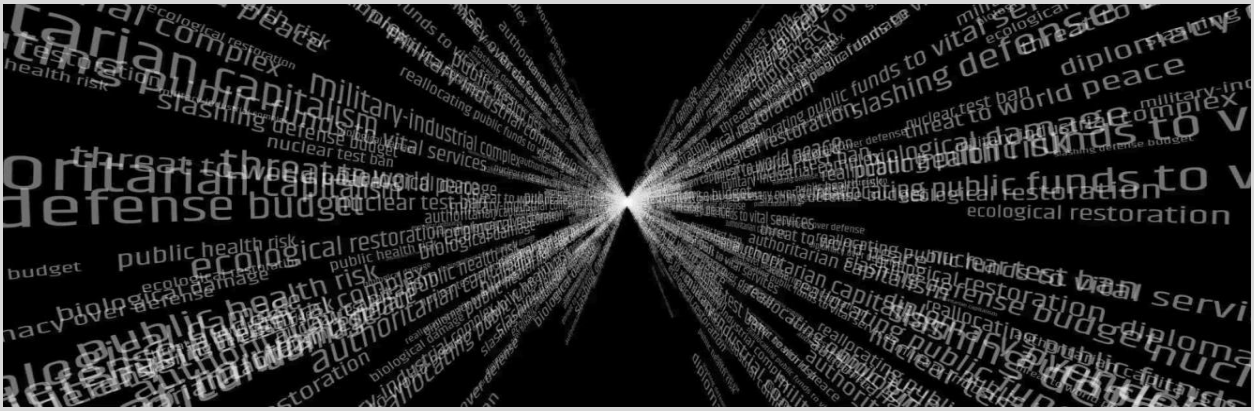
authoritarian capitalism
military-industrial complex
slashing defense budget
threat to world peace
nuclear test ban
public health risk
ecological restoration
diplomacy
budget

A B S T R A C T S

The Feeling Machine

Since the end of the Middle Ages, western art[1] and science[2] have tried to define emotions by linking specific words to specific facial expressions. In classic western theatre and painting, a set of rules[3] emerged on how to portray emotion with body, face and voice. These rules where codified as atlantes of facial expressions and gestures modelled on the principle of "truth-to-nature"[4]. Their primary goal was to eliminate ambiguity[5]. Performers knew that if they moved their face and body in a specific way, every audience member would understand it as anger.

At the end of the 19th century, these atlantes have lost their usefulness. The traditional rules of society had been upended, and ambivalence became a defining feature of human interaction in bourgeois societies[6]. Playwrights like Anton Chechov strived to recreate this ambivalence for the stage. And in the field of stage acting, the Russian actor-director Konstantin Stanislavski revolutionized the portrayal of emotion.[7]

Rather than focusing on emotional expression, Stanislavski suggested that actresses should thoroughly analyze a play's text and investigate the motivations and goals of a character's behavior, her circumstances and her surroundings. The more they know about who their character is and what drives them, the more truthful their portrayal will become. And by focusing on behavior and action instead of the «correct» emotion, truthful emotional expression will automatically arise.[8]

But while Stanislavski embraced ambivalence and pushed aside standardized facial expressions, another writer of his age made them front and center. In his book «The Expression of the Emotions in Man and Animals»[9], Charles Darwin conceptualized emotions as discrete, separate entities and focused primarily on the face. He proposed a set of universal emotions connected to specific facial expressions present both in humans and animals.

Largely forgotten during the reign of behaviorism[10], Darwin's book was rediscovered in the 1960s[11] and became the most influential text in the history of affective psychology. Scientists developed increasingly fine-grained models of linking facial muscle movement to emotional states[12]. The field of affective computing aims to detect a human's emotional state from their facial expression and voice. And in computer animation, algorithms now give birth to emotion-enabled virtual humans. The emotional atlantes are ubiquitous – again. But the Academy Awards for best screen acting are still won by people, notmachines. Why is that? And how long will it last?

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[1] Le Brun, 1698.
[2] Descartes, 1650.
[3] Barnett & Massy-Westropp, 1987
[4] Daston & Galison, 2007.
[5] Cottegnies, 2002.
[6] Stegemann, 2011.
[7] Benedetti, 2016.
[8] Stanislavskij, 1924/1988.
[9] Darwin, 1872.
[10] Gendron & Feldman Barrett, 2009.
[11] Tomkins, 1963.
[12] Ekman et al., 2002.

In my scientific-artistic research project «The Feeling Machine», I investigate the splitscreen history of emotional research in the art of acting and in scientific psychology. I explore the genealogy and visual aesthetics of atlantes of emotion and propose that the lack of communication between practitioners of art and science is an obstacle to progress in affective computing, and that important scientific lessons can be learned from the history of art. To that end, I will present «Stanley», an emotion-enabled virtual human in conversation with stage actors.

«Stanley» Project Page
www.feelingmachine.art

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Eventing collective affectivity of Trauma through Sensory Entanglement:
Eating with the Ears, Listening with the Tongue

As a nascent interdisciplinary field of study relying on emotion recognition, affective computing is founded upon quantifying, classifying, and eventually simulating and responding to human emotions with the ambition to enhance and deepen human-machine interaction according to its proponents. The critique of the field, however, is extensive: ranging anywhere from theoretical and technological flaws and limitations, to ethical and privacy concerns mainly as a response to feeding the dataveillance machinery. A major oversight which is the departure point of this paper is the reductionist approach that fits affective states and emotions within the information-processing approach, discounting their complex dynamism, context-dependency, and socio-cultural dimensions among other nuanced qualities that render each phenomenon distinct.

In what ways the human-machine hybrid can tap into the complexity of affect to shift it as a processual event from *embodied* to *enworlded* and the other way around? By adopting a soft resistance approach to affective computing's instrumentarium, throughout this presentation I will demonstrate how my project integrates its principles towards designing a socially-engaged multisensory experience centered on trauma that engages biological signals,[1] one of the main toolkits of affective computing. As a complex psychosomatic phenomenon, trauma upends the basic emotions theory that affective computing relies upon given its ineffability and sensorial-corporeal qualities that resist discrete quantification and direct representation. Ontologically-resistant to classification and logical deductions, traumatic experiences call for a differential representation where instead of cognitive faculties, the sensory faculties can make sense of the multidimensional continuous event that trauma is.

Precisely, I will elaborate on the affective-sensory entanglement that relies on atmospheric-material qualities to build a kind of multisensory sociality reliant on the language of the sensate body as a strategy to begin to sense the many textures of trauma. To do so, I demonstrate how the operative logic of 'the quantified self' that loosely *entraps* the affect collects bits and increments associated with my experience of collective trauma and morph them into sound as the (in)visible and (in)tangible manifestation of my embodied state. The mechanism of operation of this transformation is a bimodal sensor-to-sound workflow that allows for a sonic feedback loop between my affective states and those of the participants towards a durational affective reciprocity. As a way to tap into socio-cultural dimensions of experiences of collective trauma and their entwinement with sensory memory, these relational atmospheric resonances are grounded by a series of 'tasting sessions'. The goal is to put forth a holistic sensory experience given that taste alone relies on a neuroprocessing mechanism called 'binding', through which the brain combines vision, sound (chewing), smell, taste, touch (texture), and temperature. In this manner, sound and taste activate one another to create what is known as 'sonic seasoning' among scientific inquiries of the novel interdisciplinary field of gastrophysics which aims to create gastronomic cross-modal experiences that overlap the senses through atmospheric and material registers.

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[1] Biological signals such as skin conductance and blood volume pulse can be thought of as the quantitative manifestation of affect as they measure the changes in bodily responses to stimuli. These signals in particular reflect the state of Autonomous Nervous System (ANS), sympathetic and parasympathetic activities associated with arousal or valence in particular, which are activated instantaneously in response to a stimulus before the event is consciously processed. At the onset of this conscious processing event then emotions and eventually feelings will start to form which can range from being in congruence with the response of the ANS or in total opposition to it. This delay time between embodied response and the conscious grasp of a stimulus and the reaction to it, known as the "missing half-second" (referring to the relative duration of this gap), is the subject of study and experimentation in fields as diverse as neuroscience, human-computer interaction, cognitive psychology, and philosophy of mind, among others.

From Post-Luddites to Ludism, Critical Debugging as Playful Browser Practice

In the past weeks the Italian news has been covering the new sentencing of Alfredo Cospito, an Italian anarchist, and *Neo-Luddite*. Such term is overlapping with his persona and the anarchist group he is part of, because of the kneecapping of Roberto Adinolfi in 2012. Roberto Adinolfi is the CEO of Ansaldo Nuclear, an Italian company developing machinery for nuclear power plants. By citing *Michael Bakunin* the Italian anarchist sees his actions as liberating mankind from the drudgery and slavery that machinery i.e. technology imposes on society, and the need for reactionary acts to stop this. Beside the Italian anarchists, and the infamous *Unabomber* in the US, *Neo-Luddites*, so to say Luddites of the XX and XXI Century, continue with the sabotaging of technology. Not necessarily being against technology in itself, but rather as a political statement against how technology jeopardizes humanity and their wellbeing: nuclear energy, Drones, Weaponry and so on. While *Neo-Luddites* often target heavy industry, in recent years the appearance of social media and computers has revealed the ever-present gazing of the *Surveillance Capitalism* (Zuboff 2019) apparatus. To counter the *Data Extractivism* (Mezzadra & Neilson 2017), artists, activists and computer scientists have started to develop counter strategies for this form of exploitation. One of such actions is often called *Data Poisoning*, that can be described as the injection of falsified data in the training dataset for Machine Learning models, and thus making the model malfunction (Shafahi et al. 2018). Such practice can be especially useful to compromise the data social media platforms collect from their user, and thus could be described as *Post-Luddism*: a new contemporary way to practice **sabotage**. One of such practices developed by the author is called ***Critical Debugging***. The latter subverts the use of browser built in debugging tools to generate sounds according to the content of the data that is extracted from the user. In the case of Critical debugging the *Data Poisoning* does not happen by intercepting data and compromising it, but rather by transforming the browsing into a performative experience. This is done by transforming data into MIDI and passing it to musical instruments. Therefore according to the page visited on the Social Media Platform the instruments will change their melodies according to the data is currently extracted. Such Browser performance could be described as a form of *Ludism*. By dropping a *d* we refer to both *Neo-Luddism* for its radical positioning towards technology, but also to the Latin meaning of the word, dropping the violence and embracing play, as a radical and critical practice to overcome data accumulation.

Co-Creating Response-able Environments: Interdisciplinary Media-Ecological Design Research

This paper is rooted in the ongoing SNF-funded research project "Mitwelten. Media Ecological Infrastructures for Biodiversity." The aim of this project is to provide post-anthropocentric design approaches for the promotion of biodiversity in settlement and recreation areas by means of interdisciplinary design research–integrating disciplinary and transdisciplinary knowledges and methods of ecology, landscape architecture, Internet of Things & distributed systems engineering, human-& animal-computer interaction, geography, cultural history & theory (Kulturwissenschaft), qualitative ethnography, media arts, and data visualization within a systematic media-theoretical framework of media ecology.

How can media design interventions and infrastructures based on the Internet of Things technologies contribute ecologically and culturally to the promotion of biodiversity in local ecosystems?

To answer this guiding question, media-technological infrastructures are designed and installed in three field studies in human-environment negotiation processes: in the cultural landscape of the Merian Gardens near Basel, in Basel's post-industrial Dreispitz quarter, and in the nature reserve Reinacher Heide in the Basel agglomeration. The design interventions aim to give voice to plants and animals, to expand ecological knowledge and experience, to design new forms of interspecies coexistence, and thereby to cultivate ecological values and behaviors. Iteratively, an 'Internet of Things Toolkit' is being developed to allow for context-specific implementations of digitally networked infrastructures for the diverse prototypes of design interventions such as sensor assemblages registering morphospecies of pollinators or spatiotemporal patterns of human presence (anonymously), a locally sourced and aesthetically re-presented 'WildCam TV' of scenes of biodiversity, a multimodal & multi-perspective 360 degree panorama image format, a sonified and socially engaging 'moaning tree', an eco-sensitive guidance system or a mobile-friendly web application offering continuously updated site-specific quantitative and qualitative media and data. As an attempt to develop an ecologically and socially oriented counter model to the often one-sided solutionist cybernetic conceptions of 'smart cities', these interventions and infrastructures are being developed to foster 'response-able environments'–building on Donna Haraway's notion of more-than human inter-agency, 'response-ability', as situated collective and individual ability to respond and encompass ethics of responsibility.

This paper will introduce and exemplify the interdisciplinary epistemology and methodology of this ongoing research by relating posthumanist and media-ecological discourses and theories to the concrete applied and speculative design research investigations and developments situated in the specific contexts of the aforementioned field studies. Human-machine interaction, in this framework, is being interdisciplinarily reanimated by a (media-)ecological move beyond conventional anthropocentrism that strives to prioritize conviviality, cohabitation and co-creation. To this end, post-anthropocentric and participatory approaches of analysis, *Gestaltung*, and cultivation such as multispecies ethnography and actor-network-theory, animal-aided design and animal-computer interaction, multimodal thick description or embodied perceptual exercises are utilized that attempt to offer a multiplicity of perspectives and modalities of knowledges and interactions. Complementarily, systematic methodical tools and protocols are deployed to serve as another way to compensate for biases and inadequacies as best as possible and eventually more responsibly care about other-than-human beings and humbly foster their response-ability while overcoming the culture/technology –nature/biology dichotomies in favor of an ecological, convivial paradigm of shared lifeworlds (*Mitwelten*).

Sensing bodies with ubiquitous WiFi signals: juxtaposing artistic and techno-scientific practices

Since 2014, I have been working with an obscure but emerging cutting-edge technology: sensing human bodies and their location, orientation, gestures, and activities in space using ordinary WiFi signals. This has involved extensive investigation and reverse-engineering of state-of-the-art techno-scientific research to produce my own idiosyncratic toolkits for creating immersive performances and installations. These environments are modelled as 2nd-order cybernetic systems to enable interactively exploring the non-Newtonian *hertzian space* of WiFi microwave fields - a stratum of the world that otherwise remains inaccessible - and its physical relationship with our bodies. By creating systems that enhance our sensory apparatus through the production of (sonically) augmented realities that can be probed and experienced from within, we can access the material agency of WiFi, perceiving it no longer as an abstract telecommunications technology but as a physical medium that engulfs and responds to our bodies. Essentially, my approach consists of imagining and facilitating a *phenomenology of the hertzian*. Concurrently, I am deeply fascinated by the broader socio-political implications, context, and discourse around this type of so-called ‘sensorless’ or 'parasitic sensing’ technologies, particularly because it is impossible to opt out of them as they work by tracing the water molecules that constitute 55-65% of our bodies.

Harnessing telecommunication signals like WiFi to create ‘human radars’ was only introduced in 2006 in the field of Ubiquitous Sensing. Starting as a simple surveillance tool (tracking *presence)*, it quickly evolved to include policing, crowd control, advertising, and health care applications (*localizing* people and *recognizing* their activities). The next proclaimed frontier is deducing mental states and cognitive processes by correlating them to behaviors - an embryonic field called 'sentiment sensing’. On one hand, despite the significant resources devoted to developing these systems, their ambitions remain rather mundane and unimaginative. Investigated scenarios are those relevant for potential funders - the military, law enforcement, commercial entities - which divulges much about the problematic context of this research. The goal is not to produce new knowledge about the world but to automate processes a human could perform by looking, i.e. creating surveillance/monitoring systems whose biggest selling point is practical: being ubiquitous, constantly active, easier to install, cost-effective, untraceable. On the other hand, these technologies are developed and discussed with a shockingly narrow focus, both technically (i.e. not looking at other disciplines - for example, musicians have known and used the interaction of the body with radio since the invention of the Theremin in 1920) but most importantly with a profoundly unnerving lack of critical thought and consideration of social/political/historical contexts. As our societies become more networked and wireless, these technologies will become increasingly relevant, strengthening the grip of surveillance systems on society.

In this talk I want to juxtapose differences in perspective, philosophy, extracted knowledge, and usage between mainstream techno-scientific discourse and practice-based artistic approaches like my own. I also want to discuss the important role of art in creating lived experiences through the use of such obscure technologies as a strategy for speculating, grasping, preparing and arming ourselves against the ways in which they may soon transform how we live.

Note: In case it is of interest, my works referenced above are:

The Water Within (Hertzian Field #3.x): https://modularbrains.net/portfolio/water-within-hf3-1/
https://modularbrains.net/portfolio/water-within/

*Hertzian Field #*2: https://modularbrains.net/portfolio/hertzian-field-2/

Proxy Kabinet: Raamweg 47: https://modularbrains.net/portfolio/proxy-kabinet-raamweg-47/

Hertzian Field #1: https://modularbrains.net/portfolio/hertzian-field-1/

Art's Theories of Everything: Performativity, Science, and the Enigma of their Entanglement in Art

While physicists continue to work toward a theory of everything uniting classical physics to quantum theory, I propose Art historians have had to deal separately with the discreetness of represented content in Art and its more ineffable, purely qualia based performative manifestations. This predicament is corollary to the seemingly irreconcilable propositions that Art is defined by its transcendence of the contingent (from Immanuel Kant to Michael Fried) and that it exists as the result of myriad of material and embodied contingencies.

Nowhere is this more evident than in critical examinations of Art practices which utilizes or represents scientific processes. Examples of these practices include the work of Feminist Multi-Media artist Lynn Hershman Leeson who in 1998 created the artificial intelligence piece *Agent Ruby,* explored the work and life of Ada Byron in film and in 2018 created a custom-made antibody in *The Infinity Engine*. Similarly, in 2022, artist and quantum physicist Libby Heany used quantum computing to transduce information into aesthetic experience in *Ent-,* a large-scale installation.

While phenomenological critical approaches partly help account for how these Art practices relate to human experience, I argue that analyses of the effects of Art can only be convincing when grounded on a rigorous ontology of media, one that unites their representative and performative dimensions.

In this paper I will examine the work of Hershman and Heany as case studies to test a new critical approach that bridges the divide between attention to visual features of New Media Art and a consideration of process and phenomenality. For this task I will draw inspiration from Karen Barad's performative ontology of matter found in her notion of agential realism in work such as *Meeting the Universe Halfway*. While Art has continued to take a variety of forms since Modernism, the acceleration of artist's uptake of scientific tools is an opportunity to discuss areas of overlap in means and goals for these two socially significant spheres of human activity.

Kevin Walker
Helga Schmid

Beyond runtime

Towards a postdigital temporality

Clock time is usually treated as external, universal and fixed, but this is a fiction. The clock obscures a whole political and economic infrastructure, and its role in commerce and colonisation has resulted in 'syncholonialism' as Stamatia Portanova terms it. The digital clock reaches even further into our culture and consciousness. The roots of network time stretch back to the first astronomical observations, with increasing precision and standardisation culminating in the start of 'Unix Time' and Coordinated Universal Time (UTC) in 1970. Now digital time, along with all its underlying values, is built into the technology products found in every country on Earth, increasingly colonising and structuring the temporality of individuals and entire cultures.
While computers operate at microsecond timescales, acceleration is not the core issue. Blockchain technology, like Unix Time, assumes a single, linear time consisting of a list *transactions*. Videogames treat the passage of time as a form of energy that is progressively dispersed. But the computer can also treat time as information to be endlessly manipulated, as events or states, or as an invisible yet universal utility that makes *processing* (change) possible. The past constitutes data for remixing, the present is 'runtime', and the future is programmable through branching simulations and prediction. Consequences become ever more computable, but decisions remain subjective, as Alfred Gell writes.

What happens when this universalising, abstract conceptualisation of time-as-resource meets subjective human bodies and cultures? By merging anthropology with philosophy and artistic research, we aim to show how time has become privatised, labour has become programmable, and the clock has become harmful to our individual and collective health and wellbeing. In this paper we detail how computers and their programmers conceptualise time, how an ontology of quantification and measurement is baked into the technologies that impact human and natural ecologies, and how a postdigital approach to time might instead embrace a multiplicity of individual and cultural temporalities.

Specifically, we can disentangle computing from capital accumulation on the one hand, and from digital time on the other, by returning to Heinz von Foerster's definition of computing (from *computare*) literally meaning to reflect or contemplate (*putare*) things in concert (*com-*), without any explicit reference to numerical quantities. Here computation constitutes any operation that transforms, modifies, re-arranges, or orders observed physical entities (objects) or their representations (symbols).

Other computing practices can inform a postdigital temporality – for example *time-sharing*, analogous to time banking but without the monetary metaphor. Object-oriented programming treats objects as philosopher David Lewis does – as having a temporal as well as spatial identity, thus capable of change over time. Sleep mode, wait states, multithreading – our understanding of both technology and time is rooted in language. But we can reject the language of classification and measurement in favour of the poetic, while also embracing the sensory, the emotional and the spiritual, which no language can capture. Thereby, we hope to bring insights from computing into the temporal everyday, and conversely to inform a different approach to technology development with artistic, ethnographic and philosophical ideas.