the capitalist context of the 1950s to the present. In other words, we have never understood "mental health/illness" as we know it today through any other lens. It is this oppressive capitalist context that defines certain experiences, beliefs, and behaviours as mental illness and thus creates them as such - quite literally, defining them into existence through the practice of diagnosis (i.e. the earlier example of sadness becoming defined as biological depression).

WHAT IS MENTAL ILLNESS?

We can pause to ask here: what gets defined as mental illness? Strikingly, much of it continuously goes back to two key words - work and socialization. If one reads the DSM-5 (American Psychiatric Association, 2013), it becomes obvious that almost all of the categories of diagnoses - depression, anxiety, schizophrenia, bipolar, even PTSD - define the disorders based on one's ability to work and socialize normally. Mention of phrases to do with work have increased appreciably over the different versions of the DSM; five mentions of work in the DSM-I (American Psychiatric Association, 1952) have increased to 288 (Cohen 2016: 79) in the DSM-5 (American Psychiatric Association 2013).

Normal is a problematic term in the DSM as well, and worthy of its own discussion, but for the purposes of this paper, what is important to note is that if one is unable (or refuses) to work or socialize normally, as in participate in economic and social relations and conditions in a way that is sanctioned, then that person would fit the at least some of the diagnostic criteria for most mental illnesses. It is worth noting that categorizing and diagnosing behaviour based on one's ability to work and socialize normally interacts significantly with other oppressive social constructions such as race, class, or gender, just to name a few. It becomes clear who those most vulnerable to receiving psychiatric diagnoses are, and statistics support this view - racialized people, poor people, women, queer/trans folks, the elderly, and the disabled continue to be over-represented in psychiatric diagnoses (Metzl 2009; Burstow 2015; Hansen Bourgois and Drucker 2014). With the DSM supporting a staunchly biomedical model, are we really to think that the brains of people belonging to oppressed groups are biologically inferior or sicker? Biological psychiatry is certainly not the first field to forward this hypothesis, but the eugenics parallels are a worthy topic deserving of further exploration.

There is one exception to the biomedical model in the DSM that warrants further exploration and analysis. As a result of political/activist pressure to help war veterans, the Post-Traumatic Stress Disorder (PTSD) diagnosis was added to the DSM-III in 1980 (American Psychiatric Association, 1980; Burstow, 2016; Boone 2007). This diagnosis is the first to acknowledge that in some cases, extreme trauma can be a causal factor in the development of "mental illness." What is special about PTSD is that it is the only recognized mental illness where one's environment and experiences are understood as contributing to a person's struggles (Burstow 2016). Of course, this diagnosis did not come to life from within the institution of psychiatry but rather from advocacy for recognition of the trauma suffered by soldiers in combat, and later, the experiences of crash survivors, rape and assault victims, and workers who are continuously exposed to the trauma of others, such as police officers, shelter workers, etc. (American Psychiatric Association 2013; Boone 2007). Still, missing from this diagnosis are those who live in ongoing traumatic situations, such as victims of domestic or sexual abuse, homeless people, or refugees. In order for trauma to count

as PTSD, it must be a discrete event as opposed to an ongoing one (with the exception of those working in conditions that expose them to others' trauma, as mentioned above).

What is special about PTSD is that it is the only non-biologically based mental illness recognized by the DSM, and thus leaves some room to explore what mental illness might be or look like if it weren't understood as entirely biological/genetic. As we build greater understandings of how our brains, bodies, and environments actually work and interact with one another, what becomes clear is that any explanation of human struggle arguing that our genetics and environment are not in constant dialogue is incompetent at best. For this reason, we would like to forward some ideas that challenge the current biomedical model and attempt to engage with the complexities of our biology, individuality, and the larger social, political, and economic structures that we must all navigate.

In this final section we will propose an alternate way of viewing what we already know about the brain, to build a heterdox, rebellious, non-conformist understanding of how the brain functions, contextualized within social relations. We will not be deviating from what orthodox understandings of brain functions are, just conceptualizing these as having different boundary limitations. In other words, we will engage with the notion of trauma to ask: was our mind ever ours to begin with? To do so, we will try to build the case that minds are always and inextricably in relation to other minds, and that to isolate them as discrete units or subunits comprised of neurotransmitter systems prioritizes a capitalist view of the person which allows people to become objects of material accumulation.

Before we do this, we need to first explain the mainstream view of the way the brain works as essentially internalist (Thompson and Stapleton 2009), whereby the brain is a computational organ which controls bodily processes and stores experiences. Predominant and hegemonic narratives see mood as the product of organic processes within the brain, controlled by neurotransmitters. It is a common notion, for example, that depression is "caused" by low levels of serotonin. This is as an individualistic explanation for mood. Distress-related phenomena are studied at the level of individual neurons, neurotransmitter systems, and brain areas considered to "control" certain behaviours or emotions.

What neuroscience has learned about the brain is that on a macro level, it is essentially not a computational organ. While at the level of an individual neuron things are electrical and chemical, the way the brain functions as a whole is actually very analog (Epstein 2016), with pattern flows of sensory information forming what we think of as consciousness (van Ommen and van Deventer 2016). Our brains are lit up in an analog fashion with our sensory inputs Colombetti 2014). Close your eyes or plug your ears for one moment and you will experience a sudden loss of this input.

In this macro view of the brain, memories are not stored anywhere, in the sense of a physical location (Maston 2018). And because they are not stored anywhere, they are not retrieved, either. While a physical location somewhere

in the brain may “light up” with the elicitation of a memory in a lab, this is, again, all about the unit of analysis. Memories, as they are, are actually pattern flows of neural connections similar to the ones that occurred at the time of an originally-experienced event. They are simply neural repeats or echoes of an original event as experienced through sensory inputs. If I ask you to think of a lemon, what you experience of this is actually a re-experience, not a recall. You might re-experience the smell, shape, colour, tart taste, the sounds or visual symbols associated with the word “lemon,” or the sensation experienced when your hand holds or peels one. These are all sensory experiences, and their re-experiencing looks very much the same on an MRI as the original experience of the smell, word, touch, or taste.

If you are looking at the whole brain in context of all that surrounds it, sensory experiences are also always paired with interpretive meaning. “Interpretive meaning,” is simply the significance of the experience. Was it banal and safe to ignore? Was it something good, healthy, sustaining? Was it surprising, completely new and never before seen, felt, tasted, heard? Was it scary; did it threaten your sense of safety? Was it pleasurable? Embodied cognitive science calls this interpretive meaning “relational valence,” (Di Paolo 2014: xii), and you can directly map relational valence onto both emotions and the neurotransmitters that are widely thought to control emotions. Again, it all depends on the unit of analysis.

If you’re looking at dopamine at the level of the neuron, pleasure can easily be seen as being caused by dopamine. However, if you look at the whole person in the context of their world, it becomes easier to see that in the course of everyday life, dopamine does not cause pleasure, it is a signifier and communicator of pleasure; an internal language of communication within the brain signifying that something that has been experienced is inherently pleasurable. Dopamine is continuous with the world outside insofar as it is released when evolutionarily relevant, survival-oriented experiences occur. Dopamine receptors are located all over the body, and dopamine produces its feelings of pleasure through its significant bodily effects which dilate blood vessels and strongly relax muscles. Sunlight, touch, healthy foods, hugs, exercise, love, and orgasms all trigger the release of dopamine. All of the neurotransmitters thought to be involved in “causing” changes in mood have these diffuse bodily innervations.

The significance of all of this is that the brain is a highly relational organ in which cognition and interpretive meaning cannot be extricated from one another. Cognition and emotion are the same thing (Colombetti 2014); different aspects of the same experiences, which not only co-occur, but co-recur in the form of memories. We are continuous not only with our environments and others’ behaviours, but also within our own bodies. People’s emotions cannot be disembedded from their experiences, and moods are always contextualized within social relations, so long as we are engaging with a unit of analysis that is large enough to see it. The biomedical model that underpins the concept of psychiatric illness is problematic for this reason. It engages with distress on

a level that responsibilizes emotional states by intentionally failing to engage with the notion of trauma. To meaningfully engage with that notion would be profoundly anti-capitalist, because capitalist social relations cause much trauma. So not only is the internalist position pro-profit through psy-interventions and psychiatric drugs, it also ingeniously thwarts any discussion of how capitalism affects people.

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ADNAN HADZI

boattr – living on the cut

ABSTRACT

This paper discusses the towpath/'network' of the British Waterways as a digital social commons, through the researcher's journey on the narrow boat *Quintessence* and the development of the *boattr* prototype in collaboration with fellow boaters (bargees), the *MAZI* (for "together" in Greek) project, a Horizon2020 research project, and the *7067 – It's not a Test* radio performance. For three years the researcher (Dr. Adnan Hadzi) together with his partner, the documentary photographer Natascha Sturny, joined the community of bargees. The paper uses as a basis the boat logs created over the *MAZIzone*, in a diary format, to address the urban commons topic in a broader more poetic approach analysing three projects, namely the *boattr* prototype, *MAZIzone*, and *7067 – It's not a Test*, divided into the three years, of which each is dedicated to one of the projects. Alongside the edited diary texts a selection of images taken during those three years illustrates this paper. In the *boattr 360* installation audiences can interact with the *MAZIzone* viewing image galleries and 360 videos of the boat journey.

KEYWORDS off-networks; mesh network; open wireless network; critical video editing; towpath; housing; participatory culture; alternative media; digital arts; photo essay; video essay; 360 video.

INTRODUCTION

This paper discusses the towpath/"network" of the British Waterways as a digital social commons (Streitz 2015; Iaconesi 2015), through the researcher's journey on the narrow boat Quintessence and the development of the *boattr* prototype in collaboration with fellow boaters (bargees), the *MAZI* (for "together" in Greek) project, a Horizon2020 research project, and the *7067 – It's not a Test* radio performance. For three years the researcher (Dr. Adnan Hadzi) together with his partner, the documentary photographer Natascha Sturny, joined the community of bargees (NBTA 2018a; Mulcahy et al. 2017) known as "bargee travellers" (LB 2012; B. O. L. Bowles 2017), who use the canals as a place to live (Lilo 2018; Kaaristo 2018), but with only a temporary permit (Fletcher 2018) to stay for two weeks in one place (NBTA 2018b). The paper will also offer a critical view on the housing situation (K. J. Fuller 2010; Gogarty 2013) in the UK and EU in general.

Image 1. Researcher Dr. Hadzi navigating *Quintessence* (Photo by Natascha Sturny)

The *boattr* project connects narrow boats to the "Internet-of-Things" (Wortmann and Flüchter 2015) and allows for open wireless networking within the narrow boat community, by using affordable microcomputers (Mitsuishi and Ikari 2018). The paper analyses this technology, which aims to empower boaters who are in physical proximity to each other, sharing data, media and know-how while strengthening local awareness of the canals. The paper reflects on do-it-yourself networks and open wireless networks (Fuchs 2017; Hardes, Dressler, and Sommer 2017) set up by the researcher offering a local communication network to the bargee community.

Besides this paper the project was also manifested as a *boattr 360* installation, alongside a running *boattr* prototype (as a computer book), where audiences are able to experience *boattr* through a VR headset (Google 2018; SpherePlay 2016; Zeiss 2014; Fuller M. 2018; Homido 2018), and access the *boattr* prototype and computer book over any WiFi enabled device.

The installation encompassed a photographic triptych (by Natascha Sturny) showcasing canal life, seating representing a narrow boat's bow on which the viewer can sit and become immersed in a journey on the narrow boat Quintessence. The *boattr 360* installation makes use of video as theory (Treske 2015). In accordance with the qualitatively new situation video is set in, the installation presents a virtual reality environment, documenting and illustrating the researcher's journey on Quintessence.

Image 2. Part of Photographic Triptych (Photo by Natascha Sturny)

The *boattr* DIY prototype (Dragona 2015) offers local services to the narrow boat community, off-network, not connected to the Internet. The research project was about the materiality of the network itself, taking ownership and control of the whole design process, promoting independent grass-roots innovation, rather than fear of data shadows (Rogerson 2017). The project allowed for easy and inclusive access through the use of a local captive portal launched automatically when one joins the network, with the option for anonymous interactions. Participants in physical proximity connected over the *boattr* prototype did not have to disclose private information to third parties.

The paper uses as a basis the boat logs created through the *boattr* research project, in a diary format, to address the urban commons topic through a broader more poetic approach documenting the three projects, namely the *boattr* prototype, *MAZIzone*, and *7067 – It's not a Test*, divided into the three years 2015 until 2017, of which each is dedicated to one of the projects. Alongside the edited diary texts, a selection of images taken during those three years illustrates this paper.

2015: RUNNING THE BOATTR PROTOTYPE ON QUINTESSENCE

The first *boattr* prototype was developed at the London *Hackerspace* (Rashof 2016; Bowden 2016) by Antonios Galanopoulous, who installed *boattr* back in 2014 on his own narrow boat Blue Morn. The *boattr* prototype (Galanopoulos 2015) was a hardware/software research project into the management of off-grid, autonomous sites. It collected and processed data from environmental sensors and provided remote monitoring, control and automation. Optionally it could also provide a host of other peripheral services that could run on small embedded computers (wireless access point, internet connectivity, virtual private network remote access, TOR gateway, file storage, etc.).

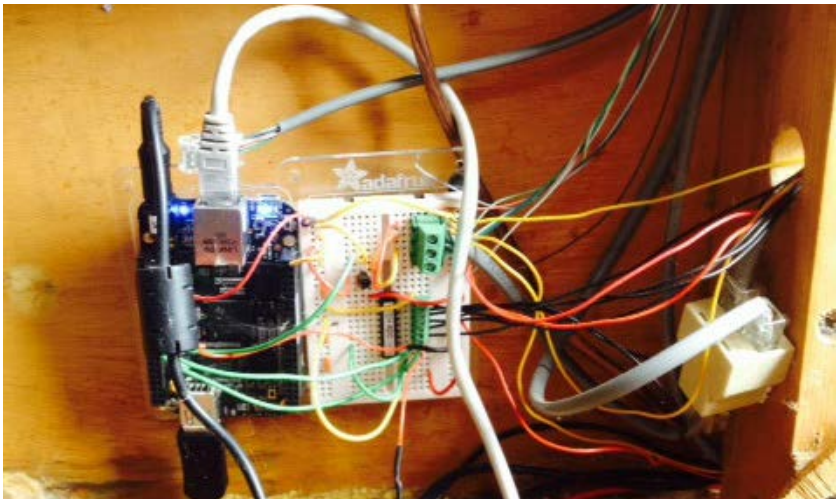

Image 3. first *boattr* prototype by Antonious Galanopoulous

At Harefield Marina, near Uxbridge, we bought a traditional narrow boat, named Quintessence. On a fine day we went to pick up the boat, the sun was out and there wasn't much wind either. The first thing we did was shopping for the off-grid life, as we were soon to live without being connected to electricity, water, plumbing, phone, etc. Most importantly for the *boattr* project were solar panels, all the electrics, and an electricity generator. Our *Vetus* engine was in very good shape.

Since boaters living off-grid (Hope, Roberts, and Walker 2018) have tended to lack good information about the energy consumption and production, battery health and the various other subsystems of the boats, one part of the research project was about being able to better understand how those systems work by collecting, analysing and visualising their data. The other aspect was the use of real-time information from the sensors as well as historical data to make clever decisions and respond to external changes. The *boattr* prototype had current, voltage, temperature, air/water quality, humidity and water pressure sensors. Data was collected from the sensors and stored in a database every minute. We could create real time graphs as well as mine the database for other historical data.

Image 4. Narrow Boat *Quintessence* moored up in Marina (Photo by Natascha Sturny)

We installed the *boattr* microcomputer on Quintessence, using a *beaglebone* (McPherson and Zappi 2015; Norris 2015) microcomputer, a *4G* phone (Ratasuk et al. 2015), all connected over a *USB* hub (Saito 2016), and WiFi access point. Now there were two *boattr* microcomputers on the UK Waterways (Blue Morn and Quintessence). With *boattr* we used a Dallas 1-wire (Gosheblagh and Mohammadi 2015) microlan for a network of temperature, electricity, environmental sensors (Ibrahim et al. 2015). The heart of the system was a *beaglebone black ARM* (Nayyar and Puri 2015) embedded computer running *Debian* OS.

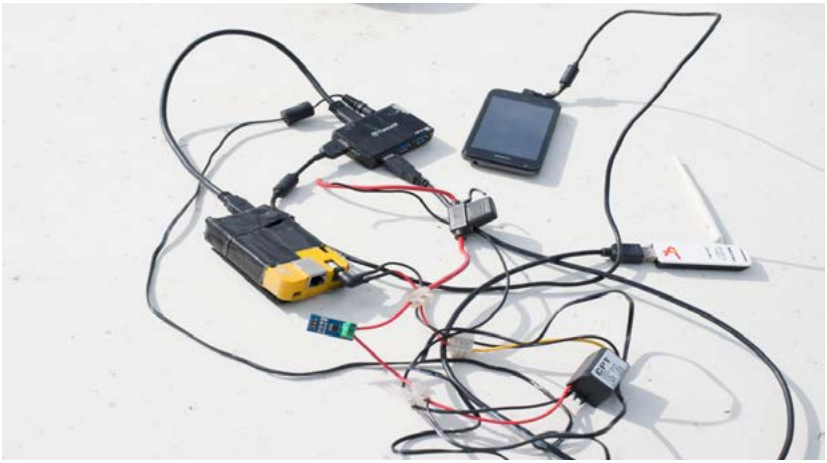

Image 5. *boattr* prototype for *Quintessence* (Photo Natascha Sturny)

The software part of *boattr* was made of a *Ruby* module (Carlson and Richardson 2015) with two classes, *Sensors* and *Data* and the *puppet* (Uphill 2016) provisioning code. The *Sensors* class contained all the functionality to obtain the results from the the various different sensors connected to the system (Kloeckel 2015). *Data* was responsible for processing resulting data, saving and sending to other places. The *boattr* prototype in this context was the *Ruby* program which ran every minute collecting data from sensors, analysing and sending to the database and *dashboard* among other things.

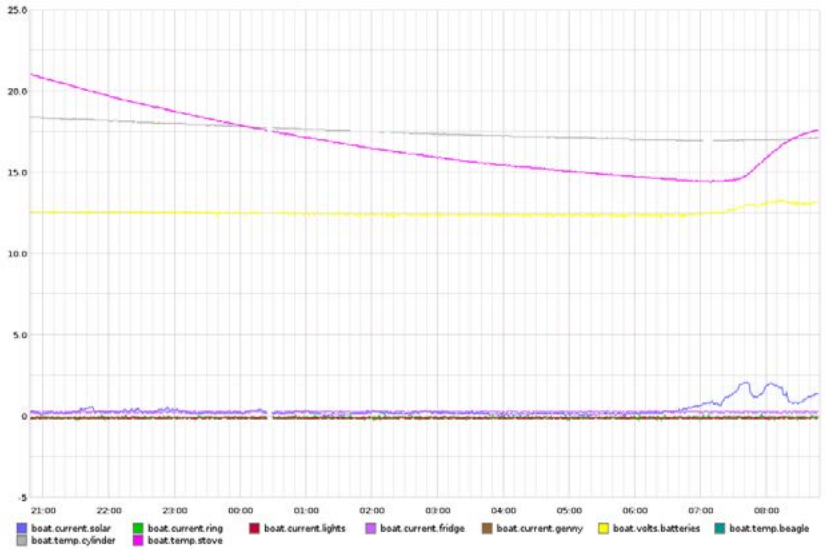

Image 6. Graphs showing energy usage and temperature levels

Image 7. Screen shot of *dashing* application

After some fiddling with *dashing* (D'silva et al. 2017) there was a dashboard that we found useful, offering four temperatures, battery voltage, 4G data allowance remaining, solar panel production and amp hours information for the last 24 hours. It became obvious that, during the winter months, we did not make enough energy from the sun. We had to run the generator once a day to make up for the lack of sun.

We decided to leave our flat on 21 February 2015, a week prior to the official deadline, which was a wise decision: the flat above was vacated early too and the landlord started with renovations straight away. So, it was official: we had become bargees (Benjamin Bowles 2015). The first week was a difficult one, physically and emotionally. The boat was moored up on Broadway Market (Conder 2017) and we were able to carry all our stuff from our flat to the boat. Anton lent us his trailer, which made it a bit easier. Natascha was in an unstable mood and was afraid of what is going to come. The unknown, the lack of space, lack of amenities. Leaving the flat after ten years was hard, she had her routines and old habits die hard. Though in this instance those habits, like doing the washing when you want, had to die immediately. From now on we relied on launderettes. Putting on the central heating when it was cold? Gone. Instead we had a coal powered *Morso* (Morsø 2018) stove. Thankfully *boattr* also gave us temperature readings when out and about, so we could see when coal had to be topped up. The fact that we had to move the boat every 14 days (UK Government 1995; Stephens 2012) didn't make the situation easier. Our license was referred to as *Continuous Cruiser* and meant that we were only allowed to moor up on a spot for up to 14 days. We were not allowed to return for the period of one year.

2 April 2015:A rather big storm hit London and *Sava* our cat disappeared. We put up numerous flyers around the area. We managed to extend our stay for two more weeks. We talked to fellow boaters and each night went out with cat food. We shared pictures and info about our cat over our *boattr* box, which fellow boaters could access over the open wireless access point. Nothing.

Image 8. Battlebridge basin near Kings Cross (Photo Natascha Sturny)

A bizarre thing happened. One morning a black cat jumped onto the bed, but it wasn't *Sava*! We somehow thought we knew this cat. By sharing images of the cat over our *boattr* box we found out who his owner was, a fellow boater, a girl who used to squat the building next door on our old street. The cat was living in that squat too and came around once or twice to the flat there. Well, nice to see you again, *Mr Twist*, the cat.

Meeting those people again was an interesting coincidence; we came to understand that many former squatters moved onto barges due to the fact that squatting of residential properties had been made illegal, in fact a criminal offence, since 1 September 2012 (Finchett-Maddock 2014). Of course many of them couldn't afford the rent in London and moving onto a barge was the only option. And some of those boats were really in a dilapidated condition, simply because the people also didn't have the cash flow to get a swanky boat. It became apparent that not just us but many others moved onto boats because London has become unaffordable to live in(Bernstock 2016), while many residential properties are left empty for years.

9 June 2015: We got a phone call from a woman who lives in *Kings Cross* – she and her son believed that *Sava* was hiding in their garden. With the cat carrier in tow Natascha headed towards central London, found the house and yes, there she was. After two months *Sava* was back! And immediately sticking her head into the corner where the boiler was. Curiosity kills the cat. In the meantime the roof top garden was producing salad. The *boattr* sensors allowed us to monitor the humidity and temperature of the soil (Fox 2015).

End of June: We cruised out of London, into nature. The initial journey from Broxbourne up to Harlow Town was, to put it simply, sublime. It was boaters' paradise, and now the bargee life started to make sense. The *boattr* sensors recorded good weather conditions for weeks. River Stort is a natural river, no concrete slabs lining it or anything the like. Even though the water is considered "grey water", meaning the shower & washing up water from boats goes into the river, River Stort's water is very clean (relatively). The water quality measured by *boattr* in Regent's Canal (by Broadway Market) was much worse than that in the River Stort.

Just one remark regarding grey water: we've been very strict and use only biodegradable washing up, cleaning and hygiene products. This unfortunately is not always the case with fellow boaters. We've seen many Fairy Ultra's on window sills; who knows what else is put down the drain. You can see straight away when the "Fairy Ultra" boaters do their washing up – it bubbles much longer than the biodegradable one. Frankly, it's a mystery why the Canal and River Trust (CRT 2015) doesn't hand out guidelines in that regard and encourage boaters to use biodegradable products.

Autumn 2015: The summer came to an end, and it turned out that our *boattr* project was quite self sufficient during the sunny summer days. We did not have to run the generator and the *boattr* solar panels produced enough energy for two people living on a boat using their laptops on a daily basis. After months out in the countryside we were looking forward to being back again and mingling with fellow boaters and to be close to friends over winter. But but but… it was bloody difficult to find a suitable spot to moor. And this in Tottenham?! There were so many boats doubled up already. We did find a place in the end, but it became clear to us that for the next six months or so space would be scarce – nothing like being on your own in nature.

It's a fact that there are more and more people moving onto boats in and around London, for a simple but sad reason: renting has become too expensive (Hamnett 2010). What do you do, if you lived all your life or a major part of your life in London, have work here, a social network (as in "real" people) – you don't want to move to some place where it's affordable to rent and leave all behind?! So, the next step is you get yourself a boat. And some boaters really are poor, so they end up with "yoghurt pots", plastic boats. It's cold but at least there is a shell around the body and you are not homeless.

Image 9. Plastic boat on the outskirts of London (Photo by Natascha Sturny)

We belonged to the more affluent boaters, we could buy coal, diesel and we could bring Quintessence to the mechanic if something went wrong, etc. With the *boattr* project we could even monitor and control our usage. Fellow boaters simply can't do that and if the engine breaks down, or worse there's no money for diesel, they can't move. Then you have the friendly guys from the CRT enforcement (Ben Bowles 2016) team who regularly come with their shiny computerized toys to check our license to see if we had done the moving bit too. And beware if you overstayed for a day or two, an email will land in your inbox with the request to move on, or else… well, if you get a reminder once or twice or more, the CRT will issue only a temporary license for the next renewal. The temporary license is more expensive. Boaters are obliged to move regularly (B. O. L. Bowles 2017), otherwise the license will be revoked and if you don't get your boat out of the water yourself, they will do it for you. It is clear to us, the problem the CRT is faced with is that the housing crisis is being partially rolled over to them. The waterways are quite old and some of them in dire need of restoration (Slawson 2015).

The joys of London cruising are unlimited and when you end up in a place like Three Mills (Barkshire 2018), you either love it or hate it. There is nothing in-between. I loved it, Natascha hated it. There you go, a proper relationship dilemma. It's a hyper industrialised location where the visitor moorings are, and on the other side of the canal is the Blackwall Tunnel Approach, meaning: cars, cars, cars – the air pollution (Hoffman 2015) is, as measured by our *boattr* sensors (Lynn 2015), quite literally, breathtaking.

Image 10. Plastic Boat *Jaws* near Three Mills (Photo Natascha Sturny)

2016: KEEPING A BOAT LOG WITH THE MAZIZONE

> MAZI is to provide technology and knowledge in order to empower those who are in physical proximity, to shape their hybrid urban space, together, according to the specificities of the respective local environment generate location-based collective awareness as a basis for fostering social cohesion, conviviality, participation in decision-making processes, self-organization, knowledge sharing, and sustainable living facilitate interdisciplinary interactions around the design of hybrid space and the role of ICTs in society (Antoniadis 2016a).

We made our first circle through and around London with Quintessence, and arrived back at Broadway Market (Hubbard 2016), our old neighbourhood. Now it definitely felt like home! Just shy of one year on the boat and we were back … but but but, mooring up along the canal stretch of Andrews Road was a totally different case than walking along it. The tow path for a bargee was also a lawn or a porch or something the like. But here it felt more like a dog toilet. Frankly, it was unpleasant to stay there and regularly stand in a pile of shit.

The rubbish created along the trendy areas in London was astounding and Broadway Market was one of them. Bargees were regularly reminded that their life is a precarious one; rubbish bins were removed (CRT 2018) so that we didn't know where to dispose of the rubbish that we created.

This was a part of Regent's Canal where you could only stay for seven days, though we weren't too sad when those days were up. We went up Acton Lock opposite the newly created Talavera Mooring (S. Atty 2016), a prime CRT property. Bargee hyper-commercialization at its worst. A bidding system was introduced for that mooring, eleven berths went to the highest bidders. Some went for over £1000 / month. It seems that the house price madness affects the fixed moorings in this area too, or is it just an opportunistic venture?

Image 11. *boattr MAZIzone* prototype

Spring 2016: On the way to Angel, we had to stop at the water point near City Road. Panayotis Antoniadis (Antoniadis et al. 2015; Antoniadis 2016b, 2018b) from *MAZI* (NITlab 2018b, 2018a; Antoniadis 2018a) was having a stroll along the tow path, visiting Quintessence. I discussed with Panayotis how to integrate the *MAZI* research into the *boattr* project, installing the *MAZIzone* on Quintessence. *MAZI* is a Horizon2020 research project, in which *Deckspace* medialab is a partner. I had been researching with *Deckspace* for many years on the *Deptford.TV* project (Hadzi 2006a, 2006b), and now I was looking forward to integrating the *MAZIzone* (NITlab 2018b) into the *boattr* prototype. *MAZI* is a DIY networking toolkit (Antoniadis 2018c; Constant 2018) allowing for the collection and sharing of data (Smyth and Helgason 2015) over cheap microcomputers. We immediately started using the *MAZIzone* as our boat log. Basically a webserver running the *WordPress* blogging platform, accessible locally with our phones, tablets and computers. This paper constitutes an edit of all the log entries, in a diary form. The *MAZIzone* allowed us to share data, over the *Nextcloud* (Karlitschek 2018) application, with fellow bargees, as they could also access the *MAZIzone* over the WiFi SSID 'boattr'. Furthermore through *Nextcloud* we created our audio/visual documentation in the form of a database.

We installed the *MAZIzone* on the roof of Quintessence. So far we had been running the *MAZIzone* from our living room (inside a Lego box). Now it goes out of the Lego box into a weather proof casing. “The design for intimate communication, yet without commitments, between those in physical proximity, and collective action by building the community network. The empowerment of citizens to claim their right to the hybrid city, including access, participation, representation, and ownership. The availability of complementary infrastructures in case of disasters that offer resiliency.” (Antoniadis 2016a) The *MAZIzone* (Antoniadis 2016) for *boattr* consists of a *Raspberry Pi* (Upton 2012), hosting a webserver and a database, offering wireless access, and a captive portal guiding the users through the applications and tools available on the *boattr MAZIzone* (Antoniadis 2018d).

Image 12. Dr. Hadzi installing *boattr MAZIzone* (Photo Natascha Sturny)

Somehow the bargee community isn’t much respected by society, rather being vilified at times. When we arrived in London back in 2002, the Regents Canal was a no-go area at night, way too dangerous. It got safer with the arrival of the boater community, we believe, though the odd disturbed mind was still around and making people’s lives a problem, for sure. For us, the bargee way of life should be regarded as an enrichment for society. Is there anywhere in Europe another such community of “water gypsies” (Maynard 2014)? We don’t think so. Hence, why not cherish, support and even protect it?

Thus it was a privilege to moor up next to “The Village Butty” (Cade 2015) the community boat for bargees and non-bargees alike. Step into the magic world of bargees, where game nights, concerts and “how-to toilet composting” events take place. All very necessary, insightful and great fun. On special days you even get oysters – what a treat (for those who like ’em). Here we ran our

first *MAZIzone* workshop showcasing our boat log, explaining to fellow boaters how to use do-it-yourself networking (MacArthur 2015), and sharing valuable documents and know-how for the boating community.

> MAZI wishes to invest in an alternative technology, what we call Do-It-Yourself networking, a combination of wireless technology, low-cost hardware, and free/libre/open source software (FLOSS) applications, for building local networks, mostly known today as community wireless networks. By making this technology better understood, easily deployed, and conImageured based on a rich set of customization options and interdisciplinary knowledge, compiled as a toolkit, MAZI will empower citizens to build their own local networks for facilitating hybrid, virtual and physical, interactions, in ways that are respectful to their rights to privacy, freedom of expression and self-determination (Antoniadis 2016a).

During the *MAZI* workshop we explained the *MAZI* portal, how we created our boat log, and how one could access the *MAZI* guest book on the *boattr* box. The *MAZI* portal offers a user interface giving access to the different applications available. Furthermore workshop participants setting up their own *MAZIzone* could conImageure their own network name (Blas 2016), SSID and look into the usage statistics of their *MAZIzones*. Over the guest book (Lutzer 2016) we were sharing boaters' know-how documents, such as legal advise for bargees, off-grid living tips and tricks, but also photos and films. The original guest book was developed by Lutzer (Lutzer 2016) for the *Hybrid LetterBox* project (Gesche 2016).

Summer 2016: Uxbridge is a funny place, it turned out to be a Brexiteers heaven, of course. Could it be because it is the constituency of Boris Johnson (Worthy 2016), the chieftain of the Leave campaign? (Hobolt 2016) The referendum was ahead of us and most of London seemed against Brexit. Not in Uxbridge though, which isn't central London, but is still Greater London. 23 June 2016 belongs to the past and the Brexit vote result is out. Britain voted for it (Goodwin and Heath 2016). The morning of the 23 June was a bleak one, waking up has seldom felt so distorted. The seemingly impossible had become real. Driving up to Uxbridge felt like a betrayal. What on earth has crossed their minds? The Empire (Gallagher 2004) is long gone, it will not be resurrected, ever, and the UK can't sail on it's own in the murky waters of global economy and politics, and we were sailing to the Midlands: Brexit Heartland.

Natascha wanted to leave 5 minutes after we arrived in the Midlands, at Swan Lane Wharf, in Coventry. It's a fact – she didn't like at all where we ended up. Feeling anxious already when cruising on Coventry Canal, she claims she hasn't seen that many rats jumping into the canal before, the water way became increasingly dirty, the surrounding area desolate. Was this our new home?

Coventry's "resurrection" after WW2 was badly handled (Hasegawa 1992, 1941–50), and is indeed famous for that. Just how bad it was only became clear when we did that trip "down to the basin" (Crowe 1994). For crying out loud, who

in his or her right mind had the idea to built a ring road around the centre? And the first City Centre Ikea was opened here in 2007. Yes, Ikea has a massive presence in the centre, in the instantly recognisable shape of a large blue cube.

Image 13. *Quintessence* in Coventry Basin (Photo Natascha Sturny)

Autumn 2016: We decided to move to the Midlands's countryside around Stratford upon Avon, to a basin named Kingswood. The first day on our way to Kingswood Basin we spent some nine hours cruising. That was already challenging for us, and the cat. Although it was September, the thermometer climbed up and it was rather warm for the time of the year. We found a tremendous spot to moor up for the night, the cat went out straight away and we caught the last sun rays. It was a beautiful moment.

Day two of the journey turned out the be a back breaking nightmare. There were many locks to work, 27 in total in one day! It was apocalyptic to cruise through Birmingham from the side we did, we came from the Birmingham & Fazeley Canal section and we had to pass under Spaghetti Junction. Heavily industrialized landscape for miles on end and then this junction. We had to turn left into the Grand Union and shortly afterwards there was a CRT mooring which neither of us approved of for an overnight stay, fools that we were. We cruised through Birmingham (Sargent 1996) at night, the canal not looking good at all, cranky old locks to work. And we continued cruising – it was getting later and later, but we finally had Birmingham Centre behind us. Generally it was really dark along the canal and we could hardly see a thing, apart from a massive incinerator at one point. We didn't have a clue where we were.

The next morning we did the last lock, filled up the water tank and moored at Kingswood Basin. It was a glorious moment. No more enforcement team, no

more clogged Elsan disposal, decent water pressure. And great neighbours. Heaven.

December 2016: Reflections at the end of the year - Autumn in the Warwickshire countryside (Rippon 2004) was stunning. It's considered an old landscape, meaning people have been occupying this part the the UK for centuries (Mingay 2017). Some of the hedgerows are kind of elevated layers and layers of roots. And stories, we guess. There are many old oak trees, really stunning ones and we keep wondering during our walks, what have they witnessed?

The winter arrived with golden light, frozen canal and mushrooms still growing. It's difficult to see on the image, but the duck was sliding on a slightly submerged icy layer… duck ice-skating.

Image 14. Duck ice skating in the country side (Photo Natascha Sturny)

2017: DIGITAL ARTS ON QUINTESSENCE: 7067 – IT'S NOT A TEST

"7067 khz - it`s not a test" calls for daily transmission of automatically/ manually generated radio signals from different stations around the world at scheduled time slots. Recalling the Sputnik satellite's outer space broadcast of radio pulses in the fifties, Eleonore's 7067khz inverts the space signals to Earth signals, calling for like-minded media/cultural spaces to sign on for signal sending. In honor of the first radio artists who were using the signals

> as a material for art, the 7067khz stands for independent information and communication bypassing the use of the internet. We do not want to specify the content of the transmission, rather we consider the act of sending the signals an act of solidarity in this post-internet future present (Xaver 2016).

Spring 2017: Back to nature. It was wet of course but the weather didn't hinder us from going out for walks, our wellies making it possible to walk the wet land. As always, nature as a means of therapy. Of course the spring sun came back out, the moss is reaching up to catch the rays. March is here. The weather was picture perfect and we decided to go cruising again. After months of staying put, it was time to move Quintessence. We wanted to make the most of it since there was a change appearing on the horizon. The canal water was full of algae and with the boater season starting, the turbines were acting as some kind of mixer, the water turned bright green – lovely. On the 1st of June we launched the "*7076 – It's not a Test*" art project (Soulitou 2015) on Quintessence. Franz Xaver, the initiator of the *7076 – It's not a Test* project, explains that we "call for artists to send in the signals in SSTV (slowscan TV) and CW (continuous wave) automatically or manually. With ham radio equipment and monitors at the exhibition space, the visitors can follow the signals sent from different stations with low-res pictures and amplified sound output. We are broadcasting signals on the Frequency of 7067 khz. Like the signal of Sputnik – it is not important what you are broadcasting its important that you are broadcasting. Like the Signal of Sputnik 1957 the broadcast itself is the political message." (Xaver 2016).

Due to issues with the antenna we only managed to get two connects, over *WSPRnet* (Taylor 2015), on June16 and 17:

1) 2017-06-17 17:26 QA5IQC 7.040128 -26 0 JO92 0.5 G4KRW IO92fv 1378 280
2) 2017-06-16 18:10 QA5IQC 7.040124 -27 -1 JO92 0.5 G3JKV IO91uf 1325 272

We had to fix this. The PI (Peroulas 2013)should have send on the antenna. The problem might have been the radio noise. We might have wanted to look into getting a Band Pass Filter kit. The antenna seemed to be the most difficult bit. Funnily enough our boat neighbour was also experimenting with radio, but on the APRS – Automatic Packet Reporting System (Bruninga 2015).

> Information technology is increasingly becoming a power factor in a globally networked world. Algorithms control the global information networks. We secure information about autonomous networks and offer the possibility of independent information transmission. We do not want to stand in competition with the global information players of the capital. That's why we reduce the bandwidth of our information transfers to a few hertz. Independence has the price of information reduction and reduction does not mean total loss of control (Xaver 2016).

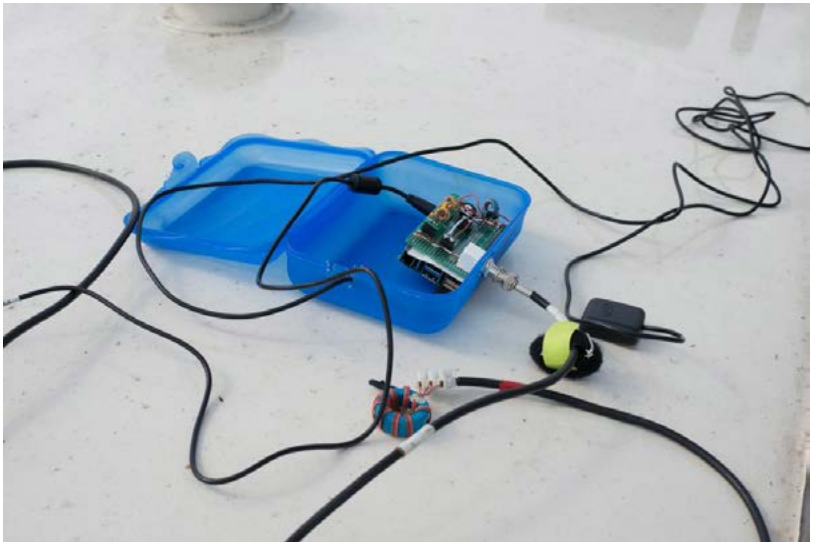

Image 15. *7076 – It's not a Test* prototype (Photo Natasch Sturny)

Image 16. Braunston Marina, final stop (Photo Natascha Sturny)

Unfortunately we never managed to fix the antenna as circumstances changed and we were about to sell Quintessence in the summer of 2016. On the 29th June we said good bye to Kingswood Basin and the people there. The sky was grey and so was the water. It wasn't easy, as the last few days with Quintessence were upon us. We started early and headed towards Hatton

Locks (CRT 2016), as a first hurdle we had to pass 21 wide locks -- good we were going down! We had a boat ahead of us, meaning we could team up with them. It's easier to work those locks together, which we did and off we went, down the first lock.

Just after Calcutt Locks (S. Atty 2016b), which were the last locks we worked, we reached Napton Junction (S. Atty 2016c) where we had to turn into Oxford Canal (S. Atty 2016d) in the direction of Braunston (S. Atty 2016a). It was an emotional journey not least also because the sun came out and it was glorious cruising weather. The cruise was easy, no more locks and a prime canal section. We ended our boater life on a high note.

BOATTR: British Waterways as safe havens – a future outlook

Having operated *boattr*, *MAZIzone* and the *7061- this is not a test* art project over the past three years, I will give a possible future outlook of envisaged developments of this research project. One of the missing features of the *MAZIzone* for the boater community was a second radio on board of the Raspberry Pi. Now with the latest version of the Raspberry Pi this missing link is being offered on the board of the microcomputer. With two antennas it is now possible to use one as an access point and the other to network the box into a mesh network, allowing for boats passing by to sync up with each other.

This would allow for the boater community on the British Waterways to become a safe haven (Jandric 2017; Easterling 2014) for bargees, turning the canal network into a public library (Jandrić 2017), possibly also offering access to shadow libraries such as the *memory of the world* (Mars 2016), *aaaarg* (Dockray 2014), *Sci-Hub* (Bohannon 2016a, 2016b; McNutt 2016), *libgen* (Cabanac 2016; Schiermeier 2015), and similar libraries. Those shadow libraries could be hosted on a *boattr* mesh network. Currently Marcell Mars (Monoskop 2014) is working on a second edition of the 'public library' book (Mars 2014) together with Lawrence Liang (Karaganis 2018). According to Mars: "We're seeking contributions that reflect on the library as strategic and tactical ground, politically, economically, epistemologically. That engage with it from its ideation, material and institutional aspects, both historic and present. Coming at it from the angle of media theory, literary theory, political history, political economy, experimental writing. When discussing initially, our co-editor Lawrence Liang said that our first Public Library book was on the (public) library as a Imagehting concept, while this one should be about the (public) library as a dancing or laughing concept. So, this volume delves also into the imaginary and what Lawrence called carnal librarian-ship, but we wish to avoid either going into typical Borgesian imaginary of radical potentiality or into trying to imagine overhasty nostrums of what public libraries need to turn themselves into to legitimate their economic existence." (Mars 2017)

On the 26th of June 2018 the centre for post digital studies at Coventry University organised a workshop on this very topic, entitled *Radical Open*

Access II – The Ethics of Care (Adema 2018). Care with regard to: a) our means of creating, publishing and communicating research; b) our working conditions; c) our relations with others.

> Indeed, for many members of the ROAC, a commitment to ethics entails understanding publishing very much as a complex, multi-agential, relational practice, and thus recognising that we have a responsibility to all those involved in the publishing process. Caring for the relationships involved throughout this process is essential, from rewarding or otherwise acknowledging people fairly for their labour, wherever possible, to redirecting our volunteer efforts away from commercial profit-driven entities in favour of supporting more progressive not-for-profit forms of publishing. But it also includes taking care of the nonhuman: not just the published object itself, but all those animals, plants and minerals that help to make up the scholarly communication ecosystem. (Hall 2018)

It would be interesting to extend the concept of radical open access to the British Waterways, opening up the the urban commons (Bodó 2016) as a discursive space around topics such as the environment (Yaka 2018), climate change (Chakrabarty 2018), extinction of species (Boakes et al. 2018; Thompson, Maguire, and Regan 2018), and the anthropocene (Robinson 2018). The *boattr* project could become a self-organised platform cooperative (Scholz 2014).

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MIGUEL OLIVEROS

Zona Autónoma Militarizada.EU

ABSTRACT

In 2015 the first mass migration, geopolitical and transnational crisis of the digital age started. This brought along the awakening of a new phase in slave trade and human trafficking in the European borders. In this paper I present an ongoing field study which started in January 2016 and so far has taken me to hotspots and borders across Northern Africa, the Strait of Gibraltar, the Balkans and Sicily. These parts of a vast multimedia archive, which ranges from interviews to testimonies, soundscapes (l.p), videos and photographs, integrate the immersive/360°, interactive and reactive audiovisual performative system zonaautonomamilitarizada.eu, conceptually rooted in military technologies, second order cybernetics and mass media developments from the mid 20th century.

KEYWORDS Slave trade, human trafficking, migration crisis, EU, multimedia archive.

TESTIMONIES

Here is a transcription from an unplanned conversation I had with a young male from Gambia, which took place in the patio of Villa Sikania (Agrigento, Sicily) during the mass crisis of April 2016, at the time I was filming some of the migrants and refugees playing football and volleyball. He had arrived in Sicily via Libya by boat (illegal crossing) after a two-year journey from his country of origin. Bare on mind the male spoke English with a strong Western African accent, so the slang and syntax has been kept in its original form in order to prevail the authenticity of the conversation:

Young male: Carrots!
Miguel: Yeah? So, there is a lot of agriculture in Gambia?
Young male: Yeah, a lot of agriculture you know! A lot of agriculture. When I stayed with my mother, I put the gardening and the vegetables. Summer time and I worked for it...Ground nut… Cultive…Ground nuts, grow ground nuts, cous cous, millet. And when the summer is finished, I cooperate with my mother for the vegetables really.
Miguel: Ok, ok.
Young male: From after schooling that I started. After schooling I graduated.
Miguel: Did you go to a sponsored school?
Young male: Yeah! I do the farm with my father, so when my father passing. I integrate to my mother after the farming of ground nut cultivation
Miguel: ah aha!

(A 30 second pause takes place during the conversation).

Young male: Then I tried to organise a trip to Libya.
Miguel: So how many countries you went passed to go to Libya?
Young male: From Senegal, Mali, Burkina, Niger, Libya. From 2014 I leave Gambia, October 14th, yeah!
Miguel: So, it´s taken you…almost, almost. Well December 2015 you arrive in Lampedusa.
Young male: Yeah December 20th…that! Almost two years.
Miguel: So, you were travelling, working, travelling, working, saving money, going to another country.
Young male: Yeah from one country to another country!
Miguel: And always working on farming?
Young male: No, different type of work. No, no, no. I don´t depend in only one work. I do different type of work.
Miguel: Yeah, yeah.
Young male: Went to did the machette, went to did the “wels”. Went to the homes of the people asking them for jobs. If they have job, they give me different type of job. The time I arrive in Libya I was in prison for six months. Yeah…

Miguel: Why?
Young male: Yeah, we were in the working place, in the working centre from my camp. He was dropping us to work and after he went and called the police, the Libyan police. They catch us!
Miguel: Not good!
Young male: Yeah! We are in Misrata, in Misrata for the end, in Misrata prison for six months!
Miguel: Misrata prison.
Young male: Yeah! In Misrata prison for six months! While work in there. Work for them. And after we escaped. Later! We escaped from them.
Miguel: You escaped from them and you jumped in the boat?
Young male: Yeah. We escaped from them. We go to the city again. I leave that environment. I want another environment.
Miguel: So, when you got the boat, you got the boat from Tripoli?
Young male: Yeah! I got the boat from Tripoli.
Miguel: Yeah.
Young male: Then I walked. From that place I escaped I left I walked again.
(The midday call for prayer starts).

Young male: I had little money. I paid around.
Miguel: And now you are here. You are ok.
Young male: I am ok now. Deep down! I am ok now. Yeah!
Miguel: And is good you could make the crossing.
Young male: Yeah, yeah, yeah it´s good!
Miguel: Yeah! I am just filming them playing. Hehehe!
Young male: Yeah! They are playing yeah! Really!
Miguel: Is that the singing for prayer? Yeah?
Young male: Yeah! Is time for prayer!
Miguel: You Muslim?
Young male: Yeah, I am Muslim.
(A gentle breeze blows in warmth of the midday)

Miguel: Nice
Young male: Nice…
(Over a minute of silence invades our conversation as other resident's head towards the prayer).

Miguel: Libya, Gadafi… Nah!
Young male: Libya, Gadafi…Misery.
Miguel: Yeah! Bye bye Gadafi!
Young male: Hehehe! Bye bye Gadafi! Heheh I, I, I even used to hear that they are making, they are trying to make election for the president.

Miguel: Yeah now they are trying to become more democratic, yeah
Young male: Democratic, yeah?
Miguel: I think so. But Libya?
Young male: Libya is dangerous.
(For a couple of minutes, I continue talking to this young male prior to him answering the call for prayer).

Mission 1: Northern Africa, Strait of Gibraltar, January - February 2016.

Image 1. Miguel Oliveros, *Young male from Conakry playing with mobile phone at the Ghetto C.E.T.I., Frontera Sur, Ceuta, North Africa, January 2016.* Digital photograph. Courtesy of the author.

Image 2. Miguel Oliveros, *Dinner for the guest: Conakry chicken cooked by Jack at the Ghetto C.E.T.I.*, *Frontera Sur, Ceuta, North Africa, January 2016.*
Digital photograph. Courtesy of the author.

Image 3. Miguel Oliveros, *Amadu at the Ghetto C.E.T.I.*, *Frontera Sur, Ceuta, North Africa, January 2016.* Digital photograph. Courtesy of the author.

Image 4. Miguel Oliveros, *Bosco at the Ghetto C.E.T.I.*, *Frontera Sur, Ceuta, North Africa, January 2016.* Digital photograph. Courtesy of the author.

Image 5. Miguel Oliveros, the boys *Bosco, Jack and co. at the entrance of the Ghetto C.E.T.I.*, *Frontera Sur, Ceuta, North Africa, January 2016.* Digital photograph. Courtesy of the author.

Image 6. Miguel Oliveros, *Sub-Saharian refugees which jumped over the Ceuta´s Border Fence, Frontera Sur, Ceuta, North Africa, January 2016.* Digital photograph. Courtesy of the author.

Image 7. Miguel Oliveros, *Southern Border*, February 2016, Digital photograph. Courtesy of the artist.

Mission 2: Villa Sikania (E.A.S.O.), Agrigento, Sicily, April 2016.

Image 8. Miguel Oliveros, Temporary cloths hanger at *Villa Sikania (E.A.S.O.), Agrigento, Sicily, April 2016*. Digital photograph. Courtesy of the author.

Image 9. Miguel Oliveros, *entrance into the limbo, Villa Sikania (E.A.S.O.), Agrigento, Sicily, April 2016*. Digital photograph. Courtesy of the author.

Mission 3: Hungarian/Serbian border no press area, September 2016.

Image 10. Miguel Oliveros, *Hungarian/Serbian border no press area III. STOP IDOMENI, September 2016.* Digital photograph. Courtesy of the author.

Image 11. Miguel Oliveros, *Hungarian/Serbian border no press area IV. Talibani-Money, Money!!, September 2016.* Digital photograph. Courtesy of the author.

Image 12. Miguel Oliveros, *No one is ilegal!. Puerta del Sol, Madrid*, 2016, Digital photograph. Courtesy of the artist.

TRAVELLING NOTES

When revisiting my own personal writings from the first three missions I find some rough impressions, truth, honesty, old drafts which transcend my own words, pretending to be poems which reflect my open pessimism regarding human nature. For me a valuable information since they reflect the mood I was while travelling to these hotspots. They read as follow:

Non-Terrae Plus Ultra;

The voices of the deep,
they will take you away,
enchanted,
they sing and lie to us all,
the strong current won´t lie
she has no mercy on you,
since she understands none of the above.

Just repetition, repetition, repetition, here we go…

Let the tide go.

Can you hear the chromatic sounds in the abyss?

Over a million ancient and new souls,
fallen into the deep abyss of the ocean floor.

Noli timére;

Plus Ultra.
Into the zone.
The militarized zone.

While crossing the neutral land,
nothing was easier than before.

Breathing the unknown.
I found that slavery was reborn.
The old became new and the new will became old.

While crossing the neutral land,
nothing was easier than before.

The Southern Border stood tall
Cybernetic fortress not too old,
the ever and all looking eye, stood tall.
While crossing the neutral land,
nothing was easier than before.

Nothing new, nothing new, nothing new.
Just the same old.
Walking into the tip of the North! The warm North.

While crossing the neutral land,
nothing was easier than before.

Petrium doloris;

Let all humans transcend flesh
For flesh will decomposed,
eaten by the sea creatures it will and it does float.
I have seen it before.
In the crossing land.
While I was in the surf.
Hidden is the price of trauma.
In the land of the barbarians,
in the lands of the same old,
where desperate souls flee from,
and I quote Hobbes:

"the war of all against all"

In Latin it was taught:
"bellum omnium contra omens"

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Oliveros, M. (2018), "Zona Autónoma Militarizada. Europa [zam~]: A multimedia archive and immersive, 360°, reactive and interactive audio-visual system based on field studies across militarized European borders and hotspots where trafficking cells operate", *Technoetic Arts: A Journal of Speculative Research*, 16:3, pp. 345-52. doi: 10.1386/tear.16.3.345_1

EVAGUELIA DIAMANTOPOULOU

Art and Philosophy: Intercommunicating through the Looking Glass of Death

ABSTRACT
The matter of existence, and, therefore, the fear of death has been a recurring theme in artistic expression since prehistoric years. In postmodernity, existential anxieties and the awareness of mortality are depicted both in visual arts and contemporary artistic forms. Furthermore, modern philosophers come to extend or revise older philosophical theories concerning the concept of death. The current paper aims to examine the dialogue between Jacques Derrida's philosophical theory regarding the unconditional life, love, and death, and contemporary artistic works with relevant concerns, such as Bill Viola's video art and Ron Mueck's sculptures. It also aims to shed light on the relationship of contemporary art and philosophy with older philosophical theories and artistic expression as they function as archetypal mirrors of the existential anxiety.

KEYWORDS Postmodern art, existential anxieties, unconditional life, mortality.

INTRODUCTION

"Dying is an art, like everything else.
I do it exceptionally well"
Sylvia Plath

Among the paintings that were discovered in 1870 in the cave of Lascaux, there is one that represents the form of a dead man with a bird's face (Image 1). The pole and bison next to him testify to a hunting scene. But what is impressive is the face - bird-shaped face, as well as the bird depicted next to the dead man, raised as if standing on a pole. Of course, any interpretation of works of the past for which there are no written sources is completely subjective and arbitrary. (Layton 1991). As Foucault says, every time, we interpret other cultures with our modern cultural criteria (Foucault 1969). However, among other possible interpretations, the temptation of identifying the creator's existential anxiety in the image is great. The man's duality and the bird that appears to rise in the sky could be signs of faith in the two-dimensional human nature and the separation of the soul from the spirit when death occurs. In any case, the body of the dead man is a reference to death. That is why we are mainly interested in reading this image based on the fact that the prehistoric anonymous artist illustrated topics of his everyday life on the walls of the cave, including (Gombrich 1995) the topic of death, with a possible personal interpretation of the disparity of human nature. Long before the paintings and the artistic remembrance of death, as well as before the cosmogenic theories in the organized societies of the ancient world (Burnet 1957; Brison 2012), it seemed as though the visual imprint of metaphysical anxiety was equally important.

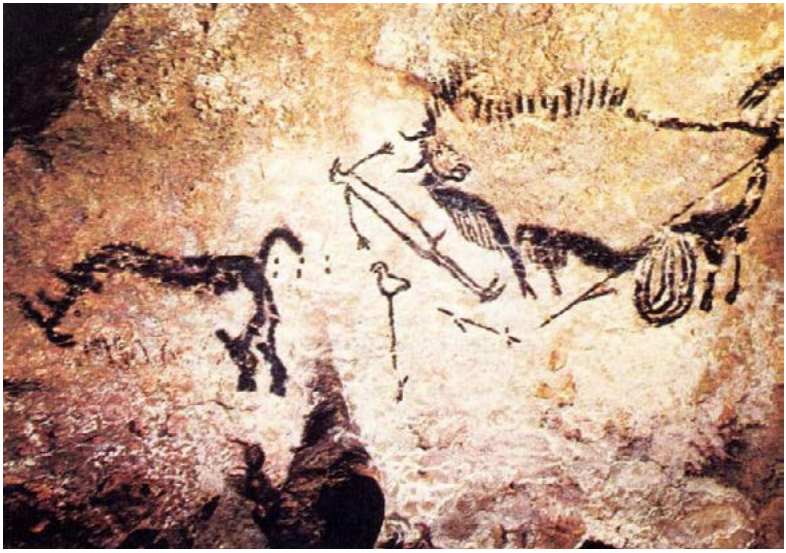

Image 1. Man with a bird head and a bison, 17.000 B.C., cave painting, Lascaux.

Despite the different aesthetic and philosophical perceptions that prevailed from time to time, the dialogue with the mystery of existence remains one of the primary themes of philosophy and art. The thinking or sorrowful man, whom we encounter in many prehistoric miniature figurines, has been paralleled with a man who laments for the death or tries to interpret it. Such is the case of the Ithalpal statuette found in Thessaly, a Greek region (Image 2). According to the etymology of the word ithyphallic (from *ithys* = "straight upward" and *phallus*), the man depicted had a large and rigid penis, which has been mutilated. How, however, can we interpret his stochastic representation, with his head in his hands, as a sign of his masculinity? Did the unknown prehistoric artist try to show the unequal relationship of man with death despite his physical strength and masculinity? Does his thinker, like Rodin's *Thinke*r, think about the question of the afterlife? Rodin created his first *Thinker* for the unfinished relief composition *The Gate of Hell*, which was intended for the School of Decorative Arts. This composition was inspired by Dante's "Hell' of *Divine Comedy* (Dante, 1954), and the thinker, who was placed at the center of the upper part, portrayed the poet himself who was troubled by seeing the punishment of sinners in hell. Of course, the prehistoric artist knew neither Dante nor the Christian perception of the last crisis. But this does not exclude the possibility of his own concern about what happens after death.

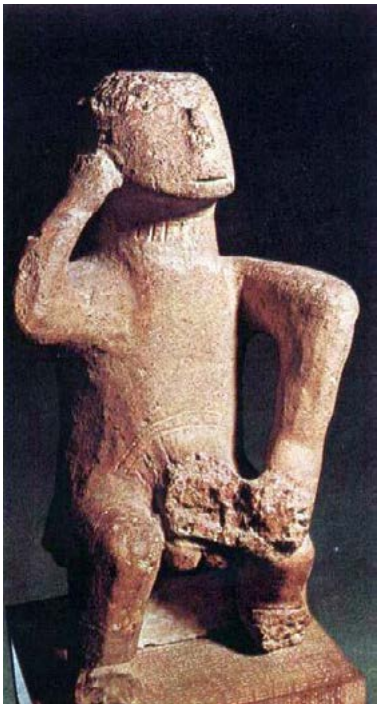

Image 2.
Ithyphallic figurine

BIG MAN

Going into the age of postmodernism, it is important to refer to Ron Mueck's *Big Man* to find selected affinities between him and the thinkers mentioned above. The Australian artist focuses on the realistic representation of the human body in his sculptures. Using modern materials, such as silicone and polyester, he represents the naked -mostly- human body in its finest detail, to resemble a 'real' human body (Greeves 2006; Rosenblum 2005; Hurlston et al, 2011).

However, although his work is focused on natural, 'real' bodies, his images remain hyperrealistic, in many cases because they are abnormally large. His two-meter tall sculpture *Big Man* (Image 3) portrays a naked man sitting down with his head on his hand, as if he is lost in his thoughts, implying again an existential anxiety. The impressive thing is that this huge man, who is two meters tall and particularly portly, reminds a young child seeking protection. This sculpture reminds of Auguste Rodin's *The Thinker* as well as of the prehistoric figurines that also portray people sitting in a similar position, as if they are deeply thinking and have the same fears that are portrayed in Ron Mueck's sculptures. Besides, matters of existence are common in Mueck's art, as many of his sculptures embody phases of human life: birth, childhood, ageing, death In all three cases, the prehistoric figurine, Rodin's thinking and the great man of Mueck, through physicality, the psychic upset about the uncertainty of existence is displayed.

Image 3. Mueck, Ron, Untitled (Big Man)

In all these cases, the artists, known and unknown, realizing humans' materiality, focus on the corporality. That is why they create bodies; to show their weaknesses, not their virtues. They represent the finite human nature, according to the pre-Socratic philosophies, to express pessimistic sentiments.

SURVIVAL

Leaving the fatalistic view of life, let's take a look at Jacques Derrida's placement of the concept of death and, then, the interactive relationship of Bill Viola and Ron Mueck with similar works. Derrida, in his last interview with reporter Jan Birnbaum on the *Le Monde* newspaper on August 19, 2004 (Derrida 2007), discussed the concept of survival that is bequeathed to man by nature in order to define his view of life and his death. In particular, he pointed out that life involves conflicting situations, pleasant and unpleasant, sometimes making us feel like we are alive and others like we are dying. He stressed that, when he feared or suffered, he realized that this is precisely life: the change of feelings, that is the composition of joy and regret. An endless tension ceasing to exist only with eternal sleep. In fact, the French philosopher, returns to his seminar about the end of the world (Derrida 1995; Naas 2014) and answers the fundamental questions of the agonizing predictions of death, salvation, mistrust, and natural survival. There, he refers to the notion of *da-sein*, formulated by Martin Heidegger (Heidegger 1962) meaning the concept of survival that defines the structure of existence, as an indispensable concept of the human trace and the human will, and it composes the dipole life-death. The trace, according to Derrida, is related to the present for the death that has passed, a weak present as a survival mode beyond death. On the other hand, the present is possible because after-death survival protects life. Derrida points out that survival is no longer determined by life or death, as it is life itself. He emphasizes that survival is not just what remains until death, but a more intense life, a life more than life. We could therefore say that Derrida treats life and death as the two boundaries, among which survival's role is major. In 1927, several years before the French philosopher defined the notions of life-death-survival, the book of the Greek writer and intellectual Nikos Kazantzakis, *Saviors of God - Spiritual exercises* (Kazantzakis 1960) - or, according to the Greek title, *Ascetika* - was published. It is very interesting that Kazantzakis begins saying "that human beings come from a dark abyss, end up in a dark abyss and call life the intermediate bright space." We observe that Kazantzakis calls abyss the birth and the death of life, in the sense of the unknown and unambiguous space. At the same time, he calls life bright. It is clear, therefore, that both Kazantzakis and Derrida recognize birth and death as the stations of human existence and focus on the space of duration and action, with different terminology. Referring to the tomb, Derrida emphasizes his dual function as a trace, as a monument stating the fatal death and the expected death. It is the sign, a word that comes from the ancient Greek word 'sema', which indicates the presence of the deceased

dead (Vernant 2005), but also reminds or warns of the death (the preceding death). Respectively, Derrida considers his own trace his authorial work to be left after his death. This does not constitute his ambition for immortality but, as he emphasizes, the feeling he has when he writes that he lives his death through writing.

NANTES' TRIPTYCH

Moving from philosophical theory to artistic creation, I will talk about the work of Bill Viola (Ross and al 1998; Townsend 2004), *Nantes' Triptych* (Image 4), which the American artist presented in 1992 in a 17th century chapel at the Musée des Beaux Arts in Nantes for the National Center des Artes Plastiques. As its name implies, it is a triptych; a video installation with three video projections. According to the author himself, number three brings a balance to the structure of the particular video project, while at the same time activates the cosmological triptych "Heaven-Earth-Hell" (Zeitlin 1995). The concept of the triptych is found in the retables of the temples of western Europe (Gombrich 1995), which were placed on the holy bank, such as that of Jan van Eyck in the Ghent Cathedral. On the other hand, there are also triptychs for private use, such as *The Garden of Terrestrial Delights* by Hieronymus Bosch, created in the early 16th century for the palace of the Nassau comets. In any case, even in triptychs that have purely religious content, such as that of Matthias Grünewald in his triptych (1512 – 1516), which focuses on the passions of Christ, there is a dialogue on the subject of life and death, with different, each time, stage action.

Image 4. Bill Viola, Nantes' Triptych

Let us now talk about Nantes' Triptych. Here, the two-side videos are based on real facts. In the first, on the left, the final phase of childbirth is shown in an obstetrics clinic in California. A pregnant woman is lying on the bed giving birth, while the man, who accompanies her, holds her hand and speaks to her slowly. Then, two midwives help the woman in her last extrusion. Then, the process of birth is completed, and the midwives wrap the baby with bed sheets

and give it to its mother's arms. She embraces it by saying how beautiful it is. In the video on the right, Viola displays the last moments of his own mother, who is in comatose after a hemorrhagic stroke. Her breathing is weak but continuous. Then, a black-dressed man appears. He holds her hand and wipes her lips. One can continuously listen to the woman's faint breathing, until she fades completely and dies. The central video is directed by Viola himself and the protagonists are real actors. There are five successive stories of people that are gradually immersed in a pool, giving the impression that they are drowning. But, then, they begin to gradually rise to the surface of the water. During their upward movement, their bodies are illuminated by the reflections of light, while the splash of water is heard.

It is obvious that Viola, with *Nantes' Triptych*, opens a new dialogue with the question of being. Adopting the form of the trilogy of religious trips, he went beyond the theological philosophy in his own artistic approach to the question of being. We could say that his artistic creation meets Derrida's point of view on some basic points. Viola interprets childbirth and death as the entire meaning of being, choosing only specific shots that he wants to capture: precisely in the way he experiences them behind the camera both in the obstetrics clinic and the hospital. The whole action is represented in an entirely realistic way, without omitting the scenes of extrusion, the cries of the woman and the death rattle of the artist's mother. As a director, Viola has only intervened in choosing the place, the lighting, the time, and the individuals who participated. He does not display conceptually abstract shots, nor does he proceed to any symbolism about the mystery of birth and death. Respectively, Derrida does not deal with the interpretation of existence's beginning and ending. He recognizes both as heterogeneous and unconditional events in which humans cannot intervene. On the other hand, according to Derrida, the human is the subject to all his endeavor to survive. The human is the one who, when he lives, he experiences both positive and negative situations, with which he has to deal. Issues of survival are also highlighted in the central video, where the five people sink into the water and struggle to get to surface. Interestingly, Viola does not choose a real event, as in the other two videos, but builds a fantastic event in which the water flow could be parallel to the impermanence of time. The whole action, now, is directed by Viola in dialogue with the uninterrupted human action in the video. We conclude, therefore, that Derrida's proposition of survival time, as the only time that humans can manage, as opposed to the time before or after their death, is implemented in Viola's *Nantes' Triptych*, where art meets philosophy.

CONCLUSION

In conclusion, we see that the certainty of death is treated as either a fatal taboo or a condition of survival. Despite the new techniques and materials, the postmodern artistic creation comes back to the type of thinker or the type of man struggling for survival, as Derrida defined it. Perhaps, in the era of postmodernity,

Mueck's posthuman and Viola's videos of realistic narrations, even more than recording the everyday life in the cave of Lascaux and prehistoric ritual figurines, impose the struggle for survival as a way of living.

Perhaps for that reason, these artists have chosen to represent totally naturalistic scenes, such as Mueck's *Big Man*, whose construction material (polyester) does not cancel his body's verisimilitude. Viola's video narrations, on the other hand, carry true human experiences in which human beings are the protagonists. In 1898, Paul Gauguin, expressed his existential anxieties representing an exotic place in Tahiti in his painting *Where do we come from?* What are we? Where are we going? (Cachin 1992). In this work, he tried to soften these anxieties and make them seem even fascinating and supernal. On the contrary, postmodern artists, Mueck and Viola, having realized birth and death's *avaton*, expressed their thoughts using life's space and time; the former pessimistically, the latter more actively and pessimistically.

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REYES ESPINOZA

Art, Technology and Trans-Death Options

ABSTRACT

Death across human history is codified and controlled by religion, dogma, or social-political circumstances. However, it is possible to take death out of these realms, instead dying how one wishes. One can design their own death. I will argue that human trans-death can be an intentional performance by persons and that this intentional performance can be combined with the newest and most novel methods of preserving a consciousness. This thesis opens possibilities for future exhibitions and live performances combining art and innovative post-life, post-mortem (what I call “trans-death”) technologies. Possible performances or exhibitions combining art and innovative trans-death technologies include: people doing staged-performances while in their last years of life about their deanimation; public display of cryonically suspended (vitrified) bodies; and if consciousness is ever able to be digitized, the possibilities expand to any number of scenarios explored in anime shows and sci-fi literature or movies. The ethical and political implications of permissibility, freedom, and societal consequences of such artistic and technological expressions are not detailed, but some positions are outlined. A case study is utilized: the last years of life of famous and controversial Timothy Leary (1920-1996) and his struggle with prostate cancer. My analysis of the life and work of Timothy Leary - especially the text he mostly wrote Design for Dying (1997), it was edited by R.U. Sirius - is my theoretical foundation.

KEYWORDS Death, Technology, Art, Timothy Leary, Performance.

INTRODUCTION

Timothy Leary (1920-1996) was a complicated person and the society shaped by his presence and legacy remains complex. We owe, especially in the United States of America (USA), much to his rebellious actions, including teaching us about drugs, probably what he's best known for, as well as his constant pursuit of anti-authoritarian stances. As power multiplies, so do ways to subvert, transcend, or flow out of its way.

I argue that human trans-death can be an intentional performance by a person and that this intentional performance can be combined with the newest and most novel methods of preserving a consciousness. The idea of a human trans-death as an intentional performance by an individual or group of humans opens the space for ethical-political inquiry on permissibility, freedom, and societal consequences of such artistic and technological expressions. This opens possibilities for future exhibitions and live performances combining art and innovative post-life, post-mortem (what I call "trans-death") technologies.

My case study is the last years of life of the famous and controversial Timothy Leary and his struggle with prostate cancer. My analysis of the life and work of Timothy Leary - especially the text he mostly wrote *Design for Dying* (1997), it was edited by R.U. Sirius - is my theoretical foundation.

PLATO AND DESCARTES: DETRACTORS OF THE BODY

Plato, through the character Socrates in his dialogues, is famous in the history of philosophy for explicating theories which made distinction between two kinds of reality: the intelligible world and the sensible world. This introduced a paradox into philosophical theories. The paradox deepened with Descartes, who argued for the distinction of substances between mind and body. Both philosophers prized the mind or intelligible world over the body or sensible world.

Now, there is an inversion of the issue: the body, we think preserves my and your mind, that is, we think individuals' personal consciousness persists because of our bodies. If we extend the body's survival, we extend the mind surviving in time. Through engineering and development of sciences, we have access to more options about how to handle and modify bodies, compared to Plato and Descartes in their societies.

PURSUIT OF BODILY LIFE

I do not want to enter discussion of definitions of life, for that would take us too far from our present inquiry. However, I will maintain that pursuit of bodily life is what we are discussing.

Is the pursuit of bodily life wrong? Is there some definition by which pursuing bodily life is wrong? First, we are all living in our bodies now. Presumably, we want to stay alive for some time after reading this sentence. Time is an essential category that controls these statements: if time did not exist, if time were not considered, we would have no language where we would be discussing living after now.

A question of supreme importance to this essay is how far into the future is it wrong to live? Life expectancy at birth keeps rising. According to the World Bank, weighed average of life expectancy at birth on planet Earth has been steadily rising since 1960 (Image 1). This brings to the fore the question: Is there a hard limit on what age a human can and should reach? A related conceptual distinction is brought to light at the same time. Trans-death options are not the same as immortality. Trans-death options, especially in the most expensive modes, are options for extending cognition through electrical or biochemical means.

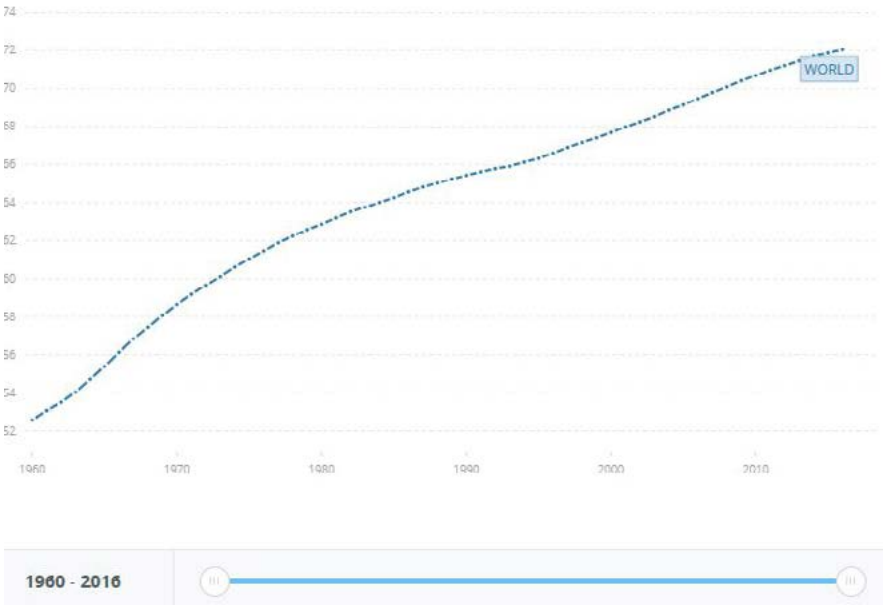

Image 1. World Bank, *Life expectancy at birth, total (years)*, 2018. Line graph. https://data.worldbank.org. CC BY-4.0

Designer Dying and Trans-Death Options

There are criteria, certainties, and probabilities associated with trans-death options. As for the criteria, I categorize trans-death options, life extension, and immortality under the covering concept of designer dying. Forms of trans-death include life extension but trans-death is not only life extension. In the book *Design for Dying,* 'Chapter 11: Picking an Alternative Tech(nique) from the Evolutionary Menu', in part three called 'Designer Dying', Leary outlines and describes various options for trans-death. These include soul deanimation, technological preservations, cybernetic methods for attaining immortality, informational immorality, conceivable direct brain-computer transfer and viral/ digital existence in cyberspace (Leary 1997: 143-52)

Designer dying encompasses both soul deanimation and trans-death. Soul deanimation is your brain-body combination powering down, either through suicide or a pagan, natural process of your consciousness disappearing (Leary 1997: 144-45). Leary thought there was a kind of "immortality" in archiving your consciousness (1997: 149). Your social media (Facebook and Instagram), any videos or writings, can be used to reconstruct your identity, but probaby a "picture" of it. Even if you created a silicone brain out of your videos and writings using an advanced artificial intelligence, this would not bring you back to life. It could show others who you were, but not recreate your personal narrative and life. Still, you are surviving in an artistic and creative way; an archival immorality through replication of information about your life.

MAKE A GRAND EXIT THROUGH ART AND TECHNOLOGY

Possible performances or exhibitions combining art and innovative trans-death technologies include: people doing staged-performances while in their last years of life about their deanimation; public display of cryonically suspended (vitrified) bodies; and if consciousness is ever able to be digitized, the possibilities expand to any number of scenarios explored in anime shows and sci-fi literature or movies.

Leary considered trans-death option of cryonic suspension and thought much about digitization of a "neuro-memories," which he also called "soul" (1997: 5). Ultimately, Leary decided to leave planet Earth without wanting resuscitation, most probably because, as R.U. Sirius says in chapter 15, Leary preferred memories and moments with his dead bohemian friends and living family, instead of a future without them (Sirius 1997: 176). As reported by numerous friends and family in the 'Addendum' of *Design for Dying*, the process of Leary's designed death over a period of two years was a beautiful, disturbing, enlightening, and valuable experience for everyone in the orbit of Leary in those last years of his life (1997: 179-239).

One of the possibilities explored, the idea of human trans-death as an intentional performance by an individual or group, then, opens the space for ethical-political inquiry on permissibility, freedom, and societal consequences of such artistic and technological expressions.

Death across human history is codified and controlled by religion, dogma, or social-political circumstances. However, it is possible to take death out of these realms, instead dying how one wishes. It is possible to design your own death. Due to the forbidden nature and taboos surrounding the death of a person it is almost impossible for many of us to fathom a dying person choosing to be as open and public as possible with their death, much less try to derive pleasure out of the dying process. It is worth considering Heidegger's criteria of humans as beings-toward-death. As Simon Critchley notes, these conceptual criteria are being-toward-death as "non-relational, certain, indefinite and not to be outstripped" (Critchley 2009). Not only are we beings toward death, but we are also beings against death; even though there are many things we do that counter our pursuit of living a life that is as long as is available for us.

Leary realistically explored the possibility of fighting against the traditional certainty of death and philosophically capturing a relational aspect of death through humor, conversation, and art. Feasibility and ethical-social framework of future art combined with the latest technology in post-life, post-mortem possibilities, depends on unpredictable circumstances. Improvising over circumstances you can only have knowledge of a few steps ahead is a paradox of creativity and its creations.

DEATH'S ENJOYMENT, PERFORMANCE, AND PUBLICNESS

Art can help us die with enjoyment in our hearts. Leary lived a public life in a time when being public meant having your picture in *People* magazine and magazines in general. Leary died in 1996, much time before the internet evolved into the many iterations we have now: social media, the internet of things, phone applications. The internet has certainly sped up, but the aesthetic capacities have evolved with the speed. Leary stated his death could be understood as performance art (1997: 100). Given that he had led an open and public life, he wanted to have an open and public death. Through the help of close family, friends, and colleagues he set up a website www.leary.com, where they updated Leary's dying process: 1) reports about his health, including his cocktail of pain-pleasure-relief drugs; 2) explore rooms in Leary's home; and 3) read the words of his writer and aesthetically-minded friends (1997: 102).

Creating New Worlds, Better and Worse

When genetic editing has the power to make fine-tuned creatures, artists will have to make a choice. Will they participate in the experiment of figuring out, what is consciousness? If you could successfully recreate a being that behaves and acts like whatever you consider a human being, would you? Artists use the tools of their day to create art. For some of us, videogames are art. When I play first-person shooter videogames and just a few weeks ago when I played Donkey Kong on Super Nintendo, I made disappear from the screen many figures that were life-like and anthropomorphic. What if I want to create Donkey Kong, Mario Bros, or some other violent game in the "real" world? Are there significant differences between the virtual, programmed world and the physical, programmed world? I posit there are significant differences, but there is a space of conceptual overlap which after reflection it seems we are playing philosophical games with no definite answer, except the stakes are life and death for virtual, programmed creatures of art.

We have been positing that virtual existence of humans may be possible. Are there significant differences between digitized humans and humans that are born through digital means? If we argue that new humans are indeed human even though using computer tablets from infancy, then we may also argue that more digital beings are human as well, This may land us in slippery slope fallacy territory if we are not careful with the parameters of the arguments, since one may want to say that the more digital beings are not human, even though the

somewhat digital beings are human. The slippery slope is that we may argue no partial digital-virtual being is human or conscious because if it is, then fully digital beings must be human or conscious as well.

CONCLUSION

Leary's struggle with prostate cancer made him realize that death itself is a taboo topic. He thought "denial/taboo" about cancer and its aura of a death sentence was the reason he initially saw the prostate cancer as an "ultimate "evil" threat to life" (1997: 3). This bodily condition created in Leary a sense of being anti-authoritarian once more. This time against the factory culture of death in hospitals, not having quite legal access to some of his preferred and effective pain management, and negative attitudes toward the dying person. Instead of retreating into solitude and die solemnly, he announced his death publicly through a website (Leary 1997: 102) and participated in several newspaper interviews (Leary 1997: 104-06). He was loud, active, and humorous in his dying process with friends and family. He also contemplated transcending-death through technological preservation.

In the end, he did not go for cryonics or deanimation via a video on the internet. Using Leary's categorizations, for his personal consciousness, he chose archival, informational immortality and had a pagan, humanistic death. Through his life and work, we can recognize new vistas and horizons for our deaths' meanings, significance and culture. There are also new vistas and horizons for what will count as consciousness and what consciousness can do for us, to us, and what we do to it.

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KATSIARYNA SURYNA - RODRIGO GUZMÁN SERRANO

Agents without Agency: Artificial Intelligence as Artistic Medium

ABSTRACT
Discussions on the use of machine learning and artificial intelligence (AI) in the production of art have gained attention in recent years. In this paper, we critically address the binary narratives surrounding AI that ponder it either as *tool* or as *agent* of artistic production. Later, we discuss the general idea of AI systems as potentially replacing humans in different endeavors by presenting some arguments posited by Artificial Intelligence expert Kai-Fu Lee. Afterwards, we submit the idea of AI as artistic medium by drawing from discussions on the concept of medium in art. We show that the issue of *AI-tool* versus *AI-agent* is a continuous narrative that dates back to the so-called algorithmic art or computer art of the 1960s and 70s. We then tie the idea of artistic medium with the issue of artistic agency and artistic identity.

KEYWORDS Artificial Intelligence, Computational Creativity, Medium, Computer Art.

INTRODUCTION

The incorporation of machine learning or artificial intelligence (AI) into the production of art has gained significant attention in recent years. In 2017, for example, art and artificial intelligence became the theme of the Ars Electronica festival under the title *The Other I*, and in October 2018, Christie's auctioned an AI-generated portrait for almost half a million dollars (after it was originally valued at only ten thousand dollars), which stirred controversy among art critics and collectors.

Art is regarded as a quintessential human activity, which, not surprisingly, is prominently featured in Donald Brown's famous "list of human universals" (1991). Narratives surrounding creative AI, therefore, often advance the idea that art-production is a somewhat *meaningful threshold* that makes AI more human-like. In other words, that when artificial intelligence systems are *creative* (i.e., produce art), some important or threatening line has been crossed. These narratives imply that the value of AI-generated art lies not in the visual features of the works but in the agency of the system, which is supposedly facilitated by the absence of human intervention.

ART AND ARTIFICIAL INTELLIGENCE—A POLARIZED DISCOURSE

Recent discussions on the achievements in computational creativity and the use of AI in the production of art are often dominated by the opposition between AIs as tools versus AIs as agents. In its technical sense, *agent* is used to refer to a program or a module, whose functioning is relatively independent from the designer's interference once the program is made to run (Boden 2010:165). However, in these discussions, the word agent also conveys the idea that AI has come to gradually occupy a position different from that of a mere *tool*, i.e. an artifact devoid of agency and used by humans to create works of art. Instead, AIs are believed to figure as artists themselves to the extent that an ever-growing amount of creative solutions can be performed by the program with little or—perhaps in the nearest future—no intervention by its human designer. Hence, one seems to be faced with two conflicting narratives: Are AI systems tools or agents? Perhaps, as some believe, at the moment AI systems work more like tools but they are bound to become agents in the future. However, overemphasizing this opposition leads to two bifurcating accounts on the matter: on the one hand, throwaway predictions of humans being endangered in what seems to be the most human of activities; on the other hand, dismissing recent achievements in computational creativity as uninteresting, non-creative, or having serious misconceptions about art. This opposition is further exacerbated by a hasty reasoning where denying AIs' artistic agency or the possibility of them being *truly* creative (as opposed to only *seemingly* creative) is interpreted as denying AIs' meaningful contributions to the creation of art. Neither of these alternatives, however, seems to adequately assess and properly conceptualize the status of AI in the production art.

Although many authors defend the agency of computational creativity, the literature on the use of AIs in the study and production of art abounds in arguments as to why AIs cannot legitimately be seen as artists. One of these arguments is articulated by Aaron Herzmann (Herzmann 2018), who relies on the view of art as a communicative act between social agents. Hence, according to Herzmann, to the extent that an AI system is not a social agent, it also cannot be an artist. Conversely, any attribution of artistic agency to AIs depends on a possibility of its functioning like, or at least being perceived as a social agent. Since Herzmann associates feeling, consciousness and personhood with social agency, his argument is compatible with Anthony O'Hear's contention that art is an exchange between subjectivities, and therefore exclusively human (O'Hear 1995). On the other hand, since the arguments against predicating artistic agency to AIs gravitate towards the attributes of human beings which are also seen as preconditions for art, the opposite views elaborate on a possibility of treating them in functionalist and even technical computer terms, thereby effectively questioning whether art is inherently and exclusively human. In this vein, Margaret Boden (2004) defends computational creativity by sketching functionalist conceptions of consciousness and understanding, which debunk what we have termed elsewhere as 'no consciousness, no art' and 'no understanding, no art' arguments (Suryna and Guzman 2018).

We distinguish three main assumptions underlying projects in computational creativity that advance the idea of an independent artificial artist. First is the assumption of art as a kind of creativity that licenses extrapolations from *creativity* to *art*. In other words, if creativity is treated as a more general term, then what holds true for *creativity* should also hold true for *artistic creativity*. This transition is often not problematized as it seems natural to refer to art while making claims about creativity in general (i.e. if it is creative, it should also be artistic). Defining the necessary properties of art creation then, as Herzmann notices (2018), becomes a matter of spelling out creativity through a set of requirements such as the *creativity tripod* by Colton (2012). However, creativity and artistic creativity are not equivalent; art need not be original and many constituents and accompaniments of artistic practice are not creative per se, such as the tradition of an art medium, the importance of exhibition space and institutions, etc.

The second assumption, which we spelled out elsewhere (Suryna and Guzman 2018), supposes that if an agent produces art-like outcomes, then it should be capable of doing and, perhaps, even understanding art. This manifests in the focus on AI-generated outcomes and their properties such as intrinsic qualities, novelty and whatever property that a given model of creativity specifies, which thus become the grounds for deciding whether a given AI system is capable of producing art or is artistically creative. Such approach is espoused by, among others, Margaret Boden (2004, 2010). The idea behind this assumption seems to be similar to an artistic Turing test: if one is faced with the outcome of an activity that is sophisticated enough to be a *mark* of intelligence,

i.e., outcomes that can be appreciated for their skillfulness and originality, and be exhibited and sold just like human-made artefacts, then whatever has produced these outcomes must be an agent capable of art creation. This idea offers a contorted version of the *institutional definition* in art (if it is exhibited, it is art) in which if the outcome is perceived as artistic, its creator must be a type of artist.

In a more practical context, this assumption also manifests in delegating the issue of whether AI *understands* what it is doing-a feature we commonly expect from a human artist–to the perception of the outcomes. For instance, when describing Paul the robot, a system that seems to create live portraits from human sitters, creators Patrick Tresset and Oliver Deussen (2014) explicitly state that an important factor for them was that the outcomes looked "informed" as opposed to random, as to imply that the system had the "intention" to create them like that. The robot takes a picture of the sitter and renders it graphically; however, the viewers have the impression that the robot is observing them in real time as the portrait is rendered-not knowing that a picture of them has already been taken. Other practitioners also use audience perception as a main criterion in judging AI as creative and artistic. Colton (2012) speaks about generating outcomes that are more stimulating to the brain (i.e. are richer in information) since the more *engaging* and *interesting* the outcomes are, the bigger the likelihood of the system to be perceived as agentic and creative.

Finally, the third assumption is the possibility of divorcing the concept of creativity from that of value. For example, whereas value is featured in Boden's account of creativity as one of its three components (the other two being novelty and surprise), she leaves the idea of artistic value underspecified since value, according to Boden, is something that cannot be stipulated and often produces disagreement (2010). To some, however, creativity ought to be divorced from value precisely because it is subject of disagreement or is human-specific, which constraints the attempts at developing a more generalized, functionalist concepts of creativity (Dorin and Korb 2012). Whereas it is true that specific values, such as what counts as being mathematically interesting or worthy of artistic appreciation generates disagreement, instances of creativity across various domains of human inquiry depend on different families or types of value. For example, while creativity in sciences will depend on cognitive and epistemic values, art is dominated by non-epistemic, non-cognitive values such as aesthetic values, relevance to socially or critically engaged topics, etc., as well as values that are not intended from the beginning.

Together these three assumptions lead to the view of art as manufacturing of goods. This is an oversimplified view, in other words, the idea that art is nothing over and above a potentially unrestricted production of objects of art. Alternatively, if art-making is equated to information processing, i.e. what happens between inputs and outputs, then the value of computer creativity seems to be reduced to how it is produced - coming up with a statistically most probable pattern of representation from an ever growing data set. Under this

view, the appreciation of AI-generated art becomes confined to three features: automation, being art-like, and imitating human artists.

The infamous portrait *Edmond de Belamy* - the painting sold at Christie's in 2018 - was created by analyzing dozens of paintings in different historical styles. This work was created by Generative Adversarial Networks (GANs), a system developed by Ian Goodfellow et al., which perform a two-fold layer of pattern recognition (2014). The portrait is credited not to the creators of the program, the Paris-based group Obvious, or to the creator of the technology, Goodfellow et al., but to the algorithm itself, which incidentally *signs* the portrait on the lower right corner. The hype over this portrait owes its financial success, at least in part, to how Christie's announced it as the first ever algorithmically generated artwork to be auctioned, which many critics denounced as misleading. Christie's (and Obvious) presumed that the portrait represented a new era in art production, one in which unsupervised new agents produce visually striking and compelling images that can be attributed to non-human artists

But to understand the technology better, let us consider the painting completed in 2016 as a result of The Next Rembrandt project. The project was created for ING Bank by a team of more than 20 people at the J. Walter Thompson creative firm in Amsterdam, who partnered with Microsoft, TU Delft, and other institutions. For the project, more than 340 paintings by the Dutch artist were analyzed to "distill the artistic DNA of Rembrandt," as promotional videos of the project express. The resulting painting consists of a portrait of a Caucasian male that seems to capture and recreate the style of Rembrandt more than three centuries after his death. In this project, the creators did not attempt to portray the system as agentic, but neither did they credit themselves (or Rembrandt) as *artists*. In this case, artificial intelligence was used as the means to create or find, not a *next Rembrandt* as the name suggests, but the average Rembrandt, a *possible* Rembrandt. These two examples, essentially using similar technologies, make evident that the adscription of artistic agency to AI is contingent and mostly rhetorical.

A DANGER OF REPLACEMENT

Why are we so afraid of AI? Just like the fear of losing jobs to AI, art creation has also suffered from this narrative. This fear stems from the narrative of AI systems as agents. In his latest book *AI Superpowers* (2018), Kai-Fu Lee, artificial intelligence expert and former head of Google China, discusses what he calls the "Risk-of-Replacement charts," where he addresses the areas of human activity that are at risk of being replaced by AI as well as the "safe" areas or areas that are "out of reach" of AI in the foreseeable future. At risk activities, according to Lee, include those that require less social interaction, low dexterity and are highly structured and oriented towards optimization. The "safe" areas include activities that require either higher dexterity or social interaction (or both), and are based on strategy or creativity. By *safe*, however, Lee does not mean that these are professions where AI will play no role, but rather activities

where, at present, are out of the reach of *current* and *foreseeable* AI systems or where the social component plays an important role.

As a first approach, Lee sorts out types of jobs according to four quadrants based on physical labor. The first quadrant, Danger Zone, is specified by low dexterity and low social interaction, and includes jobs like dishwasher, cashier, and assembly line inspector, all of which could be replaced by current AI. A second quadrant, Slow Creep, characterized by low social interaction but high dexterity, includes jobs where the role of AI will become more and more important but where automation will not happen abruptly, this includes plumber, house cleaner, taxi driver, and aerospace mechanic. A third quadrant, Human Veneer, requires high social activity but low dexterity and includes jobs such as bartender and waiter. Finally, the last quadrant, the Safe Zone, includes activities that are both highly social and require high dexterity, including physical therapist and hairstylist. Similarly, Lee performs this analysis in a second approach that looks at cognitive labor.

Instead of thinking of AIs as tools or as agents, what Lee's analysis teaches us are the features of the behaviors where the implementation of AI can be more pervasive to the point of actual replacement. What Lee points out is that, so far, AI possesses three essential non-technical features that will determine its role in human endeavors: artificial intelligence is good at 1) low dexterity but highly structured environments, 2) when it is geared towards optimization and automation, and 3) in environments where the "human touch" is unnecessary. Art lies somewhere in between all these quadrants, because art is much more than just the production of goods (artworks). There are aspects of art production that can require lower dexterity, less human interaction, such as the production of prints or the analysis of thousands of images, but there are other aspects that require the opposite, high dexterity and high human interaction. Delegating some of these aspects to AI, while still controlling or managing the overall artistic creation is, we suggest, what can make AI an artistic medium.

ARTIFICIAL INTELLIGENCE AS MEDIUM

Artists use technologies in myriad ways. The abundance of labels like *digital art*, *(new) media art*, *information arts*, *artsci*, etc., is already an indicator of the heterogeneity and elasticity with which contemporary artists approach and engage with new technologies. This heterogeneity can give the impression that these practices do not possess any particular artistic medium and, thus, that they are not entirely different from other contemporary artistic practices, in which any object or material can become the artwork's medium. Technological arts, however, exist in a paradoxical continuum between medium specificity and immaterial performativity. In this continuum, the use of a specific technology, like virtual reality or the Internet, with its unique features, largely shapes the discourses around the artwork. In this sense, technology becomes an artistic medium in its own right.

What is an artistic medium? Sometimes *medium* refers to the material base of an artwork (ink, wood, marble) or the specific technique used to create it (oil on canvas, etching, *impasto*); other times it is used to refer to a particular style, genre, or art tradition (pointillism, calligraphy), or even the immaterial or conceptual idea imprinted on the work (light, gestural expression, movement). In the 20th century, the idea of an artistic medium as being different from the physical medium of a work began to be formulated as a way to understand modern and contemporary artistic practices that questioned the primacy of materials over ideas or concepts - mostly associated with Greenberg's *medium specificity*. When discussing the medium of painting, Joseph Margolis (1980) explains that, in contrast to materials such as pigments and canvas (i.e., the physical medium), the artistic medium consists in the "purposeful system of brushstrokes"; in other words, the technique and ulterior intention carried out by the artist. In similar vein, David Davies implements Margolis's argument into the performing arts and notes that, in dance, "the physical medium of bodily movements is to be distinguished from the artistic medium of articulated steps" (Davies 2005: 183).

But artistic medium could also be understood in a broader sense. For Niklas Luhmann, a medium is a channel through which communication occurs (in this, mediums and media coincide); however, according to Luhmann, mediums differ from other materialities in that they allow a "high degree of dissolution" while also displaying the "capacity for fixation of shape" (Luhmann 1987: 102). By this, Luhmann means that a medium is flexible but it must also allow specific instantiations to emerge. In Luhmann's account, language and money are both mediums, since both are dissoluble while also fixable into discrete forms (language can be fixed into phrases and sentences, and money can be fixed into quantities and balances). In this sense, Luhmann argues, a medium cannot exhaust itself since different iterations of shape will not affect the medium overall. Mediums can also build on existing mediums as second and third degree mediums. A medium can assume the existence of a medium and thus become a *higher degree medium*, which itself can be assumed by another medium and so on, *ad infinitum*, until society itself becomes a medium - or in Luhmann's terms, a *system*.

Luhmann's notion of medium embodies the idea that an artistic medium is not only confined to the physicality of a specific material; instead, a medium emerges as a sort of special system, or what Jacques Rancière (2011) refers to as a "specific sensible milieu." This system or milieu might be anchored in a material element (such as paint, ink, or marble), but it is enriched by a larger system that nurtures its possibility as artistic medium as well as a specific tradition that delineates the extent and the limits of its mediality.

We contend that the technology of machine learning—which powers AI systems—is the potential artistic medium in question. The specificity of this medium lies not only in its ability to automate artistic processes but also in its possibility to rethink the author's identity in view of delegating certain aspects of

a creative process to an intelligence that is not entirely human. While the system *makes* decisions over patterns and large data sets, a human artist guides the overall project and the discourses inscribed onto the system—which can include the adscription of agency as an artistic gesture. In this sense, the *signature* of the AI system on *the Edmond de Belamy* portrait can be read as part of the artistic statement rather than as a sign of agency by the system. To be clear, following Lee's approach (2018), we base our assessment on current (and not hypothetical) AI. The problem of meta-motivation (the drive to do art), which we have discussed before (Suryna & Guzman 2018) is a debate that certainly requires further analysis but it is also a feature that current AI systems do not possess. As Lee (2018) points out, artificial intelligence are not systems that emerge from natural selection, therefore survival drives such as competition, dominance, and volition, are not traits that can emerge *naturally* within them. If artificial consciousness is to be *awoken* in the future, Lee points out, it will happen with a yet-to-be-invented technology, but certainly not through what we call today machine learning.

COMPUTER ART—A NEW MEDIUM CREATES NEW *AGENTS*

The controversy that the work by Obvious generated in 2018 was partially due to the fact that the creators and the Christie's, as we discussed earlier, presented it as a completely new phenomenon. Art critic Jerry Saltz (2018), however, contextualized the work from various angles such as its aesthetic properties (i.e. image overlay that can be traced back to the 1950s) but, more importantly, its mode of production, which Saltz relates back to Sol LeWitt's written instructions and other instruction- and algorithmic-based art of the 1970s.

AI as an artistic medium can be rightfully seen as heir to the use of algorithms in computer art of the 1960s and 70s. Early computer artist Frieder Nake associated the idea of computers becoming creative agents with the failure to "see the dramatic change in artistic creation from material to sign, from machinistic to deliberate semiotics" (2012:74). Nake observes that the challenge of early computer art was to make a computer do something it was not intended for, at least in the first place. Having defined the creative process as a process of overcoming the material's resistance to the artist's idea or intention, Nake reserves the role of such material to algorithms. The algorithm, as new artistic material, brought with it a new artistic ontology, in which the identity of the artist and that which makes up a work of art were redefined. As Nake succinctly observed, the artist's role shifted from the generation of artefacts to specifying a set of conditions that a machine has to satisfy in order to generate certain outcomes. Nake dubbed this new artist as *algorists*, artists who "think their work and let machines carry them out" (2012:63). Thus the production of the artwork was separated from its conception operationally. Artistic skills also changed as the artist was no longer, at least directly, engaged in the work with tangible materials but busied themselves with writing algorithms. The work of art itself

shifted from an individual and tangible piece to entertaining the possibility of a potentially unlimited set of such pieces that an individual object of art thus represents (Nake 2012:85).

In a very similar way, generative art took on new possibilities afforded by generative algorithms as to redefine the role of the artist in the creative process and what constitutes the work of art. Generative and especially interactive generative art problematized artistic autonomy by way of handing over some of the creative decisions to the programs, as well as arriving at outcomes or sustaining interactions between the system, environment, and the audience, which were unpredictable to the designers of the system. Artists saw the value of their work in the agency of the system and the participating audience inasmuch as the artist's intervention into the creative process was restricted and the authorship for the work of art *redistributed* among the system, its designers/artists, the audience and/or environmental factors (Boden 2010). Thus, the new medium—the program and the hardware that implements it—comes with a discourse in which this medium is presented, or even disguised as the agent that takes over some of the functions traditionally performed by the artists, transcends the artist's limitations in exploring new possibilities, or takes on unlimited amount of configurations not foreseen by the artist.

CONCLUSION

The polarization between conceptions of AI systems as tools or as agents of artistic production seems to constrict fruitful discussions on the meaningful incorporation of these systems into the art system. An expanded notion of artistic mediality, understanding machine learning and artificial intelligence as artistic mediums in their own right, can serve as a better approach for the appreciation of artificial intelligence in art production. More than mere tools but avoiding claims of non-human agency, mediums are aesthetic arenas that offer possibilities as well as constraints.

As a final thought, we would like to ponder a possible model to understand the current integration of artistic AI systems into the system of art. We see this model in so-called outsider art. On the surface, the value of outsider art seems to lie in the circumstances of its creation, in who created the work. Often belonging to marginalized groups based on race, education, disability, etc., outsider artists are distanced from existing structures of art production and conventions that allow them achieve *honesty* and *inventiveness* that are thought to be compromised in the work of professionally inscribed artists. Outsider artists do not build their artistic identity by contextualizing their work, they are *discovered*: their artistic identity is articulated by critics, commentators and especially other artists who explore creative possibilities of discovered artists' artwork. The value of AI-generated art also seems to lie in the circumstances of its production, i.e. by that *intelligence* that is not entirely human. Similarly, artistic AI systems can be integrated through artists exploring the creative possibilities these systems afford and articulating their identity through this medium.

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A Sentimental Analysis of Biohackers on Social Media

ABSTRACT

The aim of this paper is to investigate the ways biohackers are communicating with each other in social media and particularly in Twitter. Biohackers are referred as life scientists who combine biology and technology, along with the ethics of open data -that characterize hackers- and open source software. Their aim is to transcend their human body and to create a better version of themselves.

Social media and Twitter in particular are popular for giving the chance to users to update everyone with their thoughts, activities, opinions etc. The current study aims to examine the connections between biohacking groups in Twitter and check its potential to provide insights on the biohacking scene. Towards this goal, we collected tweets in a given time frame and we analyzed the interaction between users and determine whether the positions of the writers are positive or negative.

In order to collect the data, we used the help of R Language combined with the Twitter Search API. For determining the positive or negative attitude towards the topic we used sentimental and emotion analysis.

For our research we analyzed 6956 tweets. We used a real-time recording to collect the publicly available English tweets for approximately four weeks. For the selection of tweets we used topics that are popular among the biohacking community and that we believe can shed more light on the biohacker groups´topic. The queries that we used for search, collection and analysis were: #biohacking, #DIYbio, #openscience and citizenscience.

KEYWORDS Biohackers, Biopunk, DIYbio, Biotech, Open Data.

INTRODUCTION

During the last decade the world witnessed the movement of biohacking, an act that moves between the lines of hacking, biology, open science and activism. Ahteensuu and Blockus (2016) describe biohackers as hobbyists who perform biological engineering outside institutionalized settings or the academy, in their garages or their kitchens. Biohacking has the DIYBio or the "do it yourself biology" in its core and combines the open "code" of hacking along with the principles of biological engineering. From a previous research (Giannakoulopoulos et al 2017) we observed two main kinds of biohackers, those who interfere with their bodies and those who do not. The bioharckers that interfere with their body are also called bodyhackers or grinders (Ikemoto 2017). The latter ones are similar in a way to self-helping websites and they are also called life-hackers (Waxler 2017). Both kinds of biohackers aim to make a better –if not the best- version of themselves.

Their idea of garage science and DIY biology has divided the experts. Some think that revolutionary discoveries can come outside laboratories and academy (Penders 2011) while others raise questions regarding security as well as the ethical nature of biohacking (Ahteensuu and Blockus 2016; Nash 2010). Inter alia, biohackers are advocating for science and data that are open and accessible to everyone (Delfanti 2013). They see biohacking as "citizen engagement with science and technology" (Ahteensuu and Blockus 2016).The biohacking groups are focusing on promoting their cause through educational events like conferences, public speeches, courses and demonstrations at exhibitions (Ahteensuu and Blockus 2016). It is worth mentioning that the available sources and studies on this field are quite limited.

In this paper we analyzed 6956 tweets in order to investigate how Twitter users fond of the biohacking scene interact with each other. The tweets were collected between October 3th – 16th and November 5th to 17th 2018. These are few of the questions this paper will try to shed light on: Do biohackers form a group? Are they concerned on promoting their cause? Are they just using Twitter for commercial purposes?

METHODOLOGY

For the data collection we chose to use the R language in combination with Twitter's Search API. Twitter's Standard Search API is free and it offers access to tweets that include specific queries for a limited amount of time which is one week. R was chosen for this analysis because it is open source and it specializes in analytics and natural language processing. It provides a single framework from data collection to data analysis and visualization. This research followed the steps of Observation, Hashtag Selection, Pilot data collection for a week, Final collection and analysis.

With the advent of Web 2.0 a lot of people are resorting in social media in order to express their views and thoughts. The biohacking scene seems to go

with the flow and commercial and non-commercial biohacking groups such as Bulletproof Executive and DIYbio have active presence on social media (Bihani et al 2015). Twitter, one of the most popular social networking platforms gives its users this options because there is the potential for an open discussion. A user shares its thought and a random unknown user might answer.

The platform of Twitter was chosen because it provides easy access to open data and because it includes the element of conversation between users, a characteristic that we cannot derive from Facebook, unless we choose to analyse groups. Twitter is also more convenient to examine since every tweet has a size limitation and it is frequently updated (Kim et al 2010) since users are tweeting all the time, independently of the time zone. In addition, Twitter has been used in similar researches that group people. This research can invoke elements from microblogging research and from user profiling. What we know is that Twitter is used from users to share their thoughts and to describe their experiences. If we combine all these similar messages we can arrive at useful conclusions regarding a user's personality (Wald et al 2012). In our research we want to derive conclusions for a whole group.

In a previous paper we discussed the portrayal of biohackers in popular media outlets. For that analysis we have focused on the biohackers that are interfering with their body. In this paper we will not make the distinction to biohackers and lifehackers and we will analyze their interaction on the popular microblogging platform of Twitter. For this research we decide to search for the five most common hashtags that are used by people who belong to this scene. Before we define the words that we were going to look for, we decided to make a preliminary research in order to see which words are used the most by the biohacking scene. The initial idea was to use the hashtags: #biohacking, #DIYbio, #openscience, #opendata and #biotech.

The hashtags were selected after observing tweets with biohacking as its main theme and from well-known users related to the biohacking scene. The reasons for using hashtags like #DIYbio, #biohacking and #biotech are obvious, since they are directly correlated with terms the biohacking scene is using. The hashtag #openscience and #opendata were also found out to be used along with the other three hashtags.

However, after the pilot data collection we observed that the term "open data" and "biotech" is not exclusive to biohackers, thus some results that were generated were not indicative. Hence, after observations we found out that a hashtag used in combination with biohacking, DIYbio and bioscience is that of #citizenscience which is more relevant and focused on the biohacking community. The results of the #biotech queries were excluded since biotech was generating a lot of results related to biotechnology companies.

After the selection of the hashtags we collected and analysed the data. It is worth mentioning that we decided to include the above words, either as hashtags or as words inside the tweets. For each week we collected and

analysed the data and in the end we combined them. The Search API of Twitter gives the possibility of one week tracking. That is why we collected the result in four different datasets and four different times. At this point, it should be made clear that this study used only public tweets derived from the Search API and it did not make use of any personal data or sensitive content.

The collection of the data was followed by sentiment and emotion analysis based on the lexicon by Mohammad et al (2010, 2013). The sentiment analysis gives us the ability to characterize the tweets as positive or negative while the emotion analysis provides us with more depth on the emotions of tweets such as anger, surprise or fear.

RESULTS

For the period of data collection mentioned previously, the words in question were found 7025 times in 6956 unique tweets. More specifically, the word “biohacking” was found in 1142 tweets. The word “diybio” was found in 53 tweets. The word “openscience” was present in 3837 tweets and the word “citizenscience” was present in 1993 tweets.

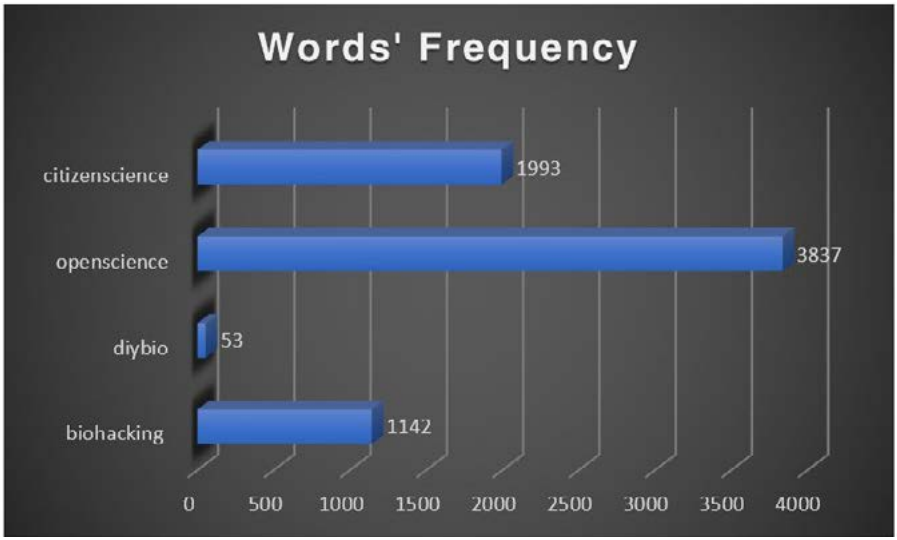

Image 1. Words’ Frequency

In addition, on the 6956 unique tweets, 10191 (84%) words were identified to have positive sentiment and 2009 (16%) negative (Image 1). Regarding specific emotions, out of 16739 words, 30% (5105) of words were found to express trust, 22% (3830) anticipation, 16% (2720) joy, 8% (1368) fear, 7% (1211) surprise, 6% (996) sadness, 5% (837) anger and 4% (672) disgust.

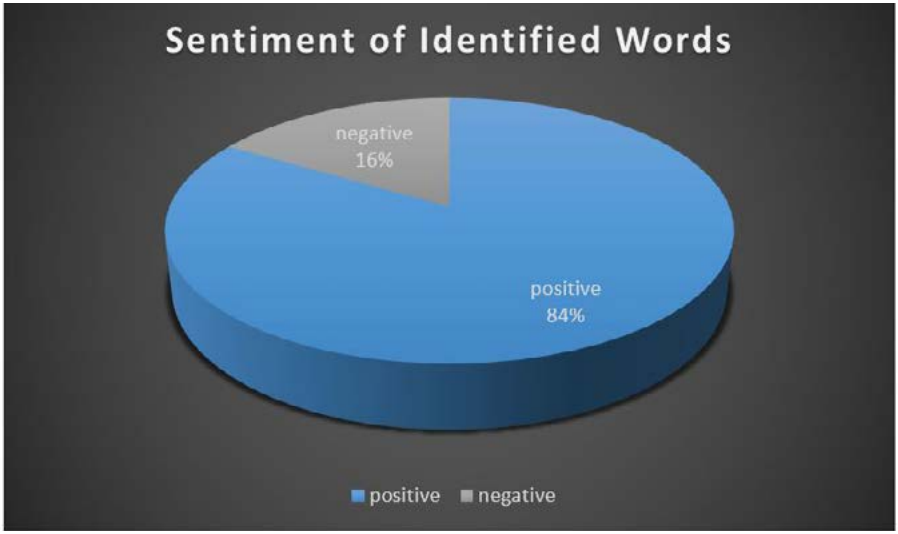

Image 2. Sentiment of Identified Words

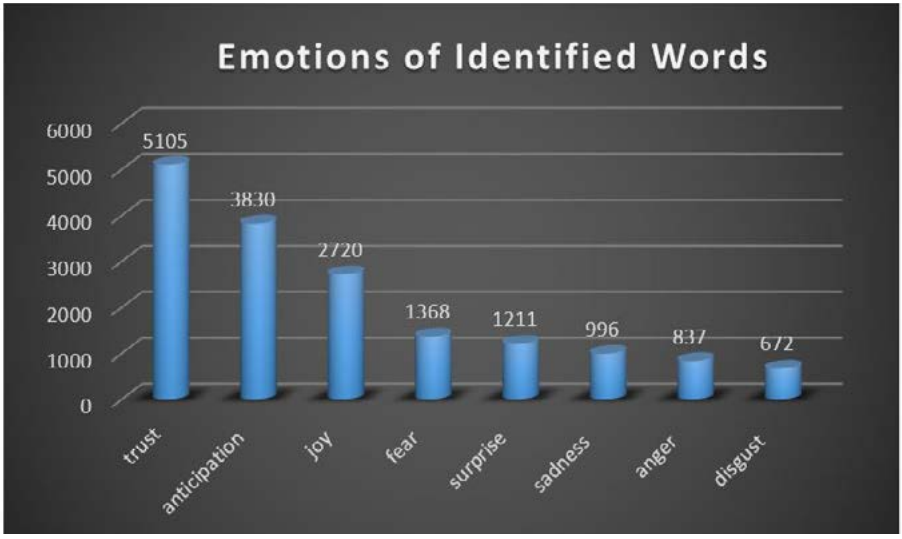

Image 3. Emotions of Identified Words

As far as the emotions of the tweets are concerned, the majority of them (31%) are unknown. This means that it was not possible to find a word in the tweets that express any of the emotions in question. In addition, 23% of the tweets could not be categorized in any of the emotions (uncharacterized). From the rest, 21% of the tweets (1510) are expressing trust, 13% anticipation, 3% joy, 2% fear, 1.1% sadness, 1.13% anger, 0.8% disgust and 0.7% surprise.

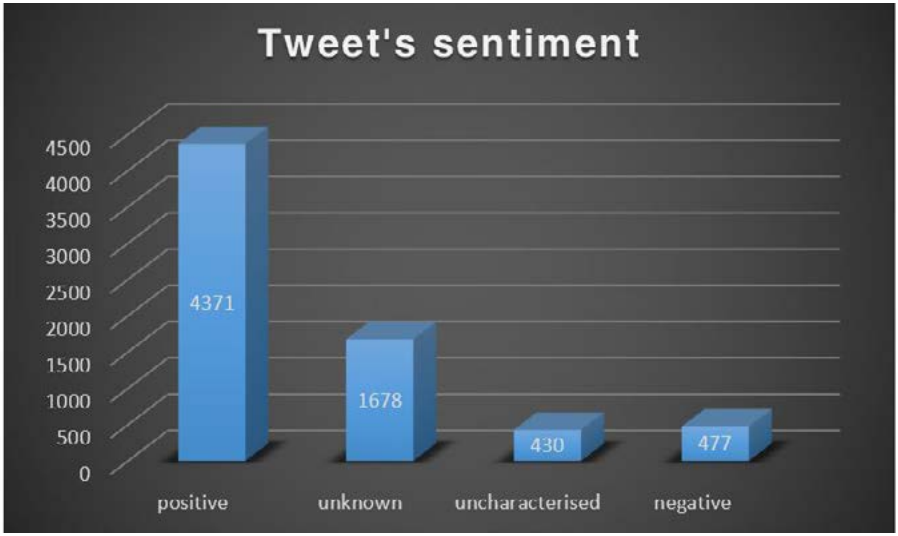

Image 4. Tweet's sentiment

Lastly, as far as sentiment is concerned, more than 60% of the tweets are positive, in contrast to negative which is almost 7%. Furthermore, 24% of the tweets are of unknown sentiment and 6% of them cannot be characterized as positive or negative (Image 4).

CONCLUSIONS

From the results we can see that the biohacking scene is active and that the majority of this community is positive in its majority towards each other. The fact that the #diybio which is a trademark term on the community is not that widely used might be an indication that a lot of members of this community like to follow the topic but they are not ready to experiment. The results also showed that there is a preference into more general topics rather than experimentation. This might indicate that a lot of users fond of the biohacking scene like to follow this trend but they are not ready to experiment yet.

Another interesting observation comes from the results themselves. While other hashtags would have generated thousands of results, these specific hashtags -which are popular to the specific community- generated only few thousands, even in the case we had included the #opendata hashtags. This indicates that although there is a hype and biohackers are making the news, the reality might be that there are not that many people intending to follow this scene. Of course, it might just be that they are not active on Twitter. A further study researching other social media might be useful in order to find out if they are active in other social network platforms. Last but not least, we should stress on the limitations the lack of previous studies in the research area poses.

Last but not least, as far as methodology is concerned, in this paper we tried a sentiment and emotion analysis based on lexicons. In future research, more advanced methods as machine learning or hybrid methods can be tried in order to shed more light on the biohackers movement not only on Twitter but in other social media such as YouTube.

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PAULO BERNARDINO BASTOS

Transcendences: Collaborative Creativity as Alternative Transformative Practice of New Technologies in Art and Science

ABSTRACT
The technology has always been turned into perfecting the image and this may be our beliefs and wills for understanding the world through its simulations. Therefore, we try to understand the subject, how it was done, by whom, when, etc., and the interest on the image lies firstly in this possible reference to the visible world – need of placing the image and connecting with it. The result of the intersection between technology and interactivity drives us to perceive the development of the idea of shared production that spreads out as will inherent to the attitude of the creative act. The work, on being revealed in the aspiration of interactivity enounces a positioning that is linked to the technological means, on space and proceedings issues. The main leading theories of 'transformative creativity', which has emerged in the last decade, proposed by Margaret Boden (e.g. Boden 1990), gave us important notions of personal/historical-creativity, which have helped to define creativity in a much more formal context. I'm departing from the methodological approach that considers Deleuze and Guatarri's concepts of *Rhizome* and *becoming* as a theoretical and philosophical framework. By considering art practice as research we are inspecting how creativity emerges from chaos and is a participatory practice; how this phenomenon expands 'rhizomatically' in a co-authored situation and how a lead into the complexity of creation can be mapped through reflection archiving and writing – exegesis. What is this model of approach embedding? Is the best way to be creative in a specific field to gather as much knowledge about the domain as possible? Is it just a capacity of organizing retrieval processes enclosed in our cognitive capacity of memory? Consciousness, attention and motivation are considered in the formal concepts of creativity? Is transformative creativity what we as artists are searching for – a means to transcend a conceptual space? Has a co-authored situation ever been considered? This article is metaphorically a crossroad of the artistic mind in a creative practice-led research considering solo and co-authored creation.

KEYWORDS Art Practice, Collaborative Creation, Image, Interaction.

INTRODUCTION

The technology has always been developed into perfecting the image. This may be our beliefs and wills for understanding the world through its appearance. Technologies have always been present throughout the art history due to their intrinsic connection with image production. The work of art is a combinatory addition of ambulatory probabilities, where the spectator is placed and transformed, allowing a mutation of attitudes, creating a complex and paradoxical situation, much because nobody wants to state a model (in the sense of a truth), but an opening path for the physical and intellectual experience of art.

How to be creative in a specific field - to gather as much knowledge about the domain as possible? Awareness, attention and motivation are considered in the formal concepts of creativity? Is transformative creativity what we as artists are searching for - a means to transcend a conceptual space? How may this be articulated in a co-authored situation? Is collaborative creativity a practice of transformation? How does digital technologies affects that?

FRAMEWORK OF THE PROBLEM

The focus of this paper is the result of the intersection between technology and interactivity, which drives us to perceive the development of the idea of shared production, which emphasize in terms of creativity, three stages, after Margaret Boden (1995): combinational, exploratory and transformative creativity.

The main concern of Margaret Boden is to understand the origins and formation of creative ideas, within the context of discovery. The “idea” the author refers to could be taken as a structure to satisfy a style of thought or a solution for that style. According to her the solution and the style are associated with the conceptual space (system generator - genesis / training - which maintains a given area and defines a certain set of possibilities) - thus, the greater the knowledge about the conceptual space, the greater the chances of obtaining better creative solutions.

Art is indeed a product of the human freedom, not seen as a need of the instinct face to the intention, but a primordial freedom, without direct intention as an orientation, where one finds out the causes and tries to foresee the consequences.

IMAGES – FROM TECHNOLOGY TO DESIRE OF INTERACTION

When speaking of images (fine art images), we believe they have always been a dialogue between matters, subject and mediums, chosen by *Man* to communicate their surrounding world - being it of a religious/spiritual nature, a translatable/verifiable nature or even of emotional/abstract nature[1]. Between the 15th and the 19th centuries we assisted an *esthetization* of the image. Artists

[1] Indeed, since pre-history until today, images, assembled with other mediums, characterized, periods or epochs that are rudely designated for - “Ancient World”, “Middle Age”, “Renaissance” and “Modern World”. Certainly that these designations are divisibles, depending on the type of analyses it brings with it, cfr., Janson, H.W., História da Arte, Fundação Calouste Gulbenkien, Lisboa,1977.

started, in a conscious way, considering the ways of production for art works and writing with the intention and aim of spreading their purposes. Artists, as a reflection of society in general, became further aware of the development of science. A strong reason for the end of the classical period and the start of modernity stands essentially in the transformation operated by technology as a result of the Industrial Revolution.

Representation supported by devises/apparatus - Images were a result of observed situations - as were before us - theatrical in the sense of the physical observer in the physical theatre, which Peter Galassi (1981)[2] talks about, and now (after photography) it has become fictional. This connection is undoubtedly a hint of modernity. Notice that art – value freed from the transcription of the visible – is only possible form the middle of the 19th century and on, where technology (photography is highly responsible) allows that representation to get way from "Men's hands". The change from handcrafted made technology into industrial technology aroused one of the main crises installed in the value of the artistic object as a consequence of the technical processes of reproduction and the consequent growth of visual practice, as stated by Walter Benjamin (1936), verifying a direct relation between "reproducibility" and "loss of aura" of the art work.

The second half of the 20th century can be designated as the "civilization of the image", or more precisely according to Font Doménec (1985) "the era of the simulation". The world becomes absorbed by as images in a desperate act of consumption, resulting in a peculiar form of seeing and understanding it. As Baudrillard (1992) claims, we live in a simulation world, in a world where the largest function of the sign is to make the reality to disappear, and at the same time to mask this disappearance.

Almost exist a fanatic religiosity of this "civilization of the image" in possessing images that are associated excessively with the idea of desire. Knowing the world through their images, we meet the "Real" through their iconic representations. The image takes charge of covering the distances, the absences and the unknowns.

The arrival of the numeric binary (digital) at the image is a technological advent that became a hinge point to understand the images nowadays. The artist is equipped from now with a model of a completely new machine, the computer, which no longer seeks, in its primacy, to represent the world but to simulate it. Besides, the image and subject now have the capacity to interact instantly in real time. This immediate situation (now) is quite relevant, because it brings into the artistic field of the image the concept of producing an instantaneous surprise, the decision in the moment - without the responsibilities of the continuous. We no longer care about what is represented but what it

[2] Galassi states that photographic vision, its objectivity and informalism of appropriation, was already embedded in painting, and that we can verify, essentially in portraits and landscapes, that photography took hold of the representation mode - of which already depended communication through images - such as: framing, point of view, themes, etc. Galassi, Peter, *Before Photography - painting and the invention of photography,* The Museum of Modern Art, New York, 1981.

represents. We are before an ideological attitude where the consequences are not true consequences but results.

The numeric advent does not only has an affect just on the subject, it also affects the image and the object. Object, subject and image are now in the same pool, and none of them have privileged positions. The real world and the virtual world are forced to commute. Object, subject and image derive in relation to each other, pervade and hybrid them self. According to Flusser (1998), images materialize certain concepts regarding the world, the same concepts that orientated the construction that gave form to them. Therefore, the image - the picture - unlike registering impressions of the physical world automatically it transcribes certain scientific theories into images, or to use the words of Vilém Flusser (1998), it "transforms concepts into scenes". The symbolic forms (images) that those machines build are already, somehow, previously enrolled (advanced-written, programmed) in its own conception and in the conception of programs through which they operate. That means the apparatus (computer) condenses in their material and immaterial forms a certain number of potentialities and each technical image produced represents the accomplishment of some of those possibilities.

CREATIVITY AS ALTERNATIVE TRANSFORMATIVE PRACTICE

Boden argues that since creativity is the investigation and transformation of conceptual spaces, the mechanism of creation must be a sort of automatic search through and between conceptual spaces, "A generative system defines a certain range of possibilities… These structures are located in a conceptual space whose limits, contours, and pathways can be mapped, explored, and transformed in various ways… probably the crucial difference between Mozart and the rest of us is that his cognitive maps of musical space were very much richer, deeper, and more detailed than ours" (Boden 1995: 2-3).

Mihaly Csikszentmihalyi (1996) also points to creativity as the result of the interaction of a system composed of three elements: a culture (which contains symbolic rules); a person (which brings new features within the symbolic field); and a panel of experts (who recognize and validate the innovation). So we can ask "what is the creative process?", according to the Encyclopedia Britannica[3] creativity is "the ability to make or otherwise bring into existence something new, whether a new solution to the problem, a new method or device, or a new artistic object or form." According to this definition we may assume that the creator is the one that creates (makes) or has created; and create is to give existence. Nevertheless, the concept of creativity raises a number of controversial issues (Boden 1996). How may creativity be understood? A simple idea, when it is first (original), is creative? If not, what is the difference? The creative process is the same in the arts and sciences, or originality of these forms are fundamentally different? Creativity can be measured? Can we compare two original ideas to

[3] Encyclopedia Britannica http://www.britannica.com/EBchecked/topic/142249/creativity

show that one is more creative than other? On the assumption that creativity can be recognized, you can explain how this happens?

According to Csikszentmihalyi (1996), creativity cannot be understood only by looking at the ones who make it happen. As the dolphin jumping from the waters of the River Tagus passes unnoticed if there is nobody there to see it, the ideas, and creative or otherwise, fade unless there is an audience receptive to register them and implement them. And without guidance, framework and audiences there is no reliable way to decide whether the expectations of a creative person are valid. Thus, according to this view, creativity results from the interaction of a system composed of three elements: a culture (which contains symbolic rules); a person (which brings new features within the symbolic field); and a panel of experts (which recognize and validate the innovation). For an idea to become creative, a product or a discovery to occur, these three elements are needed (symbolic rules, subjective symbols, validation). Thus, to understand creativity is not enough to analyse the creative individuals, their contribution, while necessary and important, is only one link in a chain, a phase in a process[4].

CREATIVITY-P and CREATIVITY-H

To understand why these changes do not happen automatically, it is necessary to consider the background for creativity to occur. Change requires effort traditions. For example, procedures need to be learned before being modified - a musician needs to learn a musical tradition, writing guidelines, how the instruments are played before thinking about a new composition.

Creativity is not a special property confined to elite. Rather, it is a feature of human intelligence in general, based on capabilities of the day to day such as association of ideas, memory, perception, analogical thinking, in a search space of structured and self-representations. Involves not only a cognitive dimension - the generation of new ideas - but also motivation and emotion, and is closely linked to the cultural context and factors of personality. Boden (1998) distinguishes two senses of creativity. The ability to produce innovations of the first type, is the psychological creativity, or creativity-P, and the last is historical creativity, or creativity-H. P-creativity is the most fundamental concept, of which H-creativity is a particular case.

Since creativity is the investigation and transformation of conceptual spaces, the mechanism of creation must be a sort of automatic search through and between conceptual spaces. A generative system defines a certain range of possibility. These structures are located in a conceptual space whose limits, contours, and pathways can be mapped, explored, and transformed in various ways (Boden 1995: 2-3).

[4] Saying that Guglielmo Marconi invented the radio is a convenient simplification - the invention of Marconi would have been inconceivable without the knowledge a priori, without the intellectual and social network that stimulated his thoughts, and without the social mechanisms that recognize and released their innovations.

Where I, as visual artist, feel reflected in Boden's (1991) approach is in her focus on the generation of creative ideas, not on validation. She emphasises the context of discovery, not the evaluation. While admitting that the criterion of validation can be part of the creative process, the first focus is how the ideas are in people's minds.

Gilles Deleuze and Félix Guattari (1987: 21) used the term "rhizome" to describe theory and research that allows for multiple, non-hierarchical entry and exit points in data representation and interpretation. In *A Thousand Plateaus*, they opposed it to an arborescent conception of knowledge, which worked with dualist categories and binary choices.

What is creative to us approaches Gilles Deleuze's mediatory space between discoursive and non-discoursive fuctions. "The rhizome is an acentered, nonhierarchical, nonsignifying system without a General and without an organizing memory or central automation, defined solely by a circulation of states" (1987: 23).

I titled this presentation "crossroads" to evoke the cartographic principle of the rhizome[5] (Deleuze and Guatarri). For them, "to map" means to form a relation between the discursive and the non-discursive. Becoming (for us a constant negotiation) asserts Deleuze, "has only middle" - emphasis on the process and not the object, underlying the mediatory quality of our production: "the middle is not an average; it is fast motion, it is the absolute speed of movement. A becoming is neither one nor two; ... it is the in-between, the border line of flight or descent running perpendicular to both" (Deleuze and Guatarri 1987: 293).

On being creative one is "not consciously experiencing and passing through the line of flight; on the contrary something [is] passing through you" (Deleuze 1995: 141), and following adds to this experience the becoming other via multiplicity, diversity and destruction of identity (1995: 44). This happens through acknowledge of borderlines, difference and repetition.

According to Boden, there are three main ways to generate creativity (three types of creativity). Each of the three results in surprises, but only one, the third, can lead to "shock" that accompanies an act, really innovative idea or product. Therefore, the universally recognized creative individuals are more often associated with the third type, although all include some examples of creativity-H.

The first way involves new - and unlikely - combination of familiar ideas (combinational creativity). Examples include poetry, and analogy, where two or more related ideas in innovative ways share a coherent conceptual structure.

The second and third modes are closely linked, and are more similar to each other than the first (exploratory creativity). The second mode, exploratory creativity, involves the generation of new ideas for the holding of structured conceptual spaces. This often results in structures, or "ideas" that are not only new but unexpected and recognized as to meet the assumptions of the style of thought to which they relate.

[5] The rhizome is characterized by six principles - connectivity; heterogeneity; multiplicity; signifying rupture; cartography and decalcomania - simultaneously interacting.

The last type involves the transformation of one or more dimensions of space, so that new structures that could not have happened before can be generated (transformative creativity).

These two modes of creativity mingle. The distinction between a change of view and a transformation is to some extent a matter of trial, but the more well-defined space, the clearer distinction can be manifested.

As artists, we inherited a style of thought to accept our culture but work to find the limits and use the full potential of our fields. Sometimes the known conceptual space is transformed, through removing or adding one or more dimensions. These transformations enable the generation of ideas that were, with respect to that space, previously unattainable. The surprise that accompanies such ideas, previously impossible, is much greater than the surprise caused by mere improbability, no matter how unexpected they may be. If the changes are extreme, the relationship between the old and new space will not be immediately apparent. In such cases, new structures will be unintelligible, and probably rejected.

In my opinion Boden's model of transformative creativity is still vague and acknowledges no importance of the selection and framing contexts (departing from motivation and attention). Possibly due to the difficulty of approaching the richness of human associative memory and the difficulty of identifying human values and express them in computational form.

With respect to the usual mental process in art, more than an act of combination, how can one "impossible" idea be more surprising, more creative than others? How can creativity possibly happen? For this, Boden (1990; 2004) introduces the notion of *conceptual space*: "Conceptual spaces are structured styles of thought. They are normally picked up from one's own culture or peer group, but are occasionally borrowed from other cultures. In either case, they are already there: they aren't originated by one individual mind. They include ways of writing prose or poetry; styles of sculpture, painting or music; theories in chemistry or biology; fashions in couture or choreography, nouvelle cuisine and good old meat and two veg – in short, any disciplined way of thinking that is familiar to (and valued by) a certain social group" (Boden 2004: 4).

Conceptual space maintains a given domain and defines a set of possibilities. The dimensions of a conceptual space organizers are the principles that unify and give structure to a particular field of thought. The boundaries, contours, trajectories and structure of a conceptual space can be mapped by their mental representations: moves of chess, or molecular structures, and melodies of jazz, for example. These mental maps can be used, not necessarily consciously, to explore and change the spaces involved. Sometimes the conceptual space involves a repetitive process, moving from one point to another, eventually reaching an area where something should happen. This is expected to clarify how repetition could lead to new ideas (difference). Thus, the operation of becoming is a kind of conceptual creativity. But any way the operation of a conceptual space is one thing, the processing is another. What is a conceptual space?

The conceptual space can be described as mental maps, which are being outlined as the thought that explores the search space of solutions, as in a game of chess or during an improvisation of jazz, which have certain rules known and well delineated (the game of chess rules for handling the parts and in the scales of jazz improvisation that should follow a line) (Boden 1995: 85). Thus, these mental maps are similar, in a metaphor, the maps of operating gold mines of Klondike[6] as Boden called "spaces of Klondike" (1995: 85). There is no reliable rule that says to the person who searches for gold which will be the most productive mine.

TECHNOLOGIES

So, technologies direct us to formal actions of a group of known procedures, largely a part of the constituent symbolic elementals system. As computers software, their articulation rules are inventoried, systematized and simplified, which, as far as the formal actions of known procedures are not related to aesthetic principles, instead of bringing the generic user closer to the act of creativity it puts them in a passive "copy-and-paste" condition. The widespread multiplication of template models around, leads us to an impressive standardization, to a prevalent uniformity of the solutions, to an absolute impersonal way, where we have the impression that everything that is exhibited for the first time we already have seen.

Digital technology doesn't only alter, in depth, the status of the artistic object, but also the relationships between the producer and the receiver (since the sixties the idea of the public's creative participation is one of the appealing concept/aspects in the artistic universe). The most positive characteristic of the digital revolution appears in the participatory act of constructing the object: instead of the passivity induced by old fashion process of art objects, the digital material propitiates the action, the physical modification of what is received: a production of possible worlds, one alternative to the existing material world. That is the end of the traditional epistemological position of the subject (we no longer keep the image at a distance). It is for that, more than never, that continues the expansion without limits of the claim of the subjectivity.

CONCLUSION

The production of images has always been conditioned by the presentation space and the medium supported by evolving technologies and techniques in a constant search for an objective search for transcribing reality. According to the symbolic value of the image it has always been considered a substitute of

[6] In 1896, on the banks of the Klondike River in Canada, the gold veins were discovered, which later would be targets of a "gold rush". This region is formed by the meeting between the Klondike and Yukon rivers, site of the first camp of miners from the Klondike mines. even where you can find the most profitable veins of gold. (Perkins, 1999 [1994]: 128). Thus, as the land is exploited in the search for a shaft or clues leading to a gold mine, the map of the area of Klondike "is being designed. And, when a gold mine, it was found as an untapped area of thought, which leads the person to evaluate how this mine has the necessary amount of gold or if it is worth looking for another mine, also means that, often, a long search in other valleys and hills for more productive mines.

reality directed into the subjective personal construction. Images are a system of believes which seeks to replace absences. This system is dynamic that absorbs and converts the observer transforming the notion of window to the world into a passage in the world. The notion of passage implies a real-time action implicated in the interactive system. The observer has now a conscious active role in the space of the image converting the passive action of contemplation into an immersive space - emphasizing the experience.

Space and time became an influent and decisive condition in the production of the image - committing physical space and observer to be considered as intrinsic elements of the production of the work through the immersion of the observer. Interaction is something that only happens if the observer gets involved (interaction *versus* convergence). It is in the convergence of actions that happens the interaction, adding the idea that it is in the interactivity that we find the message - where the active quality (the appeal to the intervention of the observer) contrasts with the passive act. By this convergence, the digital technology allows a role in the edition of the contents of the images creating new types of visual structures and assigning subjective narratives - the observer was converted into the user and the passive attitude became consciously active, enhancing the idea of that the work does not inhabit in the imagination of the individual but in the collective.

When we try to find through the image participation, we expect a new individual to cooperate, becoming this individual a constituent element that qualifies the artistic object in a plural-multi-disciplinary order. By the fact that the interactive spaces provide an immersion, in the quality of active participatory persons, we enter inside the image in real time, becoming simultaneously witnesses and authors of the creative process. The individual creator has been converted into the collective creator - that characterizes the dynamism of the interactivity and places the physical and mental space in dialogue with the potential of the work.

As visual artists and researchers we are often taken as a rare category of humans, a creative elite, or most of the times what we do is misunderstood and under valuated. Art practice as research involves actions that both create and critique new knowledge and has the capacity to transform human understanding. When considering the art practice and collaborative research creativity becomes a tool for change, the mediating process to larger self-awareness. This path form chaos of the senses to experience and meaning and the self-awareness creates an opportunity for transformation. Crossroad, as a propose, is a possible way to cartograph the arts practice as research once it allows a re-conceptualization of the creative process. In this paper, I have considered the creative process with all the mention characteristics including the paradoxes, the unconscious, the materials, the experience and the collective socio cultural frame.

By the action of the adjusted participatory interactivity, in the convergence of interest, new territories are developed providing “The Open Work” (Eco 1962) in the state of work-in-progress. This progress mediated by technological

devices allows the spectators engagement physically with the work, totalizing a multi-integration of the senses (kinesthesia). Thus, the technology (over all the digital one) is liberating because it can transform an end into a beginning. At the end the user completes the work, and by the fact of this kind of work being changeable and not predictable, it never is concluded, but it goes concluding itself for the diversity according to the user's expectations given by everyone.

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VARIOUS AUTHORS

Spaces of Species

TTT2018 was organized in collaboration with FACTT Mexico 2018 within Festival N and included in its program the opening of the exhibition Espacios de Especies / Spaces of Species. The exhibition took place at the Centro de Cultura Digital from the 10 of November 2018 to the 15 of February 2019. In this chapter are included all texts of the exhibition introduced by the curator María Antonia González Valerio and, on behalf of FACTT "Evolution", Marta de Menezes.

CURATOR'S STATEMENT

Worlds, territories, spaces, environments, places. So many ways to name the "in". We are "in" something. But also everything that there is, is "in" something. Plants, animals, bacteria, sound, light, the planets. The "in" is constantly being modified. There is no "in" as an identity to itself and that can contain everything that there is and everything that we are. Than can contain everything that there was, and everything that we were and wanted to be. The eyes closed to dwell inside the "in" of the inner chambers of the soul. The eyes opened to see the space of representation, where things are being configured and identified by name. To go through the territory, with a historical trait, that gives sense and that conforms the daily happening. To touch with the hands the body that unveils itself as the environment of growth of millions of organisms, and even so, to see it as our own body, to feel its limits in the skin. There is also a physical-mathematical space that aims to universality and that pretends to comprehend all that there is. Nevertheless, there is a plurality of perceptive worlds for the living organisms. Environments are conditioned by what inhabits in there.

Space is something constructed and negotiated with and through many agents and agencies. In evolutionary and ecological terms, there is a relationship of condition-conditioned among organisms and environments. Notions as adaptation, variation and speciation, that are in debate in contemporary biology that opposes the gene centered view of evolution from an epigenetic perspective, are questioned in this reflection upon space and evolution. Also, the reciprocity among organisms and environments, and the idea that the structural and functional details of organisms are not completely coded by the genome, is further explored from a point of view that considers space –understood in a broad sense- as a fundamental factor that is interactive, in continuous formation and being conditioned at the same time that conditions the development of organisms and their behavior.

This exhibition roams by the different modes of space construction and brings forth alternative ways to move according the specificities of each one of them.

María Antonia González Valerio, 2018

EVOLUTION

What is nature and the evolution of living beings is an inevitable issue for Us, in the search for the answer to this and other questions around Nature and its variations we find what we are and how we stand between all organisms and in the world.

This year the FACTT festival focuses on the search for knowledge, issues and strategies from biology, art, philosophy, physics, geology, design and other disciplines to explore who we are and how we can position ourselves in today's world. A century and a half ago, Charles Darwin offered the world a single, simple scientific explanation for the diversity of life on Earth: evolution by natural selection. Since then, countless scientists have found that Darwin's work is fundamental to their own. Contemporary scientists can now answer questions about the natural world in ways Darwin never could. New tools and technologies, such as DNA analyses, can reveal unexpected relationships between seemingly dissimilar groups.

In evolutionary and ecological terms, there is a relationship of condition conditioned among organisms and environments. Notions as adaptation, variation and speciation, that are in debate in contemporary biology that opposes the gene centred view of evolution from an epigenetic perspective, are questioned in this reflection upon space and evolution. From another side the way we understand the word Nature and its connection to the concept of Wilderness is far from simple and defined.

Nature and wilderness itself today are not quite what they seem to us. They are actually a profoundly human creation. They are not a pristine sanctuary where the last remnant of an untouched, endangered, but still transcendent nature can be encountered without the contaminating taint of society. Instead, they are very clearly a product of culture and are defined by the diferences and contrasts to what we call civilisation.

FACTT 2018 is about all the unstable and confusing questions we can put forward as we try to undertake the endless endeavour of reflecting and finding meaning in what we can learn about Us as a whole. Us, not only as a species that lives in the planet earth with all of its lifeforms, but more importantly to understand that we are a part of the system, the whole. The whole that probably became even more complex when we surfaced through evolution.

Marta de Menezes, 2018

BIRD SONG DIAMOND

The intent of this project is to permit humans to understand the grammar and meaning of bird songs. Recent advances in sensor arrays, computation, and computational linguistics finally make this long-sought goal achievable (Charles Taylor 2011). Beyond developing better analytical tools, this project engages artists who are well versed in the development of art|science interface and interactive installation with sound, to establish an experience that overlays aspects of the life, loft, and language of a bird with that of human characteristics. This last investigation has broad appeal, and can serve to engage younger people to notice their environments and to participate more in scientific activities and initiatives.

Bird Song Diamond is an interactive installation based on long-term research (2011-present) allowing multifaceted, interdisciplinary perspectives -- uniquely connecting the nodes of evolutionary biology, artificial intelligence, spatial sound, mechatronic art and interactive technologies. The diamond as a crystal lattice of connected nodes reflects the commitment of each node to its disciplinary rigor held together in balance through shared interests. The sound art installation is an effort to include multiple new facets of the larger public -- from children to art lovers and from academics to theoreticians.

As an exploration into the interdisciplinary collaboration, the sonic components of the installation are composed under the auspices of the scientific team led by evolutionary biologist Charles Taylor who has been systematically categorizing bird sounds and determining the patterns of communication within spatial networks of birds in the field. Taylor also brings to the art sci team many of his collaborators, including ecologist Dr. Martin Cody, linguist Dr. Edward Stabler and physicist Dr. Takashi Ikegami and his group from the University of Tokyo. It should be noted that Ikegami has collaborated with sound artists on a number of sound installations in the past.

The new tools and methods for collecting and analyzing bird song now allow a level of observation that previously would not have been possible. We are now collecting truly vast amounts of data from previously inaccessible settings and subjecting data to previously undiscovered sophisticated structural analyses. It will be transformational to computational linguistics if the natural world beyond humans were shown to have languages that are radically different from our own (as seems quite likely). Our analysis will be aided – in fact only possible – to the extent that we can view the environment from bird's perspective -- emphasizing the important role for artists in our collaboration.

A guiding theme to our research is the role of complexity and chaos in communication systems. With reference to the complexity categories studied by Wolfram and Langton, the systems we are researching are situated at the edge of chaos: their complexity is above that of fixed sequences of symbols or sounds, but below that of chaotic or purely random systems -- at the phase transition between complexity categories 2 and 3. Meaning emerges and is communicated

through the evolution and maintenance of intermediate complexity -- patterned sequences that are simple enough to be understood, but sufficiently complex that they can carry expressive data or meaning. Among the systems whose vocalizations fall into that class are human language, and the songs of at least three species of birds that we have been studying -California Thrasher and the Cassin's Vireos and Black-headed Grosbeak. These comprise the target species for this project; our work features field recordings and analyses unique to their songs.

Credits: Victoria Vesna, artist (UCLA) in collaboration with Charles Taylor, evolutionary biologist (UCLA), Takashi Ikegami, physicist (University of Tokyo) with Art Sci collective: sound artist Joel Ong; Sarah Brady, (MFA, UCLA); John Brumley (PhD candidate, EMP, University of Tsukuba); Reiji Suzuki (Associate Professor, Nagoya University)

Victoria Vesna, 2014 - present

LYGOPHILIA

Lygophilia weaves together mythologies and sciences, history and future, fears and desires, continents, cultures, humans and non-humans. Lygophilia folds and unfolds the stories carried by those fascinating creatures that are the Mexican Axolotl and the Slovene Proteus.

From immortality to regenerative medicine — both animals are, as adults, in a state of "eternal youth" (neoteny) showing extraordinary longevity and regenerative abilities that put them at the centre of ancient myths as well as current cutting-edge scientific researches.

Ironically, Axolotls and Proteus are endangered species in their natural environment. Both have found habitats in very specific and located places, in the swamps of the lakes around the City of Mexico for one and in Europe in Dinaric karst caves for the other, showing an example of parallel evolution, endemic and adaptation to narrow and extreme niches.

Hiding from the sun and daylight both are in love with darkness, lygophilia (from the Greek lúgē and philéō).

With cabinets that evoke the old natural history museums displays as well as the scientific labs glove boxes or the maternity incubators, through objects, texts, videos and paraphernalia, playing with a crossed mirrored approach where each element, each story, each animal is echoing, reflecting but also diffracting and counteracting the other, Šebjanič invites us to a journey into our cultural gaze and its evolution. Lygophilia offers the visitors to gain a more profound view of interspecies cohabitation in the contemporary world for a common future.

Lygophilia is a series of research-based artworks initiated in 2017 by Robertina Šebjanič in Mexico and pursued in Slovenia to explore the love (Gr.: philéō) of darkness (Gr.: lúgē) and the unknown dwellers in places inhospitable for humans.

Production: Projekt Atol (Uroš Veber), Slovenia, 2018 & Arte+Ciencia (UNAM), Mexico 2017; Sektor Institute, Slovenia 2017 / 2018. Production support: Ministry of Culture of Slovenia and the Municipality of Ljubljana. Special thanks to: Aisen Caro Chacin, Miha Godec, Roman B., Peter Kolobarić, Rampa Lab, Osmo/za Consortium, Bunker team, Tular Cave Laboratory.

Robertina Šebjanič, 2018

LA MER DES ENFANTS PERDUS | THE SEA OF LOST CHILDREN

Life is the most exceptional form of poetry, albeit complicated, messy, fragile and quickly dwindling. Biodiversity is nature's art, and what will become of this art as we continue to extinguish life in the name of monetary growth?

For many of us, and over 10 thousand other species, the Gulf of Mexico is a special place, our sanctuary, our home, our mother, provider and perhaps destroyer. From the science side, the Gulf is among the most important and biologically diverse marine environments in the world with an estimated 600-1000 species of fishes, 77 of which are endemic and found nowhere else on Earth. From the art side, the Gulf is a constant source of inspirational color, form, intrigue, tranquility and fear. She is resilient, powerful, seductive but also dangerous, damaged and suffocating in her own ***sang noir***.

For the "Yankee" child I was, visiting the deep Gulf south, she was vivid, mysterious, rich, nurturing, confusing and teeming with fantastic varieties of life. But she has changed. Factually, the 2010 Deepwater Horizon (DWH) oil spill was the largest industrial petrochemical accident in the history of the United States and its long-term impact on fishes, other biota and Gulf ecosystems is still not well understood. The fate of the Gulf and her children remains precarious.

Since the spill, much of my art has focused on the perilous environmental state of the Gulf. In 2016, I was also part of an interdisciplinary LSU research team (where I am a currently a postdoctoral researcher) that reported that 14 endemic fish species were missing since the spill[1]. Additionally the compass of the oil has been difficult to assess, As much as 100 million of gallons remains in the Gulf sediment and recent evidence suggests it continues to impede ecosystem recovery[2]. Even prior to the spill, several Gulf fishes remained elusive and had not been found in decades (1950 through 2005). Little is known about these species and the only records we have of their existence is a handful of preserved specimens scattered among natural history collections[3]. As an artist I am inspired to portray and to tirelessly search for these Gulf's lost children (*La Mer des Enfants Perdus*).

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[1] Of the 14 endemic missing fish species, all were recorded in the Gulf of Mexico between January 2005 and January 2010. These species have reported following the spill, which occurred between April and September, 2010. Please see: Chakrabarty P., O'Neill G., Hardy B. and Ballengee B. (2016), "Five Years Later: An Update on the Status of Collections of Endemic Gulf of Mexico Fishes Put at Risk by the 2010 Oil Spill", *Biodiversity Data Journal* 4: e8728.

[2] Please see: Ballengée, B. (2015), "Ghosts of the Gulf", *Cultural Politics*, 11:3, pp. 346-360.

[3] Up to 44 of the 77 known Gulf endemic fishes are rare, have not been reported or recent data is insufficient understand their population status (Chakrabarty et al. 2016).

As both a professional artist and biologist, I believe that combining the disciplines and other perspectives is the best bet we have towards realizing actual socio-ecological change. As such, interdisciplinary art, science and outreach project, to give form to species most likely now gone and, hopefully, to inspire different approaches to the Gulf herself. *La Mer des Enfants Perdus* will be the culmination of my ten-year art and science inquiry into the impacts to Gulf of Mexico Biodiversity from the 2010 spill.

Brandon Ballengée, Working notes, 4 September 2018

DROSOPHILA TITANUS

Drosophila titanus is a project which through a process of experimentation and artificial selection aims to develop a species of the fruit fly *Drosophila melanogaster* that would be theoretically capable of living on Saturn's largest moon Titan. While being a virtually impossible project to "successfully" complete in pure scientific terms, *Drosophila titanus* sites itself as a process within the ongoing discourse surrounding the complex relationships between art and science. By necessity the project needs to adhere to a rigorous scientific methodology, however it endeavours to extract artistic metaphor, poetry and ambiguity from these apparent creative restrictions.

Drosophila are used extensively in human medical research, and Titan is viewed by many as a cryogenic proto-Earth. Using *Drosophila* and Titan as metaphors for the human and Earth respectively *Drosophila titanus* employs the methodologies of experimentation, simulation and artificial selection to explore themes of species, biological perfection, perception and future life. Beyond the exploration of biological and evolutionary issues the project engages with biosemiotics in questioning the nature of reality and organic perception of environmental sensory signals.

The project *Drosophila titanus* is, by degrees, acclimatising cultures of the vestigial wing phenotype of drosophila melanogaster to lower temperatures, increased atmospheric pressure, altered circadian cycle, gravitational changes and atmospheric composition. New apparatus and incubation devices are constantly being devised and updated in order to experiment, select and maintain fly colonies for the breeding and evolution program.The project ended in 2017 after an untimely extinction event.

Andy Gracie, 2018

INSTRUCTIONS TO BUILD A SPECIES

The instructions deconstruct the biological category of species through different classifications of fern. They question the experience of order involved in the production of taxonomies and they critique the basic codes that lay at the basis

of certain epistemes and their hierarchies. What does it mean to produce a classification of the sensible entities according to what epistemes? What does it mean to order the world following cultural codes, and which ones? Is it possible to reveal or to make transparent the configurations that have led to various forms of empirical knowledge? And how to make operative the tension between matter and concept through an artwork that opens a space of classification for a specific organism, the fern?

These instructions deal with the impossibility of absolutely addressing a sole and single plant through taxonomy, with some ideas implicit in the biological episteme about unity and multiplicity, with the construction of identities through archives that are ideological and botanical, and with the aesthetic and historical processes involved in the identification of species and the metaphysics implied in the idea that what it is, is also one. Our basic thesis is that identity, any identity, is the result of a historical negotiation, a synthesis that is produced not with a single process and not in one archive with one archon, but something that is being constantly decided, and not by one isolated and sovereign subject. At the same time, we want to unveil that any category, or any form of the singular, has gone through some violence and through some authoritarianism. There is always an archon, even if there is a group of archons that authorizes the category or, in other words, that respond for the archive.

Are the biological entities and the taxonomies, with their imprecisions, synonymies and undecidables, the token of an episteme that operates through an alleged fixed identification and that works not even on organisms but in fractions of organisms that want to be considered as the explanation of life? That is, can we deconstruct the biological episteme as a knowledge that orders and classifies what there is, following not an idea of natural order but an analysis of features that started with phenotypes and that now are being explored through the sequences of DNA? An episteme that doesn't see any more the appearance of the entity but that measures molecules. Is molecular biology brought into question by taxonomy because the later needs always a reference to the appearance through phenotypes, seizes, forms, colors and so on? Are we reaching with this the limit from within biology as plurality of knowledges, approach the problem of unity? The unities produced and maintained in biology are the result of a tension between tradition, measurement of molecules, interdiscipline and the hegemony of the modern synthesis. We believe that our instructions set this forth.

Special thanks to: TEA Thorsten Englert Architects for the design of the installation and Sandra Zetina, Laboratorio de Diagnóstico de obras de Arte, Laboratorio Nacional de Ciencias para la Investigación y Conservación del Patrimonio Cultural (LANCIC), Instituto de Investigaciones Estéticas, UNAM for the green pigments and the microscope images.
Bios ex Machina: Gemma Argüello, Deborah Dorotinsky, Diego Espíritu, Sofía Falomir, María Antonia González Valerio, Eva Hernández, Marco Antonio Lara, Sebastián Lomelí, Roberto Madrid, Rosaura Martínez, Cuitláhuac Moreno, Ricardo Noguera, Lena Ortega, Rodrigo Ramírez Sánchez, Rosaura Ruiz, Tadeo Valencia, Ludmilla Villaseñor.

Bios ex Machina, 2018

GUT LOVE: YOU ARE MY FUTURE

Gut Love: You Are My Future by Kathy High is an ongoing investigation exploring our human condition through the lens of our gut micro biome. We are made up of more than just our human cells, as we have millions of bacteria and fungi in and on our systems. How do these ecologies of the body coexist? How are we evolving together? What do we share with others – even if it is taboo? Looking at research in fecal microbial transplants and gut biomes to better understand the important function of bacteria in our bodies, this project embraces metaphors of interspecies love, immunology and bacteria as players. Is our gut a "hackable space?" As a patient with Crohn's disease, High's interest in gut microbiota starts with her own body.

Kathy High, 2017

ENVIRONMENTS IN THE AIR

Environments in the air is a proposal by Lena Ortega who, in collaboration with the Colombian scientists Viviana Molina y Juan Luis González, questions contemporary anthropocentrism and its consideration of the world as an exclusively human space. The work aims to open from and within art other discussions from which the sciences and humanities can be asked about the environment of some animals outside the cities and the technosphere in the specific context of Latin America (Mexico and Colombia). It proposes a plurality of approaches to birds ranging from the instrumental-measurable knowledge, direct experience from observation, to the construction of sound topographies from inferences of signifiers and non-signifiers. For this specific exhibition, we worked with the song of the birds of the park surrounding the CCD. The Forest of Chapultepec. The pluralities of the significant environments of birds in the cities, is still part of an ongoing research.

Lena Ortega, 2018

EMPATHY 5.0/DH

Expository piece and performance in four devices produced by Minerva Hernández, Abigail Jara, Irasema Serrano, Alejandro Ortiz, Alberto Cerro, Héctor Ugalde and Eurídice Navarro, for the exhibition Spaces of Species from Festival N curated by María Antonia González Valerio.

The concept of laboratory comes from a space that includes experiments, research and verification with ideas and hypothesis where certain tests are done to themselves: creators are the subject of study. So from there, the relevance of the different areas of knowledge and transdisciplinary methodology and disciplines comes from, all of this based on auto allusive meditation, chromatic stimulation, corporal improvisation, sonorous stimulus, reuse the technology

and working tables during 9 months. It's essence is the co-creation from the memory, but the memory of what we don't know, using haptic devices, biophysics sensors and compositions of frequencies directed to energetic points of the body depending of the device with a frequency of 432 Hz.

The four devices are: Chromatic capsule of sound immersion for mixed realities, Sono Transporter, Sono Remover and containment space with full and mixed coriander seeds. Each one induce a shift to the inside, a kind of meditative state, intriguing and pleasurable ending by the contact of seeds that they impregnate the hands of two different smells, all this to keep the smell of experience.

The *Sono Transporter,* is a piece composed of changing frequencies between low and high octaves, as well as variations in amplitude and timbre; sometimes you can hear very simple and sometimes more complex, so the frequencies affect the entire body in a kind of sonic bath for detoxify in preparation for the experience of the complete work.

The *Sono Remover,* is created from low audible frequencies to play and stimulate the accumulated ancestral emotions and memories focus in the abdominal area.

The *Chromatic Capsule of sound immersion for mixed realities,* has a cardiac pulse sensor that the experimenter will put in the earlobe. The colors that emerge from the hanging chair are related to your heart rate, the calmer your pulse is, the purple color appears and as it accelerates the tones change until reaching red, while the sound composition varies between law to middle high frequencies. The rhythm of the sound piece is consistent with the rhythm cardiac of who is suspended in the capsule in a kind of self gest, if someone touches the chair you can feel it vibrate.

Finally, in the *Containment Space*, the experimenter can dip his hands in the container with coriander seeds (ground and whole) to make contact with the earth, and to be able to take the smell of the piece.

The performance - activation of the work consist when the experimenter arrives at the *Containment Space* can imagine reflected in two bodies with white masks the face that arises in his memory, the movements are slow and invite you to enjoy the unrivaled feeling of dipping your hands in small, scent seeds.

Empathy 5.0/DH gives continuity to the Empathy project that began in 2012 (Minerva Hernández Trejo and Myriam Beutelspacher) and has been putting into operation dynamic collaboratives to which creatives from different countries have joined around concepts such as internal energy, emotion and epigenetics.

Empathy is carried out from a collaborative audiovisual score and trigger new performative readings under the premise of the game and demonstrate along with the machine, an intimate dialogue.

Bioscénica, 2018

NIX

It is a work of generative video, which shows the dreams of electronic animals, abstractions of data that are recomposed at every moment. It is constituted by genetic algorithms that make up images constantly, the artist does not create a unique and static work, but models the possibility of thousands of images that share minimal graphic features that give them coherence. This work is inscribed in the very old art of automatons, started centuries ago in the Arab world and in which artists such as Leonardo da Vinci or Jean Tingely have dabbled.

As well as the river of Heraclitus, in this work the public cannot be submerged twice, because unlike conventional video this work is not constituted by images recorded by the author, but by a computational automaton that reconfigures the pixels of the screens dynamically to generate the images that are revealed to the public, none will ever be repeated.

This proposal is accompanied by four unique impressions in which the artist collaborates with the machine for the crystallization of a moment, small selfies that help the artwork to remember the work who he is, who he was.

Jaime Lobato, 2018

SE EU TE PROCURO E NÃO TE ENCONTRO

We are always looking for answers. We seem to look for answers about ourselves — as human beings — always outside of ourselves. We look into the world, looking for ourselves. However, we seem to forget that this world that we see, as we search for ourselves, depends on what we can see and of our subjective interpretation.

In reality, this world doesn't correspond to what the world is. It is a virtuality, based on what we see and think. We are hostages of time and space. Susceptible to the visibility and invisibility of the world: what it shows us and what it hides from us. Victims of mutability — of the world itself, but also of the devices with which we see and search.

Se eu te procuro e não te encontro, (é porque estás diferente do que eras) challenges the concepts of big—small, inside/outside. We could look at these circles in a black backdrop as astronomic objects, when in fact they're microorganisms that live (oh but so close,) in our own skin. It isn't something colossal, but rather something absolutely minuscule. Very much so that we could almost forget. The millions of organisms that compose each image are our beginning. As if they told a story, the photographies say: In the beginning, was the microorganism. Se eu te procuro e não te encontro (é porque estás diferente do que eras) searches for answers about ourselves not far away, but close. Very close. So close we could almost forget.

Maria Francisca Abreu Afonso, 2018

ANTI-MARTA: SELF/NON-SELF

The immune system can be seen as a sixth sense that identifies and discriminates our composition and the outside world. Anti-Marta extends on previous work where the artist questioned the limits and understanding of her identity. This artwork is a development of 'Immortality for Two', where the artist and her partner immortalized cell lines from each other.

In 'Anti-Marta' a skin transplant was exchanged between Marta and her partner Luis (with an autologous graft as control). Anti-Marta can be seen as a pact, where the inevitable rejection of the transplant contrasts with the live-long acquisition of a new form of recognition of one another afforded by the emergence of antibodies. The artwork also pays homage to the groundbreaking work of Jon van Rood, founder of Eurotransplant, that used these type of skin transplants amongst lab members and other volunteers in order to discover what underlies histo-compatibility and transplant rejection. Van Rood died in Leiden in July 2017.

Marta de Menezes and Luis Graça, 2018

HOME AWAY FROM HOME

These flowing draperies evoke the comfort of being home with loved ones while echoing the kaleidoscopic patterns of traditional Islamic art. They feature designs made from images of the growth and decay of Maqlouba, a traditional Palestinian dish. The food - which reflects the artist's roots - was prepared at home and experimented on in a lab, combining both domestic and scientific spheres.

Jude Abu Zaineh, 2018

FLOREST IS ART: EMBASSY

Embassy is a space where the forest deals beauty with man. The piece is made with small elements taken from the soil of a local forest and a readymade box. It focus on the beauty of forest lines.With "Embassy" the forest visits the public in the art space and shows its intimacy, challenging the vision of beauty of the Academy of Art by saying "Forest is art". Forest is art is a new aesthetic for a new economy and a new art. It proposes to revolutionize our collaboration with the forest and our meaning of life. Its aim is to propagate the growth of botanic forest in dialogue with biology and art. As such, the project produces forests, gardens, photographs, films, paintings, land art, bio-art pieces, installations, stories, and collective performances seen as artefacts to serve the forest lobby.

Alan Tod, 2018

METAPHORICAL EVOLUTION

Between all species and us lies a seemingly unbridgeable gap that we acknowledge by defining categories. We are similar to chimpanzees and that has been recognized even in an age of belief in the divine creation. Biology does not attempt to optimize designs, but relies on permutations of extant technology to create new products (species), which then exploit environmental niches. This work explores traces of our rise from animal status celebrating interspecies communication and collaboration, discovery and consciousness of our fragility and possible fall. The digital age brought new ways of non-explicit forms of collaboration, distributed, large scale and non-centered such as the Internet, collaborative information filtering, or open source software development. Humans are becoming increasingly involved in, and know the benefits of, collaborations that don't require an understanding of the other participants' agenda or intention. By conceptualizing collaborations with other species, we are forced to question our self-proclaimed centered position in the world, a position that has led to immense destruction of the planet, as manifested by pollution, climate change and mass extinction of species. If in one hand evolutionary theory has been providing useful metaphors for analyzing political and institutional change, on the other, metaphor may be said the language of choice for creative changes in scientific narrative framework. Time, space complexity and extended communication enhance self-stability creating selection and balance between system and surroundings.

Maria Manuela Lopes and Paulo Bernardino Bastos, 2018

RESONANCES

Resonances is an experiential dinner with a new gastronomic, artistic and philosophical concept. Three research and production teams, Instituto Gastronómico de las Altas Montañas, Arte+Ciencia and Black Box, have joined forces to create it, making it the result of a transdisciplinary intercrossing.

Resonances takes place within the framework of the N Festival, in which Arte+Ciencia has worked on the themes of space and epigenetics to present a project of interaction between organisms and environments. The place of discussion of epigenetics is usually the laboratory, theoretical biology and philosophy. With this project we want to extend these concepts to include guests and food within the idea of organism so as to generate a system of mutual affectation, within a structural unit that can be thought holistically. The environment is the space of food production and its interactions with the city and the countryside, with producers and with the agricultural industry.

There is no neutral environment in which organisms grow. The agricultural spaces we visited in Xochimilco, where the vegetables that will be eaten at this dinner come from, are influenced by the demand of Mexico City's restaurants based on food fashions. There are almost no Creole seeds. Most of what is

sown comes from transnational companies that sell selected seeds treated with chemicals. Local people hardly consume these products. It is not an agriculture, that of the chinampas of Xochimilco, of self-consumption, but of merchandise.

There is no neutral space in which food is consumed. Gastronomy and culture are inseparable. Food as an organism is covered with the identitary positions of a town, a city or a country. The importance of vernacular products accounts for the historical continuity of each region.

To understand the transcendence of the organisms that become food from their knowledge, from organoleptic characteristics to techniques that allow their development, manipulation and transformation; is to revalue the work of those who harvest them each season. To give back the character, not only ceremonial, but ritual to the abundant biodiversity of raw material during all its process, is what makes the Mexican tradition special.

Between the countryside and the city, the dishes presented here interplay with the production of organisms in their region of origin and with the agroindustry. From the chinampas in Xochimilco, to the Oaxacan coast, through the high mountain areas and the Tuxtlas in Veracruz; the ingredients and techniques speak of collective memories and identity, but also of international influences and movements.

The idea is to build a synesthetic and performative gastronomic experience. This includes specific proposals of environmental design —illumination, sound and furniture— as well as the occasional intervention of philosophers, artists and scientists. They comment on the historical, biological and political relevance of some of the ingredients of the dishes as well as other issues that have to do with this multisensory construction.

Instituto Gastronómico de las Altas Montañas and Arte+Ciencia, 2018

Image 1. A+C team, N Festival opening, credits A+C

Image 2. Spaces of Species, exhibition opening, credits A+C

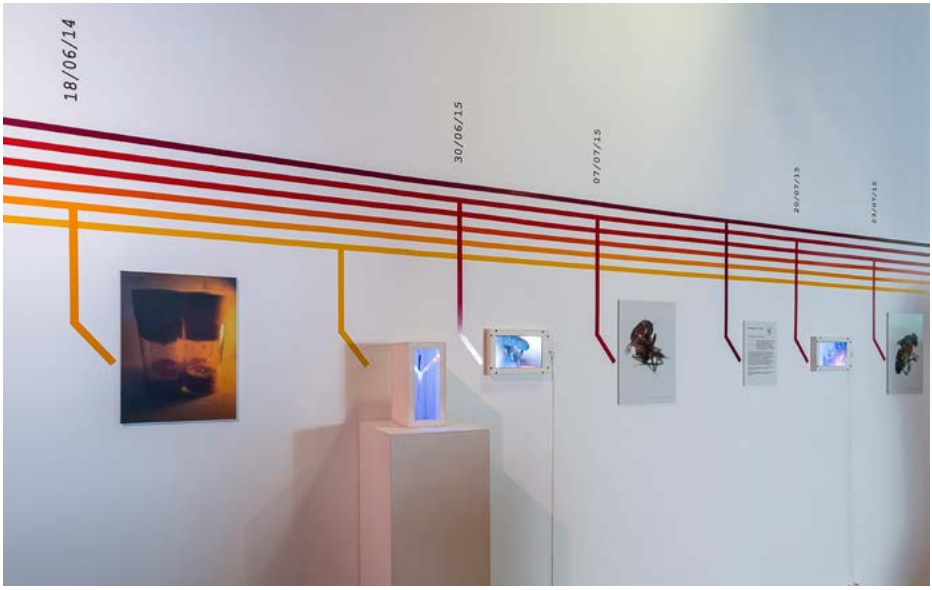

Image 3. Andy Gracie, Drosophila titanus, credits A+C

Image 4. Bios ex Machina, Instructions to Build Species, credits A+C

Image 5. Brandon Ballengée, La Mer des Enfants Perdus, credits A+C

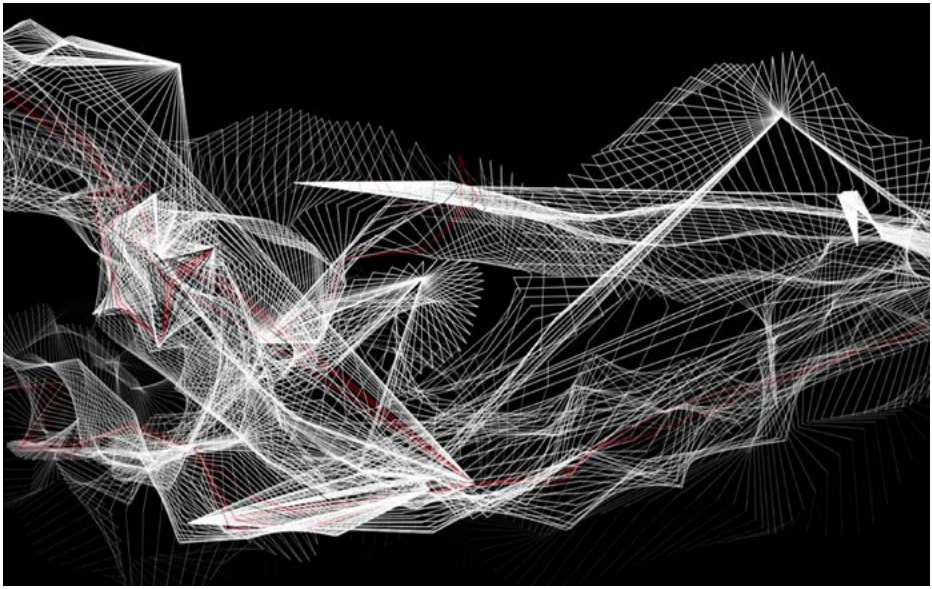

Image 6. Jaime Lobato, NIX, credits A+C

Image 7. Kathy High, Gut Love: You are my Future, credits A+C

Image 8. Kathy High, Gut Love: You are my Future, exhibition opening, credits A+C

Image 9. LabCet, Empatía 5.0, performance, credits A+C

Image 10. Lena Ortega, Environments in the Air, credits A+C

Image 11. Marta de Menezes, Anti-Marta: self/non-self, credits A+C

Image 12. Marta de Menezes, FACTT opening, credits A+C

Image 13. Minerva Hernández, Abigail Jara, Irasema Serrano, Alejandro Ortiz, Alberto Cerro, Héctor Ugalde and Ary Ehrenberg, Empathy 5.0, credits A+C

Image 14. Robertina Šebjanič, Lygophilia, credits A+C

Image 15. Victoria Vesna, Bird Song Diamond, credits A+C

Image 16. Alan Tod, Florest is Art_ Embassy and Jude Abu Zaineh, Home Away from Home, credits A+C





Images 17-21. IGAM, Arte+Ciencia and Black Box,
Resonances Gastronomic Performance, credits Francisco Tejeda

BIOS

ABREU AFONSO, MARIA FRANCISCA

Maria Francisca Abreu Afonso was born in 1994 (Lisbon). Graduated from the Faculty of Sciences of the University of Lisbon, with a degree in Biology (2012/2015). After graduation, she did a sabbatic year in which she worked with a scientific team of Marine Ecology and Climate Change (MARE Institute) and was involved in several projects, such as the short film Reich der Möglichkeiten: intermitências da percepção (with Clemens Schöll). She's currently doing her MA in multimedia art, with a specialization in photography, in the Faculty of Fine-Arts of Lisbon. In December 2016, she represented Portugal in the jury at the first EUFA, category of the European Film Awards, held in Hamburg. She won the Faculty of Fine Arts' scholarship for Marta de Menezes Summer School (2017) at Cultivamos Cultura and has been exhibiting ever since. Her pieces are about identity, search for the self and the relationship with the other.

BALLENGÉE, BRANDON

Brandon Ballengée (USA) is a visual artist, biologist and environmental educator based in Louisiana. Ballengée creates transdisciplinary artworks inspired from his ecological field and laboratory research. Since 1996, a central investigation focus has been the occurrence of developmental deformities and population declines among amphibians. In 2014 he received his Ph.D. in Transdisciplinary Art and Biology from Plymouth University (UK) in association with Zürich University of the Arts and Applied Sciences (Switzerland). In 2015, he was the recipient of a fellowship from the New York Foundation for the Arts (NYFA). Currently, he is a Postdoctoral Researcher in the Biological Sciences Department at Louisiana State University (Baton Rouge, Louisiana), studying the impact on fishes from the 2010 Gulf of Mexico oil spill. His project, Crude Life Portable Museum: A Citizen Art and Science Investigation of Gulf of Mexico Biodiversity after the Deepwater Horizon Oil Spill, is ongoing thanks to an Interdisciplinary Projects Grant Award from the National Academies Keck Futures Initiative (NAKFI), a project of the National Academies of Sciences, Engineering and Medicine.

BASTOS, PAULO BERNARDINO

Paulo Bernardino Bastos has a doctorate (Ph.D.) in Art Studies at University of Aveiro (Portugal), where he is an Art's Professor. He received his MA-Sculpture from Royal College of Art (London, England) and a degree in Sculpture from Faculty of Fine Art (Porto, Portugal). He is the director of the research group "Praxis and Poiesis: from arts practice towards art theory", part of the Research Unit "ID+ Research Institute in Design Media and Culture". As an artist, Bastos begins by using drawing and sculpture as a medium of expression and currently his practice intersects space, image and technology. He articulates his field of investigation between practice and theory and develops his universe of investigation looking at images produced through various technological mediations (from traditional to contemporary digital). Bastos has been participating in several international events as lecturer and as artist.

BIOSCÉNICA

Transdisciplinary company Bioscénica creates, develops and produces projects combining arts, sciences and technology applied to the scene and live arts for the benefit of diverse audiences in Mexico and Argentina, with an international outlet. Its headquarters are located in Xochimilco, south of Mexico City. Bioscénica is directed by Minerva Hernández Trejo, Myriam Beutelspacher, Alejandro Ortiz and Ezequiel Steinman. Together they consolidate a transdisciplinary methodology articulating creative, scientific and multimedia processes under a laboratory scheme. Its goals are aimed to generate innovative performances with techno-scientific development and to promote academic activities to share the generated knowledge. For each project, Bioscénica gathers renowned live art creators, scientists, theorists, composers, engineers, multimedia artists, visual artists, performers and guests from every latitude. Integration of biophysical, neuroscientific and robotic interfaces define its performance creation and research lines taking up the concepts of sound body, visual body and spatial body. These lines count with the collaboration of major national academic institutions such as UNAM and UAM.

BIOS EX MACHINA

Bios Ex Machina (MX) is a collective from Arte+Ciencia group. Arte+Ciencia is an interdisciplinary research group that was constituted in 2011. Since then, the main objective of the group has been to produce art and knowledge in the intercrossing of humanities, arts and science. As such, it has been pioneer in Mexico not only because it approaches contemporary discussions and projects from an interdisciplinary perspective; but also, because this heterogeneous perspective is seamlessly intertwined by reuniting artists, scholars, scientists and students in an horizontal active collaboration. Therefore, the outcomes of the alliance, surpass the common limitations of working from an interdisciplinary approach that is either vertical or separated in its organization. Thus, resulting in new and unforeseen perspectives for all disciplines. Bios ex Machina has produced artworks and workshops since 2011.

BUIANI, ROBERTA

Roberta Buiani is founder and artistic director of the ArtSci Salon at the Fields Institute for Research in Mathematical Science. Her new book “Viral Cultures” is forthcoming for Wilfried University Press. Website: http://atomarborea.net; http://artscisalon.com

CLOUSTON, NICOLE

Nicole Clouston is a practice-based researcher currently completing her Ph.D. in Visual Art at York University. 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, as well as internationally in New York City, Buffalo, and most recently Santander, Spain. Her work can be found at www.nicoleclouston.com.

DE MENEZES, MARTA

Marta de Menezes is a Portuguese artist with a degree in Fine Arts by the University in Lisbon, a MSt in History of Art and Visual Culture by the University of Oxford, and a PhD candidate at the University of Leiden. She has been exploring the intersection between Art and Biology, working in research laboratories demonstrating that new biological technologies can be used as new art medium. In 1999 de Menezes created her first biological artwork (Nature?) by modifying the wing patterns of live butterflies. Since then, she has used diverse biological techniques including functional MRI of the brain to create portraits where the mind can be visualised (Functional Portraits, 2002); fluorescent DNA probes to create micro-sculptures in human cell nuclei (nucleArt, 2002); sculptures made of proteins (Proteic Portrait, 2002-2007), DNA (Innercloud, 2003; The Family, 2004) or incorporating live neurons (Tree of Knowledge, 2005) or bacteria (Decon, 2007). Her work has been presented internationally in exhibitions, articles and lectures. She is currently the artistic director of Ectopia, an experimental art laboratory in Lisbon, and Director of Cultivamos Cultura in the South of Portugal. http://martademenezes.com

DIAMANTOPOULOU, EVAGUELIA

Evangelia Diamantopoulou is a lecturer at the Department of Communication and Media Studies of the University of Athens. She is a member of the Hellenic Section of the International Union Art Critics AICA GREECE and of the Association of Greek Art Historians. Her BA and MA courses are related to issues such as History of Art, Visual Arts and Communication, Image Dialectics, Issues of European Art, Issues of Modern and Contemporary Greek Art, Artistic Portraits, Issues of Artistic Creation. Her academic interests focus on Art and Communication, Art and Society, Issues of Identity in Art, Symbolic and Experienced Space in Visual Arts, Art and Play, Art and Historical Memory. Her published academic work includes 4 books, as well as many research projects in Greek and International interdisciplinary journals concerning matters of art and culture.

ESPINOZA, REYES

Reyes Espinoza is a doctoral candidate at the Purdue University Department of Philosophy and is on track to complete the PhD requirements in a timely manner. His dissertation “The Ethics of Tragic Uncertainty: A Visceral Ethics for Global Relationships” is a collection of original articles written over a three-year period. Along with critiques and comments by his committee, articles from it have been presented at philosophy conferences hosted by, among others, the Philosophy Network of Spain (Red Española de Filosofía) on the topic of climate change and indigenous environmental interests as well as the Mexican Association of Philosophy and Liberation (Asociación de Filosofía y Liberación - México) on the topic of borderlands and integrated world capitalism. His current work straddles the topics of expanding psychedelic substance regulation, inquiring into notions of desire, and the concept of play as a meaning for life.
Website: https://reyes-espinoza.blog

GIANNAKOULOPOULOS, ANDREAS

Andreas Giannakoulopoulos is an Associate Professor at the Department of Audio and Visual Arts of the Ionian University, where he teaches courses related to Internet Communication, New Media and the Web Technologies. He holds a BA (Ptychio) in Economics from the University of Athens (UoA), a BA (Ptychio) and a Master of Arts in Communication and Media Studies from UoA, and a Master of Science in Logic from the University of Amsterdam. His doctoral dissertation, approved by the University of Athens, was in the field of web accessibility. The main fields of his academic activities are computer mediated communication, web technologies and e-learning systems as means of effective online communication.

GOLD, EFRAT

Efrat Gold is working on her PhD at Ontario Institute for Studies in Education, University of Toronto, in the Department of Adult Education and Community Development. Her research is primarily archival and historical, seeking to uncover overlooked and under-examined psychiatric histories in order to understand how the institution of psychiatry has evolved into its contemporary iteration. Gold presents critiques of psychiatry which focus on those most vulnerable and marginalized by psychiatric power, discourse, and philosophy. Her work is overtly feminist, anti-racist, and antipsychiatry. Her research interests include critical/ antipsychiatry, history from below, feminist history, Canadian psychiatric histories, historical materialism, and alternate histories. In the tradition of Foucault, Gold pursues historical genealogies that explore the complex and mundane origins of society.

GONZÁLEZ VALERIO, MARÍA ANTONIA

María Antonia González Valerio (MX) PhD in Philosophy from the National Autonomous University of Mexico (UNAM) with postdoctoral studies in the area of aesthetics. Full-time professor of the Faculty of Philosophy and Literature and of the postgraduate programs in Philosophy, Philosophy of Science, Art History and Fine Arts at UNAM. She works within the research line of ontology-aesthetics and the interdisciplinary line of arts, sciences and humanities, specifically in the field of art that uses bio-media. Head of the research group Arte+Ciencia (Art+Science) which gathers artists, scholars and scientists in an interdisciplinary work that produces education at an under and postgraduate level, specialized theoretical research, artistic creation and exhibitions. Author of the books: *Cabe los límites. Escritos sobre filosofía natural desde la ontología estética* (México: UNAM/Herder, 2016), *Un tratado de ficción* (México: Herder, 2010) and *El arte develado* (México: Herder, 2005).

GRAÇA, LUIS

Luis Graça has an MD from the University of Lisbon, Portugal; and a PhD in transplant immunology from the University of Oxford, UK. He developed his post-doctoral research first in Oxford and later at the Institute for Child Health Research, in Perth, Australia. He is currently Associate Professor at the Lisbon Medical School, directing a

research group in cellular immunology at Instituto de Medicina Molecular. His most significant scientific contributions have been related with the development of strategies to teach the immune system not to reject transplanted organs, also known as immune tolerance. Currently he is extending his findings to the fields of allergy and autoimmunity (where the immune system attacks its own body). Luis Graça is author of more than 60 peer-reviewed publications, cited over 2500 times, three patents, and co-founder of Acellera Therapeutics. Besides his scientific research he has been interested in the intersection between art and science. In this field Luis Graça has collaborated with several artists, including a long-term relationship with Marta de Menezes, and he is now scientific advisor for Ectopia and Cultivamos Cultura – two Portuguese institutions involved in fostering art-science collaborations. He has three publications in this field, describing the scientist view of art-science interactions. Webpage: https://imm.medicina.ulisboa.pt/pt/investigacao/laboratorios/graca-lab/

GRACIE, ANDY

Andy Gracie (UK/ES) works across various disciplines including installation, robotics, sound, video and biological practice. Recently his work has involved studies and reactions to the science of astrobiology; notions of the origins of life coupled with a re-examination of its boundaries. His practice employs scientific theory and practice to question our relationships with environment and the notion of the "other" while simultaneously bringing into focus the very relationship between art and science. His work has been shown internationally and has included special commissions for new works.

HADZI, ADNAN

Dr. Adnan Hadzi is currently working as resident academic in the Department of Digital Arts, at the Faculty of Media and Knowledge Sciences, University of Malta. Hadzi has been a regular at Deckspace Media Lab, for the last decade, a period over which he has developed his research at Goldsmiths, University of London, based on his work with Deptford.TV. It is a collaborative video editing service hosted in Deckspace's racks, based on free and open source software, compiled into a unique suite of blog, cvs, film database and compositing tools. Hadzi is co-editing and producing the after.video video book, exploring video as theory, reflecting upon networked video, as it profoundly re-shapes medial patterns (Youtube, citizen journalism, video surveillance etc.). Hadzi's documentary film work tracks artist pranksters The Yes Men and !Mediengruppe Bitnik Collective. Bitnik is collective of contemporary artists working on and with the Internet. Bitnik's practice expands from the digital to affect physical spaces, often intentionally applying loss of control to challenge established structures and mechanisms. Bitnik's works formulate fundamental questions concerning contemporary issues.

HIGH, KATHY

Kathy High is an interdisciplinary artist, educator working with technology, art and biology. She collaborates with scientists and other artists, and considers living systems, empathy, animal sentience,

and the social, political and ethical dilemmas of biotechnology and surrounding industries. She has received awards including Guggenheim Memorial Foundation, Rockefeller Foundation, and National Endowment for the Arts. Her art works have been shown at documenta 13 (Germany), Guggenheim Museum, Museum of Modern Art, Lincoln Center and Exit Art (NYC), UCLA (Los Angeles), Science Gallery, (Dublin), NGBK, (Berlin), Festival Transitio_MX (Mexico), MASS MoCA (North Adams), Esther Klein Gallery (Philadelphia) and Para-site (Hong Kong). High is Professor in the Arts, and has a lab in the Center for Biotechnology and Interdisciplinary Studies at Rensselaer Polytechnic Institute, Troy, NY. She hosts bio/ecology+art workshops and is creating an urban nature center in North Troy (NATURE Lab) with community media organization The Sanctuary for Independent Media. She is an ongoing Vivo Art artist in resident with the Center for Microbiome Sciences & Therapeutic, DePaolo Lab, School of Medicine, University of Washington, Seattle.

HONORATO, DALILA

Dalila Honorato, Ph.D., is currently Assistant Professor in Aesthetics and Visual Semiotics (tenured) at the Department of Audio and Visual Arts of the Ionian University in Greece where she is one of the founding members of the Interactive Arts Lab. She is the head of the organizing committee of the conference “Taboo-Transgression-Transcendence in Art & Science” and developer of the studies program concept of the Corfu Summer School in Hybrid Arts. Besides teaching at the undergraduate and graduate programs she also advises doctoral and post-Doc candidates developing their research in Arts Practice. She is a guest faculty at the PhD studies program of the Institutum Studiorum Humanitatis in Alma Mater Europaea, Slovenia, and a guest member of the Science Art Philosophy Lab integrated in the Center of Philosophy of Sciences of the University of Lisbon. In 2013-17 she participated in the research program by COST “Appearance matters: Tackling the Physical & Psychological Consequences of Dissatisfaction with Appearance” (Action IS1210) coordinating the task group focusing on Media and Self-Narrative. A commissar of “FEMeeting: Women in Art, Science and Technology” launching in 2018 organized by Cultivamos Cultura, Portugal, she has been granted a sabbatical leave to develop her art & medicine research project “PARTS: on the agency of surgical leftovers”, at RPI (USA), A+C-UNAM (Mexico) and Ectopia Lab (Portugal), in the Spring of 2019, having gynecological tissue and identity as focal points.

LIMNIATI, LAIDA

Laida Limniati is working as a journalist in the fields of technology and self-driving cars. She has also worked as a Marketing Executive and Communications Specialist. She holds a BA (Bachelor) in Communication and Media Studies from the University of Athens (UoA), a MA (Master) in Communication and Media Studies from UoA with Major in Digital Media and Interactive Environments, a Master of Arts in Quality Journalism and New Technologies from Danube University Krems and a Master of Arts in Social

Sciences (Major in Media and Global Communication) from the University of Helsinki. She loves Japanese culture and Japanese manga and anime in particular. Her interests also include: new technologies, internet, storytelling, transmedia storytelling, and social media.

LINN, OLGA MAJCEN

Olga Majcen Linn (1975) graduated in art history and comparative literature at the Faculty of Humanities and Social Sciences, University of Zagreb. Engaged in curatorial work since 2002 through NGO KONTEJNER, as the co-founder of the NGO and author of many renowned international projects (Device_art, Touch Me, Extravagant Bodies). She curated more than 100 exhibitions, festivals, conferences and lectures in Croatia and internationally. Since 2003 she has been working at the Gallery VN in Zagreb which presents young and emerging Croatian artists, where she has organized and curated more than 200 exhibitions. She teach as guest lecturer at the Academy of Fine Arts in Zagreb (art at the intersection of science and technology). She is also active in the field of social theory and critique and is a member of AICA. Currently she is working on her Ph.D. on the topic of subversive art practices. Website: www.kontejner.org

LOBATO, JAIME

Jaime Lobato is a multimedia artist, composer, curator and independent researcher. He made his studies at the Faculty of Music at the National Autonomous University of Mexico (UNAM). He has composed music for video-art, interactive installations, electroacoustic mixed pieces, dance companies, sound-poetry and performances.

LOPES, MARIA MANUELA

Maria Manuela Lopes is a visual artist and researcher based in Portugal. Her current practice is transdisciplinar and based on issues of memory and self-identity informed by life sciences and medical research and presented in the form of time-based installations, occasionally including biological materials. She has studied Fine Arts at FBAUP Portugal and did an MA at Goldsmiths College, London. Lopes has an New Media Fine Arts Doctorate from UCA Farnham, and Brighton University UK, She is currently developing in a PostDoc project that extends the PhD project into a wider cultural scenario questioning what it means to be human in a techno enhanced society. Maria is also assistant-Director of two residency programs: artists in Labs - Ectopia - Lisbon, and Cultivamos Cultura, an ecological oriented residency program in Alentejo. She has concurrently been presenting her work internationally at exhibitions and conferences and also publishing.

OLIVEROS, MIGUEL

Dr. Professor Miguel Oliveros is a fine artist, programmer and sound designer currently lecturing at the Faculty of Communications and Arts, Universidad Nebrija in Madrid, Spain. After completing his Bachelor and Master studies at i-dat.org (University of Plymouth) while working as an art therapist, he moved to Madrid where he obtained a PhD “cum laude” in Fine Arts (UCM) with a practice based thesis entitled: “The

sublime in the postdigital age: The technological oeuvre in the context of experiential art". Since 2015 he is documenting THB (trafficking of human beings) within irregular migration routes across the European, North African and Balkan borders. A project which has led to the collaboration with the O.S.C.E., the National Spanish Police and the E.A.S.O. As an artist he has exhibited oeuvre in numerous galleries, performed at experimental and electronic music festivals across Europe and Spain - a sound work which has been published in various net labels. He has also been commissioned by the private, creative and technological industries since 2013. He is vice president and co-founder of the non-profit science, art and technology organization spaceinteractionalexperience.org.

ORTEGA, LENA

Lena Ortega is an artist, researcher and designer based in Mexico City whose main line of research are the concepts of atmosphere and embodied experience. The exploration of such a notions has led her to experiment through various types of media that range from immersive installations to sound and light art. Member of the Arte+Ciencia interdisciplinary research group based in the UNAM with international projection. She holds a Masters in Visual Arts from the UNAM and a specialization in Media and Design for Printing from SFSU. She has been part of the official selection and honorable mention of animation and video contests and has taught at the Faculty of Arts and Design of the UNAM and recently at La Salle University. Currently finishing a PhD in Art History at the UNAM and venturing into sound art exploring the intersections between culture and nature.

OSTOIĆ, SUNČICA

Sunčica Ostoić (1976) is a cultural worker from Zagreb, Croatia where she graduated in art history and philosophy at the Faculty of Humanities and Social Sciences. In 2002 she co-founded NGO KONTEJNER | bureau of contemporary art praxis; as author and curator of the festivals Extravagant Bodies, Touch Me and Device_art she has worked on more than 100 exhibitions, festivals, conferences and lectures in Croatia and internationally (including Zagreb, Ljubljana, Belgrade, London, Glasgow, Perth, Sydney, San Francisco, Beijing, Tokyo). She is currently a doctoral student in transdisciplinary studies of arts and media at the Faculty of Media and Communications in Belgrade, where her supervisor is Dr Miodrag Šuvaković. Her interests cover the field of the theory and practice of extreme, extravagant and radical art in the 21st century. She is a guest lecturer at the Academy of Fine Arts in Zagreb (art at the intersection of science and technology). Website: www.kontejner.org

PEVERE, MARGHERITA

With a visceral fascination for organic materials, Margherita Pevere is a Berlin based bioartist and PhD candidate at the School of Arts, Design and Architecture of Aalto University (Helsinki, Finland), in collaboration with Biofilia Laboratory. Her research looks at the intertwinements and leakiness between biological and technological materials through installations, performances,

visual works, collections of plant and animal relics, and workshops. She cooperates with *Glucoacetobacter hansenii* bacteria for the production of microbial cellulose. Pevere collaborates with Aalto transdisciplinary platform for innovative biomaterials CHEMARTS. She is founder member of the Berlin advocacy group AG21c and member of the Finnish Bioart Society. Most recent exhibitions include State Festival for open science and society, Berlin, curated by Daniela Silvestrin; Non-human agents, Art Laboratory Berlin, curated by Christian de Lutz and Regine Rapp, Emergent Forms in Art and Science, Fields Insitute Toronto, curated by Roberta Buiani. Website: www.margheritapevere.com

ROMANIA, ALEX

At the crux of expansive task and deteriorating form, his multidisciplinary work investigates bodies of cultural debris amidst the invisible everyday and toxic ingestions, consuming, purging, and breaking apart - the multiple body in exorcism. His work delves into spaces of the unimaginable, staring into the unknown to consider one's crude and splendid humanity. He pursues an altered inhabitancy of the false binary of good/bad, embracing spaces of embarrassment, and unruly action to liberate the governed body. Romania's performance work is genre blurring, and pivots between the contexts of dance, performance art, installation and video, involving costume and object. Often working through physical research, he views the choreographic as an unattainable pathway where the performer navigates boundaries, creating friction between the premeditated and the spontaneous. His practice investigates dangerous and functional roles of value systems in relationship to social choreography, mutating through performance, pursuing alternative possibilities for cohabitating space.

ŠEBJANIČ, ROBERTINA

Robertina Šebjanič works in the intersection of art, technology and science. Her work encompasses immersive installations, av performances, workshops that tackle philosophical questions of our society to the understanding of living systems and their interaction with the environment. Her ideas and concepts are often developed in collaboration with others, through interdisciplinary integration. She is a member of Hackteria Network and Theremidi Orchestra. She was awarded an Honorary Mention @ Prix Ars Electronica 2016, nomination for STARTS2016 and nomination for the White Aphroid award. She was SHAPE2017 artist. Robertina is internationally exhibited artist. She performed / presented / exhibited at solo and group exhibitions as well as in gallery's, biennials, triennials and festivals: Ars Electronica (Linz), Kosmica (Mexico City), Le Cube (Paris), Art Laboratory (Berlin), Piksel (Bergen), Device art (Zagreb) & Eastern Bloc (Montreal), Eyebeam (New York), PORTIZMIR#3 (Izmir), Kiblix festival (Maribor), Gallery Kapelica (Ljubljana). She studied at the Academy of Fine Arts and Design (SI), Famul Stuart School of Applied Arts (SI) and the Valand School of Fine Arts (SE).

GUZMÁN SERRANO, RODRIGO

Rodrigo Guzman Serrano is an art historian and media arts researcher. He holds a master degree in Art History from the City College of New York and a degree in Media Arts Cultures, a joint Erasmus master degree. He currently works at the Danube University Krems, Austria.

SEYFRIED, GÜNTER

Günter Seyfried is an Austrian artist, who lives and works in Vienna. He has a background in medicine and psychology, which he studied at the University of Vienna, and has strong links to the fine arts, digital art, and media art, having graduated from the University of Applied Arts Vienna (Department of Digital Art). He is teaching at the University of Applied Arts Vienna, Department of Media Theory. He combines science and art education and develops projects as an independent artist, participating in national and international exhibitions and publications. He is a founding member of pavillon_35 - Gesellschaft für wissenschaftsbasierte Kunst.

SHIBUYA, FELIPE

Felipe Shibuya is a Brazilian bioartist who decided to adventure around the world. Currently, he lives in Boston, developing works with art and science. His journey began two years ago, when he finished his Ph.D. in Ecology and Conservation, at the Universidade Federal do Paraná. Felipe then decided to explore the visual aspects he had included in his research, beyond the purely scientific perspective. His current project involves the deconstruction of archetypes in species that became poetized by humans, such as hummingbirds. He presented works at School of Visual Arts (New York), Northeastern Center for the Arts (Boston), Museu do Design e da Moda (Lisbon), and Universidad Nacional Autónoma de México (Mexico City), he has also had citations published in important magazines such as National Geographic and Citylab.

SURYNA, KATSIARYNA

Originally from Belarus, Katsiaryna Suryna is a doctoral candidate at the Department of Philosophy at the Central European University in Budapest, Hungary. She specializes in areas such as phenomenology, philosophy of mind, neurophilosophy, and philosophy of sciences. She holds a master degree in Semiotics from the University of Tartu in Estonia.

TAYLOR, SHARRY

Sharry Taylor is a high school guidance counsellor and PhD student at the Ontario Institute for Studies in Education, University of Toronto, in the Department of Adult Education and Community Development. Her work explores the intersection of capitalism and psychiatry as this relates to marginalized groups and children. In particular, her work explores the psychiatrization of young people who are rebellious or who do not fit in to school routines or school structure. She is interested in the ways that psychiatrization becomes constitutive of capitalist surplus value in two separate but related ways: first, by making rebellious youth objects of accumulation through “psy” services and psychiatric drugs, and second, by aligning their subjective experiences with neoliberal narratives that responsibilize capitalism’s harms and traumas.

TIMURGALIEVA, OLGA

Olga Timurgalieva has graduated from the joint master program Media Arts Cultures (Danube University Krems, Aalborg University, Lodz University), as an Erasmus Mundus scholarship holder (2016-2018). Additionally, she holds an MA in Cultural Studies from the Higher School of Economics (Moscow). Timurgalieva worked at several art institutions including the Centre for Art and Media in Karlsruhe (ZKM), Moscow Museum of Modern Art, and V-A-C Foundation. Her research interests are bioart, posthumanism, new materialism. Timurgalieva presented her research on bioart at: Women Against Domination and Oppression Conference (Lodz, 2017), 10th Beyond Humanism Conference (Wroclaw, 2018), Interdisciplinary Conference Taboo-Transgression-Transcendence in Art & Science (Mexico, 2018) and Critical Zone Conference (Hamburg, 2019).

TOD, ALAN

Alan Tod is the artistic identity of Julien Isoré, French painter and director involved in total art. After graduation in comparative intellectual property law in Paris in 2001, Julien Isoré worked for 7 years for the mediaTV business industry as story editor and director. In 2005, he opens his first painting studio in Paris and starts the international campaign for LOVE (2007-2012) where he experimented total art (www.artforlove.fr). In 2007 he enters the school of Fine Arts of Lisbon (CIEBA) as independent researcher in comparative anatomy in collaboration with the School of Medicine of Lisbon, the School of Sociology of imaginary of La Sorbonne University and with Les cahiers européens de l'imaginaire edition CNRS. In 2015, Julien Isoré became Alan Tod, the forest artist and since then, he never stop to be. Website: www.alantod.com

TREIDE, RACHEL

Rachel Treide is studying Art History and Photography at the Savannah College of Art and Design, with an emphasis in photographic theory and 20th century Art. Her BFA thesis explores a little-known body of stereographs created by photographer Stephen Shore in the early 1970s and examines the stereograph's role in art's progression from form to consciousness. She is interested in the relationship of art, science and perception, and where the three merge in art, culture, photography and nature. An artist at heart who uses photography as a medium, her work has been exhibited in the US and can be found at racheltreide.com.

VESNA, VICTORIA

Victoria Vesna Ph.D. is an Artist and Professor at the UCLA Department of Design Media Arts and Director of the Art|Sci Center at the School of the Arts (North campus) and California NanoSystems Institute (CNSI) (South campus). Although she was trained early on as a painter (Faculty of Fine arts, University of Belgrade, 1984), her curious mind took her on an exploratory path that resulted in work can be defined as experimental creative research residing between disciplines and technologies. With her installations she investigates how communication technologies affect collective behavior and perceptions of identity shift in relation to scientific innovation (PhD,

CAiiA_STAR, University of Wales, 2000). Her work involves long-term collaborations with composers, nano-scientists, neuroscientists, evolutionary biologists and she brings this experience to students. Victoria has exhibited her work in 20+ solo exhibitions, 70+ group shows, has been published in 20+ papers and gave 100+ invited talks in the last decade. She is the North American editor of *AI & Society* journal (Springer Verlag, UK) and has published the edited volumes *Database Aesthetics: Art in the Age of Information Overflow* (Minnesota Press, 2007) and *Context Providers: Conditions of Meaning in Media Arts* (co-edited with Christiane Paul and Margot Lovejoy, Intellect Ltd, 2011). Currently she is working on a series Art Science & Technology based on her online lecture class.

ZAINEH, JUDE ABU

Jude Abu Zaineh is a Palestinian Canadian artist working with food and bioart to investigate meanings of culture, displacement, diaspora, and belonging. Having lost both her parents at an early age, her work navigates through topics of grief, memory, and nostalgia to develop aesthetics rooted in her childhood and upbringing in a muslim environment in the Middle East. These personal histories and tensions as a Palestinian growing up in Kuwait inform the afflicted identity politics that motivate Abu Zaineh's practice. Understanding factors that redefine and change immigrant food practices allows her to further explore what it means for Palestinians to exist in a migratory space of "in-betweenness"; attempting to conform and adapt to the cultures and traditions of their new homesteads while maintaining a connection to their Palestinian heritage and identity.

ZARETSKY, ADAM

Dr. Adam Zaretsky is a Wet-Lab Art Practitioner mixing Ecology, Biotechnology, Non-human Relations, Body Performance and Gastronomy. Zaretsky stages lively, hands-on bioart production labs based on topics such as: foreign species invasion (pure/impure), radical food science (edible/inedible), jazz bioinformatics (code/flesh), tissue culture (undead/semi-alive), transgenic design issues (traits/desires), interactive ethology (person/machine/non-human) and physiology (performance/stress). His art practice focuses on an array of legal, ethical, social and libidinal implications of biotechnological materials and methods with a focus on transgenic humans. Dubbed the Lenny Bruce of Bioart, Adam is known for his outspoken verbiage and acts of uncommon quandary. https://www.youtube.com/user/VASTALschool/videos

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