

## Abstracts & Bios

### Wet Machines

#### Sara R. Yazdani. Art, Fungus, and Life in Wolfgang Tillmans's 'Neue Welt'

##### **Abstract:**

In the late 1990s and early 2000s questions of 'nature' and life morphed with contemporary art in new ways. Under the influence of new media technologies and digital networks, it seems as artists at this time came to challenge modern fantasies of 'nature' and how it had been viewed and historicized. It was, as it seems, the emergence of digital technologies that enabled artists to investigate alternative phenomena of art, life, and 'nature'—phenomena explored by the avant-garde and their machines from the 1920s and onwards. In an exploration of a body of photographic works—"Neue Welt"—made by the German artist Wolfgang Tillmans in and around 2012, this paper will argue that it may have been that the digital became a technology that autonomously pushed towards new forms of connections between living and dead life materials on Earth (and even outer space), incrementing avant-garde questions of subjectivity and life in some process-oriented terms. In these works, the fungus appears as a motif again and again, a repetition of some Fluxus artists of the 1960s (that does not seem accidental). Because the body of images—that could be interpreted as a technical 'moment' of the artistic practice of Tillmans, consists of hundreds of photographs, constellated over two publications and many exhibitions—do not simply represent the 'real' world. More so, it seems to endeavour new dimensions to an artistic engagement with photography where the agency of the technology is explored as a quasi living subject with some social abilities to enter and construe new forms of ecologies and alliances of the world. Focusing on photography's peculiar alliance with natural root systems of trees and fungus (mycorrhizae) and the parallel ecologies it seems to have connected via "Neue Welt", the paper will argue that new conceptions of 'nature' and social ontologies began to emerge at this time as photography entered its digital mode of existence.

##### **BIO:**

Sara R. Yazdani is a PhD research fellow at the University of Oslo where she is currently finishing her doctoral dissertation on photography and parallel ecologies in the field of contemporary art with a focus on the German artist Wolfgang Tillmans. Her research traces a specific conception and investigation of images and technologies as diagrams of forces to the avant-garde of the 1920s and 1960s. Yazdani is also an art critic and has published in, for instance, *Artforum* and *Kunstkritikk*. In 2016 she was a guest researcher at Humboldt-Universität zu Berlin.

## **Georg Tremmel. On/Off/Maybe - Towards the Ultimate Biological Machine**

**Abstract:** Claude E. Shannon is primarily known for Information Theory, in which he mathematically defined the technical prerequisites for communication, but the lesser-known area of his work includes a range of 'gadgets'. Unique - some would say useless - inventions such as the two-seated unicycle, a petrol-powered pogo stick and a trumpet that doubles as a flame thrower. Based on an idea of Marvin Minsky, he created the 'On/Off Machine' or 'Ultimate Machine'. The original machine did not survive, in Arthur C. Clarke describes it as:

"Nothing could be simpler. It is merely a small wooden casket, the size and shape of a cigar box, with a single switch on one face. When you throw the switch, there is an angry, purposeful buzzing. The lid slowly rises, and from beneath it emerges a hand. The hand reaches down, turns the switch off and retreats into the box. With the finality of a closing coffin, the lid snaps shut, the buzzing ceases and peace reigns once more. The psychological effect, if you do not know what to expect, is devastating. There is something unspeakably sinister about a machine that does nothing -- absolutely nothing -- except switch itself off." (Clarke, 1958)

Knowingly to Shannon and Minsky or not, their Ultimate Machine can be seen as the symbolic and critical comment on computation. The act of switching the machine on, and its response of switching itself off, can be read in a number of ways. On/Off can stand for zero and one, for true and false. They can also stand for the dichotomy of Hardware and Software. What would happen if we add 'Wetware' and create a trichotomy of Hardware, Software and Wetware. Would it be possible to create a 'Ultimate Biological Machine' and if so, how would it look like, how would it function? Could it acquire a third state, a state between zero and one, between true and false. This state would still be undefined, it would still be 'Maybe'.

## **Clarissa Ribeiro. Molmedia: informational bonds in Complex Adaptive Bio-Systems (CABS)**

**Abstract:** Coined in 2005 the term microbiome provides a connotation that does not relate exclusively to surface materials as the term biofilm but instead refers to operational bio-systems. As explained by Willy Verstraete, in these systems, normally "[...] one has organized communities of microbes at work and they are present in the form of 3-dimensional coagulates, flocs, sludges, granules and deposits" (Verstraete, 2015, p.1). The microbiome is a technical system and the term refers to both the microbes and the related collective genomes. Engineering –designing or re-designing, optimizing, editing, remixing – the crowd of microorganisms implies interfering in the self-organizing dynamics of a Complex Adaptive System that, as observed by Verstraete (2015, p.1) has a level of species stability and drives "[...] particular conservation and conversion processes under open and variable conditions". We propose to name systems where the microbiome is integrated with the human organism living cells (tissues, organs...) focusing on its informational bonds as Complex Adaptive Bio-Systems (CABS). According to De Vrieze, Christiaens, Verstraete, effective engineering of microbiome can be achieved via what they refer as top-down or bottom-up approaches. Conceptually, as explained by the team of researchers, the top-down management strategy

considers the microbial community as a well-structured network that “[...] can be monitored by means of molecular techniques that will allow the development of accurate and quick decision tools” (De Vrieze, Christiaens, Verstraete, 2017). On the other hand, the bottom-up strategy uses synthetic cultures that can be composed “[...] starting from defined axenic cultures, based on the requirements of the process under consideration.” (De Vrieze, Christiaens, Verstraete, 2017). Both approaches involves real-time monitoring, control, as well as identifying and characterizing interactions between the system’s elements or the ‘partner microorganisms’ as managing integrated microbiome communication processes in a molecular level. This approach is also labeled as ‘Microbial Resource Management’ (Verstraete et al, 2007) or ‘microbial community engineering’ (Moralejo-Garate et al, 2012) due to the fact it implies carefully choosing “[...] the input of existing microbiomes and the gradual evolvment of the latter to obtain a consortium of species that attains the desired performance” (Verstraete, 2015). Verstraete (2015, p.2) explains that, despite there is still not a established or unified criteria to delineate if one is dealing with an effective microbiome – an integrated and interrelated crowd of microorganisms working together as a self-organizing system –, or if it is simply a random group of microbes that happens to be at the same place but having no evident relation to each other, there are a couple of strategies that can help identify communication processes that are going on in molecular scale and indicates the informational bonds between the microorganisms. To help discussing and understanding communicational phenomena that happens in scales not visible to the naked eye, we propose the term Molmedia – a metaphorical reference to the concept of mole, referring here no to the amount of chemical substance but to information exchange processes that are going on at elementary entities level such as atomic, subatomic and molecular, within a given living organism. We take media (plural of medium) as an intervening agency, means, or instrument. Interacting emitters and receivers in this system are the microbiome and the organism actual cells that produces as an emergence in macro scale the self and its behavioral patters that can be visualized by others, appreciated, appropriated, manipulated, cannibalized.

## **Nora Vaage. Wet Machines: Metaphors We Live By**

**Abstract:** Within biology and in society, living creatures are increasingly described using metaphors of machinery and computation: think of “genes as code”, “bioengineering”, or “biological chassis”. With the development of new disciplines such as synthetic biology and biodesign, where the focus is on “knowing by making”, the tendency towards describing organisms as something that can be engineered in a similar way to a car or a computer is gaining hold.

This paper takes as a starting point Lakoff and Johnson’s argument in *Metaphors We Live By* (1980) that such language mechanisms shape how we understand life itself, resulting in a widespread perception of life as materials to be controlled and transformed. Combining these arguments with insights from phenomenology, I discuss biological artworks by the Tissue Culture and Art Project, Marta de Menezes, Brandon Ballengée, and Tarsh Bates, that challenge these mechanistic mechanisms through open-ended engagement with the wondrous strangeness and messiness of life.

**Bio:**

Nora S. Vaage is assistant professor in philosophy of art and culture at Maastricht University, the Netherlands. She holds a BA in Aesthetics, an MA in Art History, and a PhD in Theory of Science from the University of Bergen, Norway, and for the last few years has identified as an interdisciplinary researcher. Her expertise is in the cross-section between philosophy, STS, and art, with research interests including bioart, biohacking, climate change art, ethics, epistemology and the role of art in society. Vaage lectures and teaches a number of subjects including modernity and the arts, philosophy and theory of science, ethics, and cultural pluralism.

**[Verena Friedrich](#). Matter Transform Sequences****Abstract:**

Verena Friedrich's works combine organic matter, programming, hardware and sculptural materials. The techno-organic systems often deal with the topic of time and the manipulation of material processes. While in her previous installations she seeks to prolong the individual lifespan of fragile organic entities through a series of technical interventions within a controlled environment, her current work-in progress looks into cyclical processes in nature and proposes an alternative view on time based on the hydrological cycle. The presentation will explore the topic of linear vs. cyclical time, technical and natural atmospheres and the relations between living and non-living systems.

**Bio:**

Verena Friedrich is an artist creating time-based installations in which organic, electronic and sculptural media come into play. She was an artist in residence at "SymbioticA – Centre of Excellence in Biological Arts" in Australia and at the Max Planck Institute for Biology of Ageing Cologne. Verena Friedrich's projects have been presented internationally in the context of exhibitions, media art festivals and conferences. Her work was awarded the International Media Award for Science and Art from ZKM Karlsruhe, the Transitio\_MX Award, the CynetArt Award, the Lab.30 Award and several distinctions from Transmediale, Ars Electronica, the Japan Media Arts Festival and VIDA Art & Artificial Life Awards. She has been teaching at the University of Art and Design Offenbach and the Bauhaus University Weimar, both in Germany. Together with two other colleagues she is currently running the "exMedia Lab" at the Academy of Media Arts Cologne (her focus being on DIY technologies, biological and ecological arts).

**[Mariana Pérez Bobadilla](#). Indomitable mechanisms: Bacteria as wet machines.****Abstract:**

In their relative simplicity, bacteria enact wet machines with more clarity than other organisms. Gene editing has turned them into a preexisting mechanism that can be

customized. This conceptualization cannot be dissociated from considerations of power and anthropocentrism. This analysis proposes that a mechanistic understanding of these wet machines is twofold. First, as part of the exploitation of *zoé*--as understood by Braidotti--and the commercialization of all living matter. Second, as a recognition of a more comprehensive definition of the living in the continuum nature-culture that might include other mechanical and electronic forms of self-organization, leading to a post-dualistic understanding of matter and meaning.

I depart from examples of material thinking through art and science, such as the work of Gilberto Esparza, Christina Agapakis, Interspecifics and our experiments with MFCs. Complexity is favored over the simplification of the living, considering that bacteria have so far proven unpredictable, uncontrollable, and impossible to completely model as machines. Bacteria are represented instead as agents, as the minimal expression of life where the tensions of exploitation and subjectivity take place, and therefore the ground for environmental activism is transformed into renewed conceptual creativity.

**BIO:**

Born in Mexico City, Mariana Pérez Bobadilla is an Art Historian and DIY biologist concerned with the intersections of Art, Science, and Technology. She received an Erasmus Mundus Scholarship to study a Master in Gender Studies at the University of Bologna, Italy, researching Feminist Epistemology and Contemporary Art. She has presented her work in ISEA 2012 and has been involved in the Mexican Pavilion of the 56th Venice Biennale. Her academic training includes courses with Rosi Braidotti, and the international curators' course of the 2014 Gwangju Art Biennale, in South Korea. Awarded by the Hong Kong Ph.D. Fellowship Scheme, her research in the School of Creative Media revolves around Art and Biology, Epistemology, History of Science, deep time histories of representation, New Materialism, Biohacking, Wetware, and bacteria.