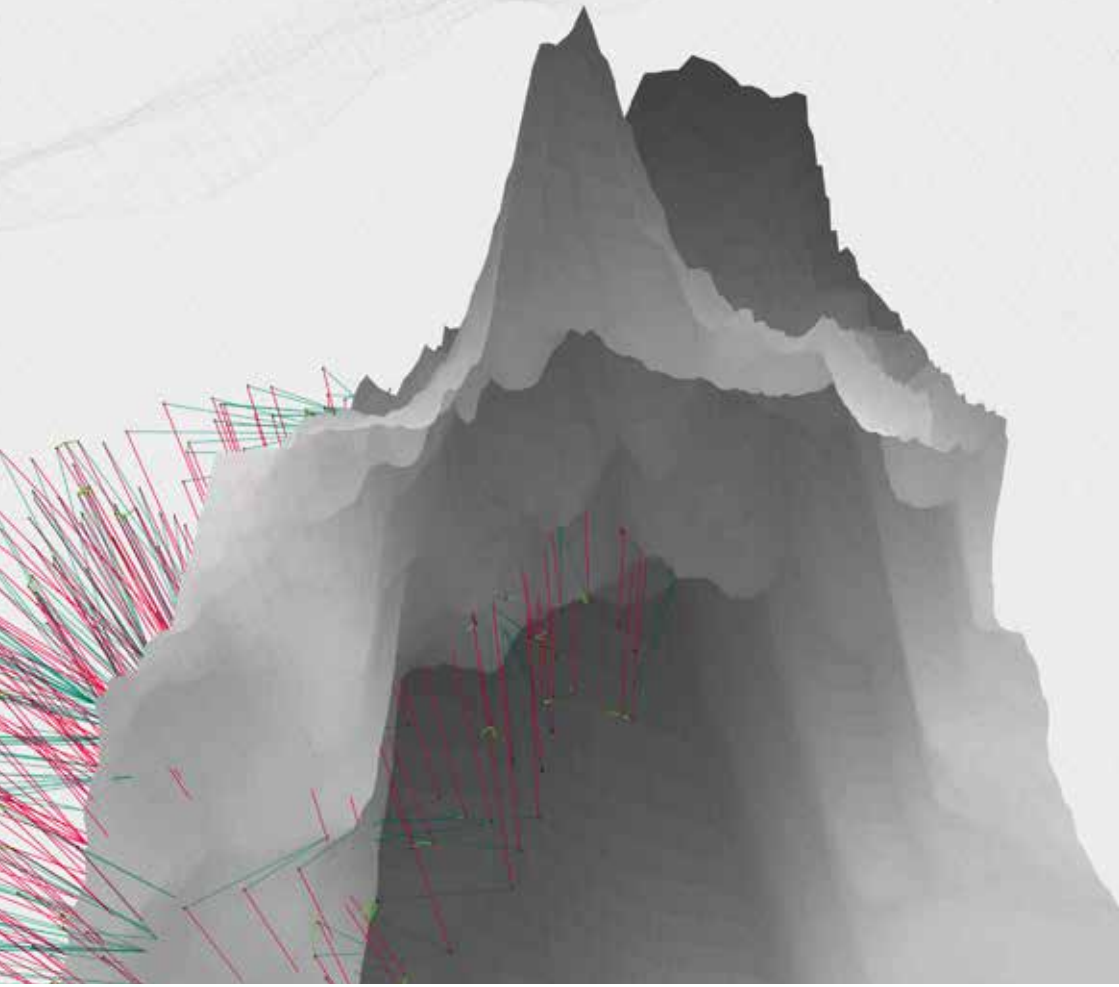
ISMAR 2015 Exhibition

DATA BODY AS ARTIFACT

Curated by Julian Stadon

Exhibition Catalog



ISMAR 2015

MAGART.ORG

EVENTS

All events are included as part of ISMAR Main Conference Program

MAIN EXHIBITION

September 29th – October 4th

Fukuoka City Museum
Open 9.30-17:30

DATA BODY AS PERFORMANCE

September 29th

20:00-21:00 Fukuoka City Museum

ALGORAVE

September 30th

19:00-21:00 Fukuoka International Congress Center

STELARC - PROPEL/EAR ON ARM & PROPEL/EAR ON ARM ON ARM

September 30th – October 4th

Special Screening October 4th
Streaming September 30th - October 3rd
Robotic Performance Live Stream from DeMonstrable Exhibition

KEYNOTES

September 30th

9:30-10:30 - Dr. Gudrun Klinker

October 1st

9:00-10:00 - Mr. Julian Oliver

October 2nd

15:50-16:50 - Dr. Masahiko Inami

MASH'D PANELS

September 30th

13:30-15:30 - Data Body as Artifact Artist Panel 1. Bodies of Matter
15:50-17:50 - Data Body as Artifact Artist Panel 2. Matters of Embodiment

October 1st

15:50-17:50 - Contextual Engineering

October 2nd

10:45-12:15 - Experiencing AR in Public Environments
13:30-15:30 - 5th Anniversary MARart Aesthetics Panel: Bodies, Embodiment and Data Aesthetics

PAPER PRESENTATIONS

September 30th

10:50-12:30 - Meaning
10:50-12:00 - HMDs
13:30-14:45 - Depth Cams

October 1st

10:20-12:00 - Materiality
10:20-11:50 - Tracking
15:50-16:55 - Applications
16:55-18:05 - Closed-Loop Visual Computing

October 2nd

9:00-10:15 - Media
9:00-10:00 - Medical AR
10:20-11:30 - Perception

DATA BODY AS ARTIFACT

Julian Stadon - Introduction

This exhibition presents a range of artists that explore disruptive or alternative strategies for representing the relationship between body as material organism, embodied data/interaction and body as artifact (data body). The exhibition explores what reality is in relation to we humans as organisms and how digital technologies, particularly networked interactive systems have shifted our understandings of what it means to be human in an age of post-biological, post-digital existence.

The artworks range from traditional augmented reality marker based sound compositions, to bio-art interventions, identity obfuscations, network jammers and data miners, to autonomous robotic identity thieves, to augmentations of the body, such as bodily augmentation, dream documentation, cellular and nano-scale interventions or examinations of how we negotiate these new spaces, quantum time and identity.

The exhibition this year will be held at the Fukuoka City Museum, a place famous for historical Japanese artifacts. In response to this history, this exhibition questions what artifacts we leave behind from embodied mixed reality interaction. Recent developments in hardware and software input/output systems along with the evolution of digital fabrication methods have revolutionised the ways in which artists work with technology, particularly in relation to the body. Such approaches have shifted the ways in which we perceive ourselves, in relation to our online identities (data bodies) and their positioning within the various socio/political/economic networks that they traverse. As our online presence consolidates, what happens to our material presence? What traces, shadows, echoes and footprints from digital presence become materialised and how do we develop an object-orientated ontology for such phenomena?

The Data Body as Artifact Exhibition seeks to investigate these questions, along with challenging popular notions of what mixed and augmented reality art is, how we frame such an openly diverse field and most importantly, what contribution can creative discourse offer towards a broader understanding of how we humans situate ourselves within these constantly evolving multiple realities and finally what effect/affect this has on our bodies.

Exhibition and MASH'D Program at ISMAR 2015 organised and curated by Julian Stadon.
MASH'D Chairs: Julian Stadon, Ian Gwilt, Carl Smith
Conference General Chairs: Hirokazu Kato, Hideo Saito
Local Organisers: Hideaki Uchiyama, Ryoko Ueoka
Catalogue Editor: Julian Stadon
Catalogue and Poster Design: Jan-Nahuel Jenny
Graphics: Jorge Ramirez
Published by MARart.org Press 2015

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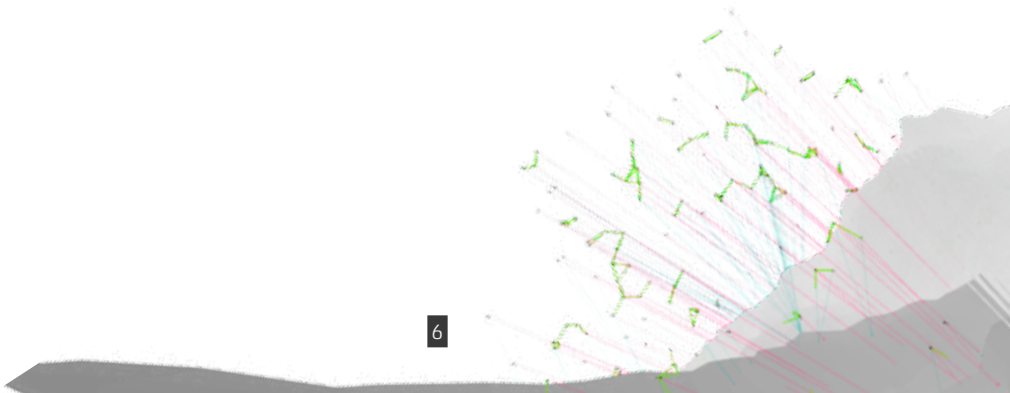
ISMAR

IEEE International Symposium on Mixed and Augmentedreality

ISMAR 2015, the premier conference for Augmented Reality (AR) and Mixed Reality (MR), will be held in beautiful Fukuoka, Japan.

The theme of this year's conference is "Augmentation Without Boundaries". ISMAR is responding to the recent explosion of commercial and research activities related to AR, MR, and Virtual Reality (VR) by continuing the expansion of its scope that started last year. ISMAR 2015 will cover the full range of technologies encompassed by the MR continuum, from interfaces in the real world to fully immersive experiences. This range goes far beyond the traditional definition of AR, which focused on precise 3D tracking, visual display, and real-time performance. We specifically invite contributions from areas fundamental to AR/VR/MR, including Computer Graphics, Human-Computer Interaction, Psychology, Computer Vision, and Optics.

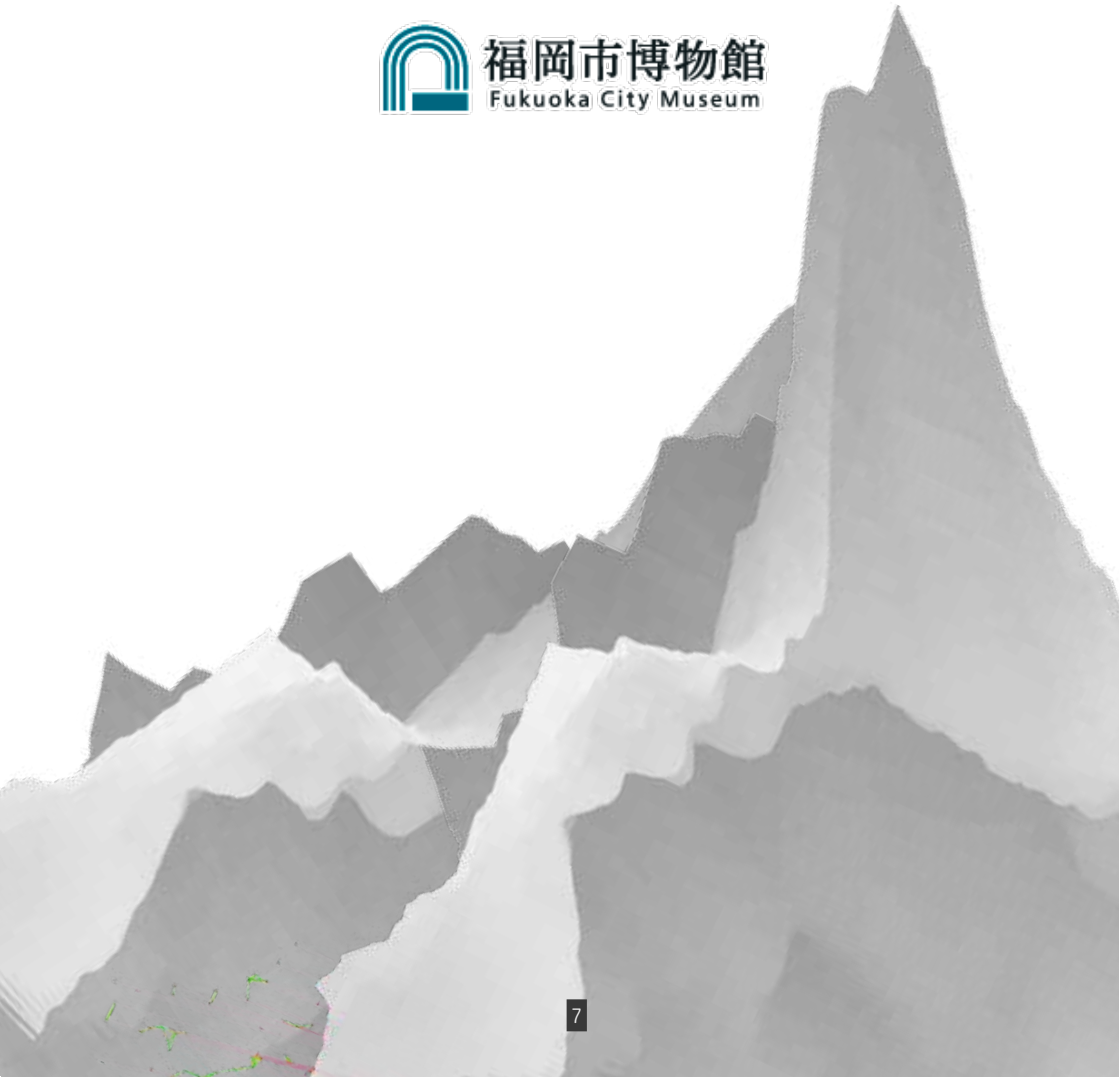


FUKUOKA CITY MUSEUM

Venue

Fukuoka City faces the Genkai-nada Sea in the northern part of Kyushu. It is at the western tip of the crescent-shaped Japanese archipelago and draws near to the Eurasian continent and the Korean peninsula. The ancestors of the city kept this area rich and lively by coming into contact first with cultures the rest of Japan was unaware of, by developing forms of production and economic activity never experienced before and by overcoming threats not encountered in the past. Subject matter of our permanent exhibitions addresses the history of Fukuoka and the lifestyle of the people of this area, which served as a gateway to foreign interchange.

福岡市博物館
Fukuoka City Museum



HYBRID ONTOLOGIES: AN ATTEMPT TO DEFINE NETWORKED MIXED REALITY ART

Julian Stadon Curatorial Essay

Introduction

This curatorial essay offers a contribution to an emerging, culturally orientated discourse regarding embodied mixed reality interaction. Through a convergence of existing theoretical discourses and practical experimentation, it seeks to disrupt, challenge and merge existing analyses of hybridised agency and identity, particularly in mixed reality data transfer networks in art. The majority of specific research in mixed reality systems has come from Computer Science and this paper offers a new perspective, from an arts and philosophically based discourse, that aims to disrupt current linear models of understanding the field, through the application of various theories relating to embodiment, data and identity, within a flexible framework of media arts practice. While a clearly documented prehistory of contemporary mixed reality art exists, currently there is a lack of specific research in the particular field of networked mixed reality art environments. The field exists currently in an awkward position, within other broader fields, such a virtual art, or immersive/interactive art and this does not allow for an appropriate focus on the intrinsic qualities that specifically relate to the field.

The concept of mixed reality can be argued to be inherent in all representational spaces (such as art), however recent developments in bridging viewers with digital representation, through mixed reality interfacing, have brought about the need for further analysis of these new post-biological, hybridized states of being and identity that traverse contemporary paradigms of Being. With the advent of networked society, previous linear models of identity, consciousness and reality, such as Milgram and Kishino's Mixed Reality Continuum [1] are rendered obsolete and therefore new representations of these more complex states of Being are required. The practical component of this research experimented with such notions in order to demonstrate that mixed reality artworks often situate themselves across a number of different reality states and in the case of certain examples, also simultaneously networks with other realities and environments (for example merging a virtual environment with an augmented reality space).

Figure 1. Paul Milgram, Haruo Takemura, Akira Utsumi, Fumio Kishino (1994) Augmented Reality: A Class of Displays on the Virtual Reality Continuum, SPIE Vol. 2351.

"Obviously, mixed realities form an integral part of the prehistory of media evolution described here. Their combining of elements of physical and virtual spaces is leading to the emergence of a new cultural technique." [2]

This statement by Grau suggests that contemporary constructions of identity, rather than situating themselves somewhere on a linear model, follow a more rhizomatic evolution and existence, that is constantly

integrated within a layered topology of other networks. This claim shares common ground (within rather different articulations) with the work of Deleuze & Guatarri, Latour and Ascott, along with several other discourses in one way or the other. This leads one to speculate that there is a need to disrupt and deconstruct these disparate, heterogeneous rhetorics, in order to reposition and integrate them within a flexible hybrid framework. Such an endeavour requires also, a redefinition of related terminologies, in combination with developing new hybrid terms for describing networked mixed reality in a homogenous way. Through experimental creative production, these theories relating to networked being can be merged, made tangible and played out, in order to pragmatically reposition them collectively. The process of actuating hybrid theoretical propositions through creative practice also allows for new methods of art production, in particular, embodied mixed reality data transfer to be proposed.

It is important to note that this paper does not claim that there is no model or framework for understanding such research, but rather, that mixed reality is not currently recognised as a specific art medium in a networked post-biological context. While it is beginning to be a term used more in art, mixed reality has a particular established position in computer science already and this research attempts to define it as a unique field, situated in relation to the wider fields of media art, virtual art, embodied art, networked art and so on, rather than simply adapting a definition of the term from another field and then recontextualising it within media art. There is a rather unfortunate history of the humanities borrowing terms from other disciplines and being creative with them (and perhaps this paper joins the club also). All media arts fields can be considered to be rather problematic to classify, due to their tendency to be convergent discourses. In response to this problem, this research aims to define mixed reality art in a speculative, flexible way, in order to present a hybrid methodology for mixed reality art that focuses on augmentation of data bodies, in order to embody post-biological identity.

This endeavour offers a new contribution to a range of existing discourses and therefore it needs previous models of understanding to be articulated, addressed and rethought. From this process, a research position is established within a clear contribution from practice based research, [3] however a convergent practice that actually relies on transdisciplinary methods such as mixed and augmented reality arts discourse requires a succinct positioning within existing theoretical and practical frameworks, in order to appropriately progress discourse in the field. Currently there is no definitive text or terminology that focuses explicitly on the topic of post-biological identity in mixed reality art and this research aims to contribute towards the establishment of such a text.
Mixed realties " […] are making an important contribution to expanding the boundaries of visualization and the possibilities of visual intelligence, to differentiation of the degree of possible complexity and, thus, to amelioration of the bittersweet side of immersion. This may help virtual spaces cast off their reputation as surrogates sooner than expected and to aid their development toward a new role as augmenters of experience in the physical world." [4]

A Brief Overview of Practical Research Methods

While the practical component to this research is not the focus of this paper, it is important to understand its processes and contribution to the establishment of what is being presented. Through creating real-time data transfer systems that bridge representations of embodied data and data bodies in mixed reality environments, the practical outcomes of this research traverse related theoretical discourses in order to attempt to propose new notions of post-biological digital identity, through artistic practice. This process involved significant analysis of mixed reality data transfer processes (within computer vision science and philosophy) in relation to understanding of networks and interfaces (from a technical, art and design basis), based on a number of existing theoretical discourses, in order to analyse the field within a framework that acknowledges all previous research on the topic. In this

process a wide range (and vast amount) of theoretical, technical and practical research was analysed and then furthered through experimental creative practice. The actuating of disparate theoretical discourses through arts practice focuses on five main objectives:

1. To define mixed reality art, as a legitimate transdisciplinary field in relation to the wider field of media art based research
2. To present theory relating to mixed reality interfaces, interactive networks, identity and the body in writing and to merge these discourses through creative practice.
3. To propose a new theoretical and practical framework specifically for mixed reality art, that focuses on representations of the body and post-biological identity.
4. To articulate post-biological identity as a relationship between embodied production and consumption of art and embodiment in regards to the representation of data and ideas in practice, through mixed reality art.
5. To provide better understanding of this relationship through the introduction of new hybrid terms to describe the field.

This process involved the creation of what one might term bridged non-autonomous digital agents. These agents are embodied through being, in some way, representations of real time data that are borne from physical interactions between bodies and mixed reality environments. These agents, or rather data bodies, take many different forms, based on the nature of the data in each iteration and are constructed according to a range of interface and content-based solutions that rely on viewer/user participation to function. In such works there are often a number of different options for viewers to access and participate in them, through the provision of a range of simultaneously integrated mixed reality interfaces, including physical, augmented, virtual and networked solutions. This holistic approach to representation across reality states aims to propose that an individual can no longer claim to exist in any one unique state, but rather, that we are in a constant fluxus state of reality, across a broad array of networks and different systems of engagement in which all existence is somehow integrated.

Initially a method was established that used networked augmented reality for real time visual data transfer of embodied representations into virtual environments. These representational forms of agency, while born of data, take on the appearance of bio-referential forms and thus become embodied. This method developed a new technique of presenting the real time relationship between embodied interaction and embodied data that focuses also on identity, data storage and ownership. From a series of practical experiments, a reassessment of the reviewed literature was made. This process followed an Action Research model of planning, implementation and review in order to evolve a set of hybridized terms that can be used to best describe the practice of mixed reality arts research. These terms seek to function as an evolving framework that is flexible and speculative and will be introduced and defined later in this paper.

A Convergent Theoretical Background

Due to recent developments in mixed reality interfacing, interaction and networking technologies, new modes of representation have definitely emerged. The advent of this requires further development of previous research, in order to define how these new mixed reality systems of embodied agency impact on arts discourse and in a wider context, what the implications of such developments are in regards to identity and being.

Networked embodiment of physical interaction destabilises traditional orthodoxies of thought regarding mixed and augmented reality art, through challenging understanding of their representation, confronting materialism, accelerating and smoothing social engagement within them and most importantly, demanding participation in them. This furthermore challenges our understandings of consciousness and presence in way that requires rethinking current available frameworks for representing identity and the body [5]. To achieve this, the following sections attempt to present, merge and apply existing theory on the general topic of identity, the body and embodiment to specifically focus on mixed reality arts discourse. It also aims to validate mixed reality in regards

to post-biological identity, interactive art and embodiment, while further establishing the field as a legitimate practice within the media arts.

Bruno Latour's articulation of Actor Network Theory (ANT) is an appropriate model through which to position the various elements within this research. Although it is called a theory, ANT does not so much explain why or how a network takes the form that it does, rather it functions as a method for exploring the relational ties within a network (which consists of many different material and non material elements). As Latour suggests: "explanation does not follow from description; it is description taken that much further." [6] In other words, it is not really a theory of anything, but rather a methodology for understanding such systems. Latour's approach is related to other versions of material-semiotics, specifically the work of Deleuze & Guattari, Foucault, Ascott and Haraway. The application of ANT to such research can also be seen as a way of referencing how common activities, habits and procedures sustain themselves within uncommon networked situations, such as embodied mixed reality interaction.

Through ANT, Latour attempts to explain the convergence of both semiotic and material networks into a shared system of engagement. In this process the various nodes of actors that are involved in creating meaning, consist of both material and semiotic entities that are embedded in the exploration of explicit strategies for relating different elements together into a network so that they form a perceivably coherent whole. These networks are often transient, existing in a constant state of flux, between creating and recreating. This means that connected activities need to be repeatedly performed or the network will eventually disintegrate. [7] Networks of relations are not intrinsically coherent, and may indeed contain conflicts. Social relations, for example, are only ever in process, and must be performed continuously, as is the case for both physical and mixed reality social environments.

The field of mixed reality art is extremely transdisciplinary and inclusive by nature and therefore rather broad as a result. Due to the constantly evolving range of interface, content, networking and interaction options available (along with the current lack of a defined structure of understanding this particular field) there are also no specific methodologies for mixed reality art practice. In order to bring the various manifestations of mixed reality art environments together, a network of salient relationships that are intra-active need to be created within this discourse. An ANT-based approach to both the processes and presentation of this research acts as a diagram for articulating the field. More importantly, it provides an established method for dealing with systems that might appear incohesive or unrelated, or the opposite of this. ANT also provides a sound flexible method for understanding the disruptive relationships between human and non-human agency. ANT proposes the equal treatment of concrete human and non-human actors within networks and this also applies to their assimilated representation (for example real time embodied data in mixed reality art networks). ANT assumes that all entities in a network can and should be described in the same terms. This is called the principle of generalized symmetry [8]. The rationale for this is that differences between the various actors/agents are generated in the network of relations and therefore should not be presupposed. This approach allows for the ongoing evolution of a network (for example in the construction of a model for post-biological identity in mixed reality art).

Following the application of ANT to this research process, the development of an Action Research model (as previously mentioned) was established. This was designed in a way that addressed the need for new methods for developing further discourse in networked mixed reality art and embodiment, in order to focus on post-biological identity. Due to the novel and open nature of such a framework for the research, a range of other theories were explored and incorporated as considerations into the research process, such as Roy Ascott's reconceptualisation of Syncretism, which has traditionally been regarded as an attempt to harmonise

and analogise disparate or opposing viewpoints [9]. Throughout history syncretism has been used to merge different beliefs and views, however Ascott's (rather ambitious) approach to syncretism was developed as a means to further understand multi-layered worldviews, both material and metaphysical that are emerging from our engagement with pervasive computational technologies and post-biological systems. In the case of this research an attempt was made for Syncretism and Actor Network Theory to be integrated, in consideration of the collaborative work of Deleuze and Guattari, in particular reference to the 'deterritorialisation' of the human body through its dispersion into multiple reality manifestations, in relation to how mixed reality data transfer might constitute a 'reterritorialising' effect on our syncretic understanding of post-biological digital identity. [10] The texts of Deleuze and Guatarri, that in fact influenced both Latour and Ascott's work, were also considered in reference to their concept of Body Without Organs (BwO).

"When you will have made him a body without organs, then you will have delivered him from all his automatic reactions and restored him to his true freedom." [11] One could say that participation in mixed reality networks (which are part of a contemporary post-biological condition) are by nature schizophrenic, shifting and often nonsense (through the novel nature of the technology and content) however, it is also functional within (social) systems. It is also literally surface orientated by nature, or as I propose: trans-topological through mixed reality hypersurfacing. Deleuze first mentions the phrase in a chapter of The Logic of Sense called "The Schizophrenic and the Little Girl". This text presents ways of encountering the world both distinctly and peripherally, at the same time. [12]

According to Deleuze, in schizophrenia words collapse into the bodies that produce and perceive them, rather than into superficiality. Deleuze defines the Body Without Organs as: "...a new dimension of the schizophrenic body, an organism without parts which operates entirely by insufflation, respiration, evaporation and fluid transmission (the superior body or body without organs of Antonnin Artaud)." [13] This body is also described as speaking an inarticulate language that is embedded more in the primal act of making noise, rather than in articulating specific data. The Capitalism and Schizophrenia series, written with Félix Guattari further explored Deleuze's concept of BwO, expanding the term to refer to actual (literal) bodies, in relation to a range of variant realities.
For Deleuze and Guattari, every physical body has a limited set of characteristics, habits, movements and affects, however every body also has a virtual dimension to it: a vast reservoir of potential traits, connections, affects, movements, etc. One might call this a data body, or data body bank. This collection of potentials "make oneself a body without organs" [14] or, in other words, a living, active, personified experiment that can activate virtual potentials. Often the potentials are activated through becomings: when they combine with other bodies (or BwOs), which is directly referred to by Latour in his Reassembling the Social text [15]. This particular articulation of the concept proves a very succinct metaphor to use when discussing the process of online (post-biological) identity contruction along with being a constant and direct point of reference within the practical exploration of post-biological identity in mixed reality environments. It is a rather easy concept to materialise/represent and also for the viewer to receive, as demonstrated in OrgantradAR project, where the viewer literally fills an augmented body with organs that are representation of data from MRI scans of my (the 'artists') body and then these organs are transferred into a virtual organ trade network with a real monetary economy in Second Life. [16] I first discovered the term when researching the work of Australian artist Stelarc, who has also regularly referred to this concept within his cyber art practice. [17]

This research trajectory focused on systems that allow for the bridging of the body with its virtual incarnations (BwO in a literal sense), in practice, through unique transfers of embodied data (data that refers to the body, such

as 3D body mapping, microscopy biofeedback weather data, motion tracking). These processes involve interfacing artworks that allow for embodied interactions with data bodies (BwO). These are bodies of data in (Syncretic) networked systems that relate specifically to an individual's participation in the system (ANT). The outcomes from these processes, through a series of experimental representations of embodiment in juxtaposition with data bodies, proposes a new framework for understanding participation in such emerging systems, that repositions existing discourses in this field for a more focused post-biological perspective on identity.

The ways that agents are represented in the research outcomes are a differential embodiment of the 'bodies', which first generated that data in their everyday activities. This interrogates the meaning and consequences of data bodies and, in doing so, enables us to question the notion that information, once extracted from the embodied self and placed within a computer system, becomes an intrinsically linked post-biological augmentation of a visceral state. In posing this question we discover that, contrary to what we might at first assume, data is also embodied. The existence of 'embodied information', linked to and yet not the same as embodied selves, creates an interface through which humans negotiate their identities across the boundaries of different reality states, more or less virtual, and yet always involving the mapping or writing of that identity onto 'a body'. By having bodies both material and virtual, humans have become post-biological even as their biology remains the primary point of reference for the data gathering, which enables this transition to occur.

Humans, like all organisms, are part of a wider system of shared environments beyond the notion of self, including biological, social, political and digital ecosystems. These environments are becoming increasingly networked with individuals, through online identity archiving (data body banking) in social media, real time communication and data exchange, the continued development of big data integration to existing human systems such as political, social and environmental intervention. These systems act as networks that include a range of actors within them. As Latour suggests, these actors consist of not only a range of both objects (virtual and real), but also other phenomena, such as the weather and social exchanges, along with goods and services. This led the practical research to expand the notion of embodied interaction beyond the body and data bodies, to also include environmental conditions, in particular the weather. Atmospheric conditions are, like bodies, convergent within mixed reality environments, so a development of a research discourse in mixed reality art using weather data was also developed.

In mixed reality, a: "panoramic view is joined by the exploration of an image space that gives the impression of a ``living'' environment. Interactive media have changed our idea of the image into one of a multi- sensory interactive space of experience with a time frame. In a virtual space, the parameters of time and space can be modified at will, allowing the space to be used for modeling and experiment. The possibility of access to such spaces and communication worldwide via data networks, together with the technique of telepresence, opens up a range of new options. Images of the natural world are merged with artificial images in ``mixed realities,'' where it is often impossible to distinguish between original and simulacrum." [18] This strategy aims at producing a feeling of immersion and presence that are enhanced further through interaction with what appear to be living digital ecosystems. These environments represent the link connecting research on presence (technology, perception, psychology) and research on artificial life and bioinformatics, an art that has not only reflected on in recent years but also specifically contributed to the further development of image technology.

The practical outcomes from a range of experiments that create a range of artificial mixed reality real time data transfer environments constitute, in their own right, a flexible framework for research in the

field of embodied post-biological identity in mixed & augmented reality & real-time data transfer art. Recent developments in bridging non-autonomous relationships with machines through mixed reality interfacing has brought about the need for further analysis of these new post-biological, hybridized states of being that traverse traditional paradigms of time and space. As previously mentioned however, in the context of art history, mixed reality is not a new field, however the particular mediums and methods of representation discussed in this paper are, and this is why there is a need for a redefinition (and more importantly a new analysis) of it's impact on society and art. This is particularly the case in regards to how we define such an emerging, volatile, if not transient field.

The main objective of the theoretical writing involved in this project was to situate the research within current theory regarding networked mixed reality transferal of embodied data (data relational to bodies) within a paradigm of post-biological identity. Relevant theories such as Hayle's Posthumanism, Bergson's Intuition as Method, and the previously articulated Body Without Organs, Deterritorialisation and Reterritorialisation, Syncretism and Actor Network Theory. Here an attempt has been made to juxtapose and merge these variant discourse, in order to create a hybridised framework of understanding for this field of mixed reality art, within the context of real time data transfer, in order to understand how this contributes to the genealogy of post-biological identity.

A (Re)Definition and Explanation of Terms
While most of the terms that are explained in this section are already established, there is a need to contextualise their specific meanings in the context of this research Layout. Part of the new knowledge in this research is situated in producing a framework specifically for discourse in mixed and augmented reality and in accordance with this new terms have been established to better suit certain phenomena within the emergent field.

Post Biological Identity
By having bodies both material and virtual, humans have become post-biological even as their biology remains the primary point of reference for the data gathering, which enables this transition to occur. This research provides a new framework for understanding post-biological identity that focuses on the mixed reality nature of these ubiquitous, multi faceted networks of self. It extends current discourse to argue that Posthumanism exists inside the history of a post-biological reality. From the birth of human representation, for example prehistoric cave painting [19] and personal narrative (story telling) we have split our identities into two entities. Semiotics explains this as the signifier and the signified (though it does not directly address individual identity). Once we split into the actual and perceived, or (to put it rather arbitrarily) the virtual and real self/ second and first self-etc. We became, as individuals, emancipated from our bodily confines and thus rendered post-biological in our understanding of identity.

Brian Massumi states, "The body, sensor of change, is a transducer of the virtual." Through existing in these virtual representations, that are directly linked to living bio-systems, we effectively sense, feel and think in a way that hybridizes the virtual with scientific inquiry, and therefore we require a discourse that addresses whether this does in fact make us post-biological. [20] Through the development of bridging techniques that use real time embodied data transfer to create mixed reality art networks, the practical research for this thesis has created a practical framework for not only articulating, but also contributing to the (until now hypothetical and speculative) theoretical discourses in this field.

Dividual Identity
The work of Gilbert Simondon has influence much of the discourse in this field, and as such; his work provides a foundation for the establishment of the discourse in post-biological identity throughout this research. [21]

One theorist heavily influenced by Simondon was Deleuze and in Postscript on the Societies of Control, a theory of dividual identity is presented as an articulation of the relational aspect of all identities, in regards

to becoming and divisibility. For Deleuze: "in control societies . . . the key thing is no longer a signature or number but a code: codes are passwords, whereas disciplinary societies are ruled (when it comes to integration by resistance) by precepts. The digital language of control is made of codes indicating where access to some information should be allowed or denied. We're no longer dealing with a duality of mass and individual" from the modern era. Instead, "individuals become `dividuals,' and masses become samples, data, markets, or `banks.'"[22] He uses money as his example to explain this further, stating that in disciplinary societies (rather than societies of control, which he declares we have progressed into some time ago) money was always referred to as minted money, in relation to other physical resources, such as gold. [23] In today's societies, money is considered in relation to floating rates of exchange that are in a constant state of flux.
This particular late text from Deleuze seems rather unrecognized (unfairly so in my opinion): "Deleuze's sketch-like analysis has been influential for the way postmodern or late capitalist society has been mapped by critical theory." [24]. Unfortunately, it was written right at the end of Deleuze's life, and seems to have remained rather lost, amongst his other more prominent theories: "While this essay is both exciting, and disappointingly underdeveloped (..) " [25] Contemporary theorist Alexander Galloway frequently makes reference to this text, labeling it as "…at the beginning of something new" [26]. Mixed Reality research should incorporate this term within Galloway's framework to further understand the layered (or folded) nature of the post-biological condition.

Embodied Mixed Reality Art

"This is the basic concept of the mixed reality stage: a virtual space full of information, which is activated, revealed, re- organized and recombined, added to and transformed as the user navigates the real space." [27]
To define any art form as mixed reality is rather paradoxical. All art is representational and spatial and therefore all art is mixed reality. In this proposition, the term refers specifically to art that uses convergent digital environments to facilitate embodied and interactive participation with them. Embodied Mixed Reality Art is art that implicitly incorporates real time data, relating to those interacting with it, into the construction of explicitly post-biological content in the work. Embodied art creates a situation where the body of the viewer is implicit in the creation and continuation of the work through performative interaction with it and the subsequent documentation and archiving of these actions. In Parables for the Virtual [28], Brian Massumi suggests that we need to reposition "movement, sensation, and qualities of experience" back into our understandings of embodiment: "Our entire vocabulary has derived from theories of signification that are still wedded to structure even across irreconcilable differences" [29] This discourse engages with movement and continuity in regards to the body and interactive art environments.

Massumi suggests that, "When a body is in motion, it does not coincide with itself. It coincides with its own transition: its own variation". [30] Here the body moves beyond being a "known" structure, towards a "state of invention", or an "accumulation of relative perspectives and the passages between them . . . retaining and combining past movements" [31] continuously "infolded" with "coding and codification". [32] This research articulates embodied mixed reality art as relational, emergent and incipient: topological but not plottable and through acknowledging the problematic nature of describing it, present a framework for arts based research in the field.

Discussions of so-called mixed reality, a catchword that is still new and trendy, currently center on connecting real spaces, including their forms of cultural and social action, with image processes of virtual environments. One advantage of mixed realities is that in general, the observer is not obliged to wear a head mounted display, or enter into the computer- generated body of an avatar. Mixed realities make accessibility and orientation easier, while still allowing interaction with new fields of action. "Thus, the hermetic image strategies, as represented by previous virtual realities, have now been joined

by a concept of hybrid spaces, part real and part virtual. They are dialectical connections of physically and media-communicated image spaces, where usually a darkened space is linked to a large format screen to form a mixed reality." [33]

Hypersurface Interfacing

Giannachi states, "The hypersurface is a zone of exchange between consciousness (language and text) and levels of the inorganic... Able to present dichotomous relationships, between representation and matter, inside and outside, organic and inorganic, the hypersurface is the site of virtual performance." [34] For the construction and exploration of mixed reality to occur interfacing is required to bridge the virtual environment with the physical so that both spaces can be mediated in an autonomous manner. The hypersurface is the site on which bridges are built: where the real and virtual, material and textual, author and agent can meet and interact with each other.

Networked Mixed Reality

While there are many previous examples of real time mixed reality data transfer within media art, interactive design and computer science, this thesis will present a range of unique practical solutions for this process. As part of the practical component of this research, several new methods of creating embodied real time mixed reality art were developed. The term was originally developed to describe one particular system that was developed in collaboration with Raphael Grassett at The Human Interface Technology Lab (HITLabNZ) for the organ-tradAR series. This system uses augmented reality as a bridge for data transfer from physical interactions with augmented environments, into online virtual environments. This system was the first of its kind and was accordingly recognised through multiple IEEE publications (a significant achievement, considering this is a heavily peer reviewed computer science publisher/organisation).

Current research in mixed reality and interactive workspaces that use the concept of a bridge for data transfer have continued the development of new knowledge in this field, however the majority of previous research in this area has been in the field of computer science. The application of cultural and philosophical discourse to recent developments in computer science will propose new modes of representation that concern themselves with the affective capacities of art in order to articulate a sense of dispersed embodiment. The concept of networked mixed reality data transfer became a significant focus of this research, in terms of medium and technics. The original method that incorporated augmented reality and a massively multiplayer online environment (MMO) was developed further for two more projects and then the concept was revisited in a number of other new solutions that explored particular mediums and messages in relation to particular topics and modes of representation.

Data Body Banks

These are bodies of data in networked systems that relate specifically to an individual's participation in the system and, more importantly, to personal data relating to a physical identity. This term was created to describe the relationship between contemporary data networks and individuals and their post-biological implications for understanding identity and the body. Emerging from discourses in post-biological identity, transdividuality, dividuality, ANT, BwO and syncretism, the concept of a data body bank was heavily influenced by Deleuze's concept of the 'super fold' [35] (different to the original 'fold'), a concept he introduces in his book Foucault. "In Deleuze's Appendix to Foucault, entitled, On the Death of Man and Superman, the concept of the Superfold is introduced in its relation to new configurations of life, labour and language, or biology, political economy and linguistics [35]

Through this concept Deleuze proposed a new image of society that goes beyond the diagram and beyond previous dichotomies of the organism and the digital, as a mechanism for understanding networked digital control societies and the implications of participation in such systems in regards to identity, privacy and ownership.

With the advent of representation (also

personal archiving) came the creation of static data body banks: material archive networks of identities and identification systems. Server based online computing offers a dynamic replacement for previous systems that allows for fluidity of the size and shape of data, along with subjectivity for individual participants and the communities interacting with it. The recent convergence of networked computing and art has brought about a resurgence in interaction as a core communicative element within representation. The recent increase in embodied art calls for a review of how we language such systems of representation and meaning in the wider context of society. Traditional methods of physical involvement in communication are now being integrated into modern technologies and text/image and this is creating possibly the most complex systems of embodied information exchange we have ever seen.

As many including Ascott and Stelarc have argued, the body is no longer wet as it is so intrinsically linked to data bodies. Wet and dry do indeed combine to create a moist media state, as described by Ascott: "Between the dry world of virtuality and the wet world of biology lies a moist domain, a new interspace of potentiality and promise." [36] This state is indeed post-biological and situated within a contemporary networked mixed reality. Today we exist as viscera and as data bodies, materialised through agency and avatars, forced back upon us by our social media interactions; data zombies borne out of our own personal archives that come back to bite us, to infect us further and further. Life and afterlife become the same hybridized being, that of the post-biological human and its network of data body banks

Conclusion

This paper has introduced a range of theoretical discourse with the aim to scope the field of networked mixed reality, in regards to post-biological identity. It has conducted a rigorous comparison of theoretical texts and authors with a focus on practical implementations in the field of mixed reality art, along with introducing a range of new and redefined terms in order to better understand the field of networked mixed reality arts practice. The research has been constructed to engage with real time mixed reality data transfer systems involving virtual environments, human-computer interaction, artistic representations of embodied agency (through data body banking) and simulated social, biological and ecological actor networks. This research is currently being further developed in order to strengthen the legitimacy of the proposed framework and terms for both understanding and educating in this field. Primarily, it strives to offer a specific contribution to a wider discourse in art, identity, embodiment and reality.

Modified Version of Document Originally Published in ISEA 2015 Proceedings

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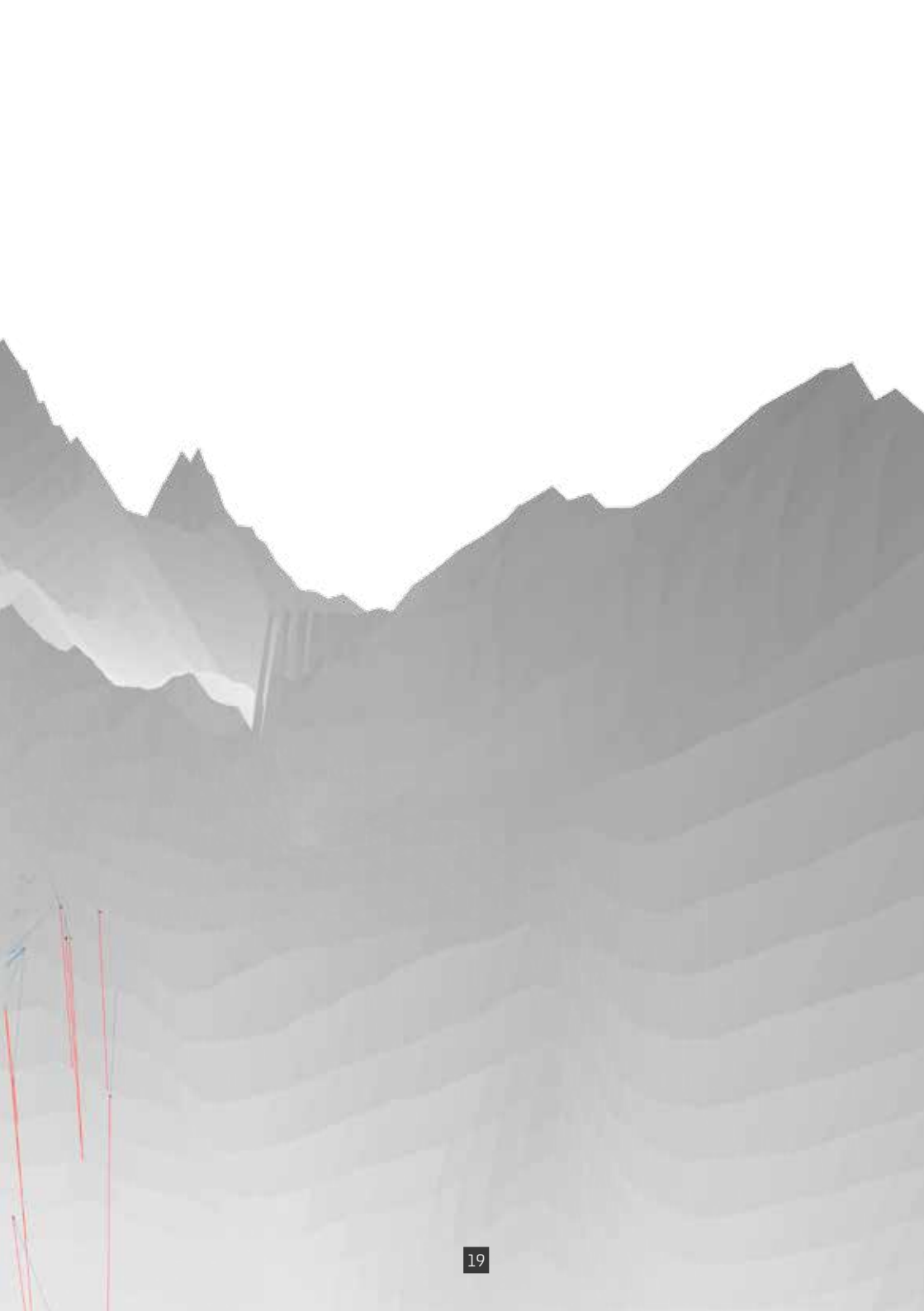


EXHIBITION ARTISTS

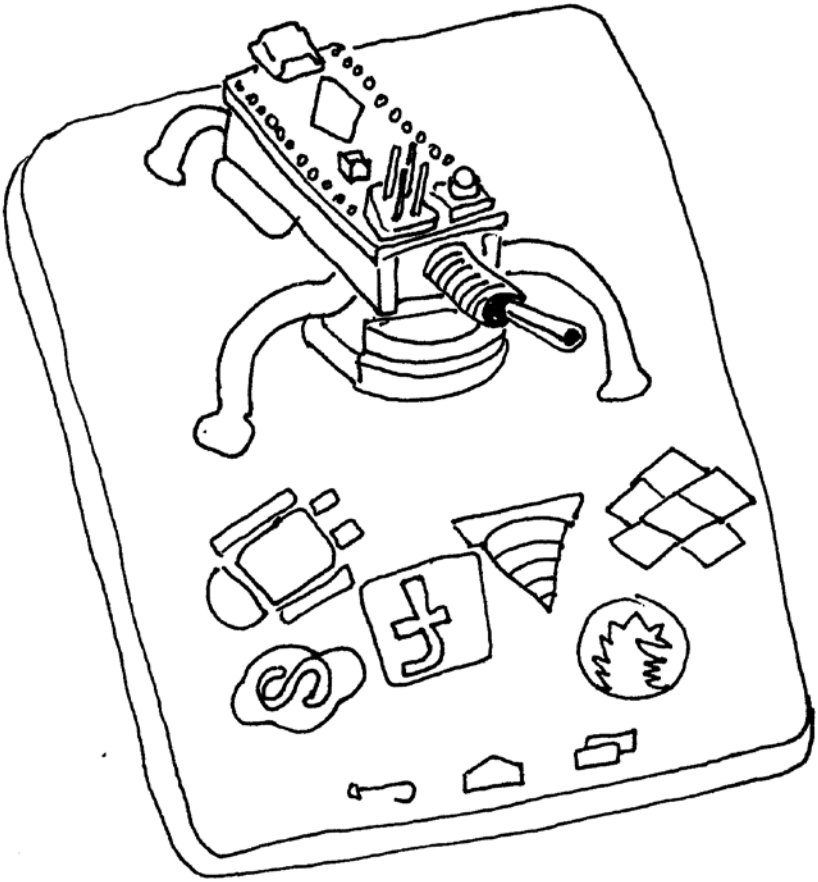
CESAR ESCUDERO ANDALUZ

Interfight

Interfight is a series of physical bots, designed to complicate the relationship between systems, but also a paradoxical method to emphasizes the presence of the interfaces in our lives. They provide wrong information for tracking web site location, fighting against the design homogenization and GUI standards.

Interfight is a physical, kinetic interface. It works by taking the human body capacitance as input, through conductive material, and interacts with another graphical interface on capacitive surfaces like touch-screens. The contact between both interfaces, cause a physical reaction (gravity, friction, vibration).

Interfight becomes especially interesting when it behaves freely through the tablet operating system. It acts as intruder: clicking, opening and closing applications, taking decisions, collapsing social networks, typing random comments and posting then in your name.



Bio

César Escudero Andaluz (LIC, MA, MFA) studied Fine Arts and Architecture & Design at the University of Salamanca, Visual Arts and Multimedia at the Polytechnic University of Valencia. Since 2011 he is researching at the Kunstuniversität Linz in Interface Culture LAB. Working in the field between users and interfaces.

http://escuderoandaluz.com/

MARIOS ATHANASIOU

Proto Ether Fields

Proto Ether Fields is an audiovisual Virtual Reality experience that explores a quantum physics theory that states that reality consists of a web of vibrating fields of energy that are in constant interaction with each other. According to this theory, called Quantum Field Theory, every particle in the universe is the actualization of one possibility of a field of many different potentialities.

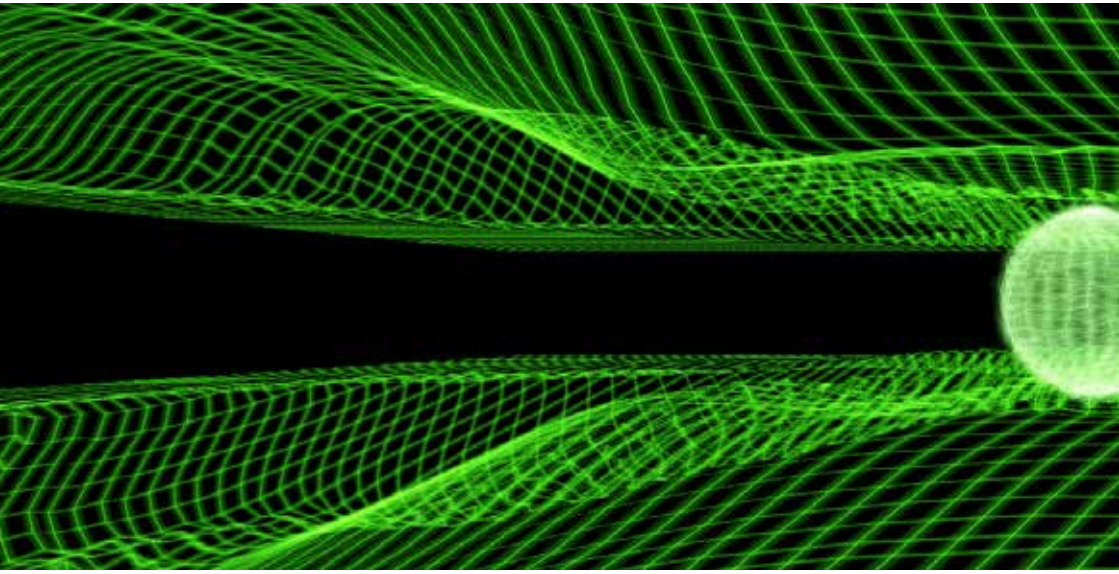
Proto Ether Fields attempts to transport the user to the very fine levels of an abstract proto-reality; the point where reality only exists as an infinite field of multiple possibilities and interactions. The users are invited to experience and explore three different levels of abstract proto-realities:

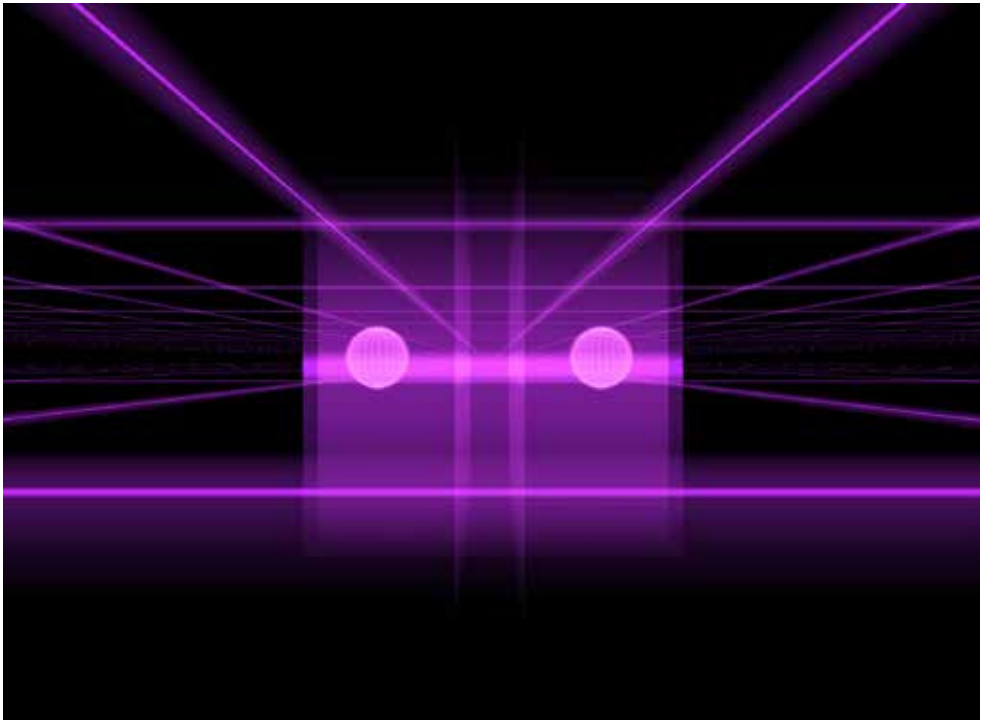
1. Proto-Matter
Matter as a web of infinite potentialities; matter as pure information.

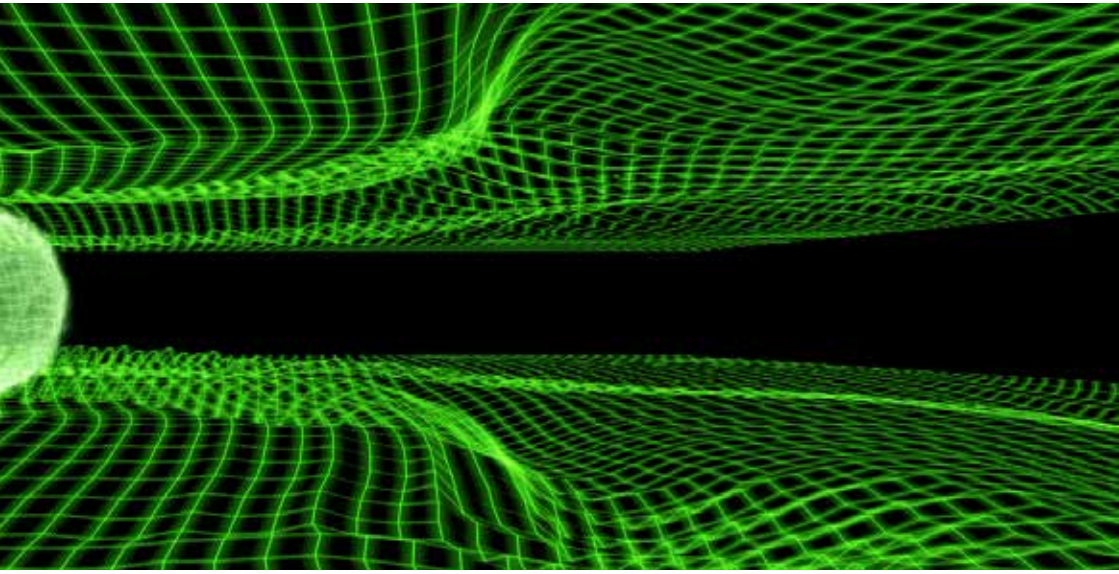
2. Proto-Energy
Energy as a universal abstract; energy as pure vibration.

3. Proto-TimeSpace
Time and Space dissolve into a single point with no arrow or direction; TimeSpace as an infinite loop.

The consciousness of the user collapses these proto-fields from abstract ideas into tangible architectures that are transmitted into our corporeal reality through the channel of human consciousness.







Bio

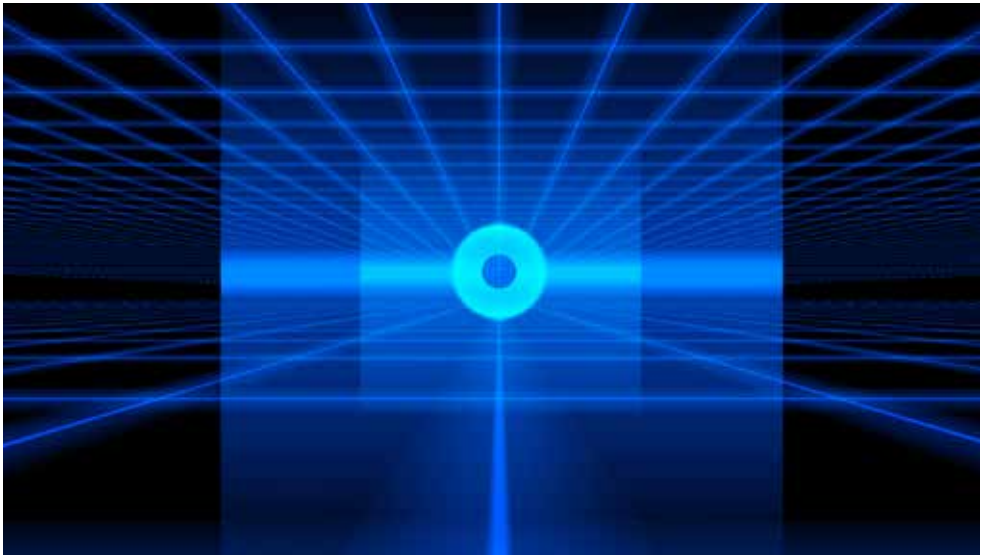
Marios' work explores the effects of real-time processing technologies and communications on human perception of reality and the role these technologies play in the convergence of physical and virtual reality into a new, hybrid reality.

In his work he uses software, sensors, projections and networked systems in conjunction with abstract sculptural forms to build immersive, physical or virtual audiovisual environments that aim to induce different states of consciousness and generate new modes of thinking and perceiving.

Drawing inspiration from scientific concepts concerning quantum physics, the nature of consciousness and cybernetics, Marios creates physical, virtual or hybrid reality installations where energy flow is in a constant flux of transformation from one state to another.

He is the curator at www.channelnormal.com, an online exhibition space that predominantly focuses on presenting time-based and web-based works.

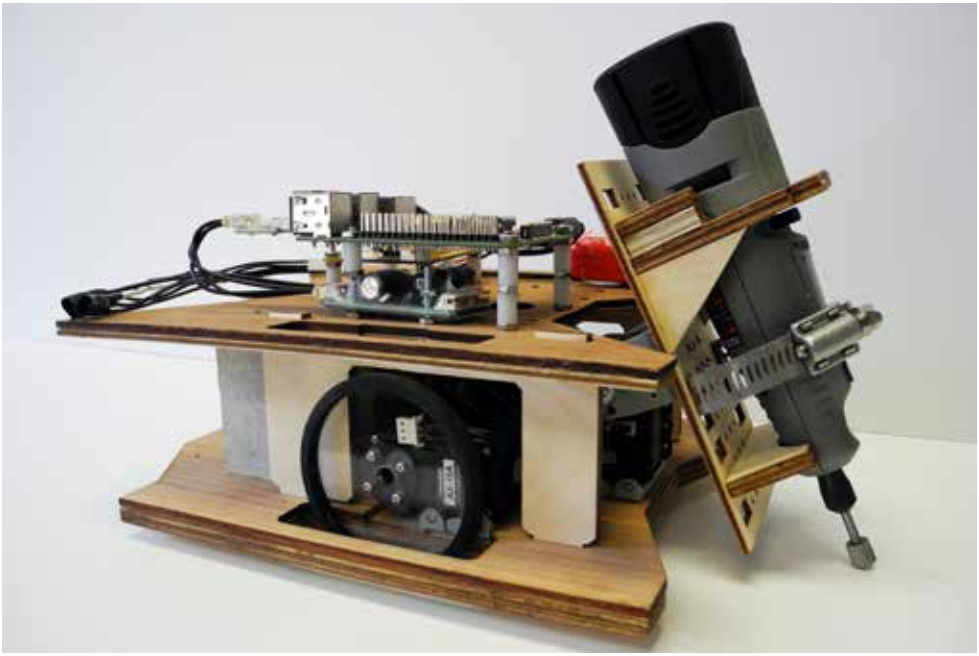
Recent exhibitions include Purestate.space online at La Scatola Gallery; Superposition at Arebyte Gallery in London; .GIF (4th EDITION) group show in Vancouver, Blue Omega at I Thought You Were The Real Thing group show at Romantzo in Athens and Omega Point at MKII in London which was also shortlisted for the Lumen Prize in August 2015 and will be part of the Lumen Prize Global Tour Exhibition 2015 / 2016.

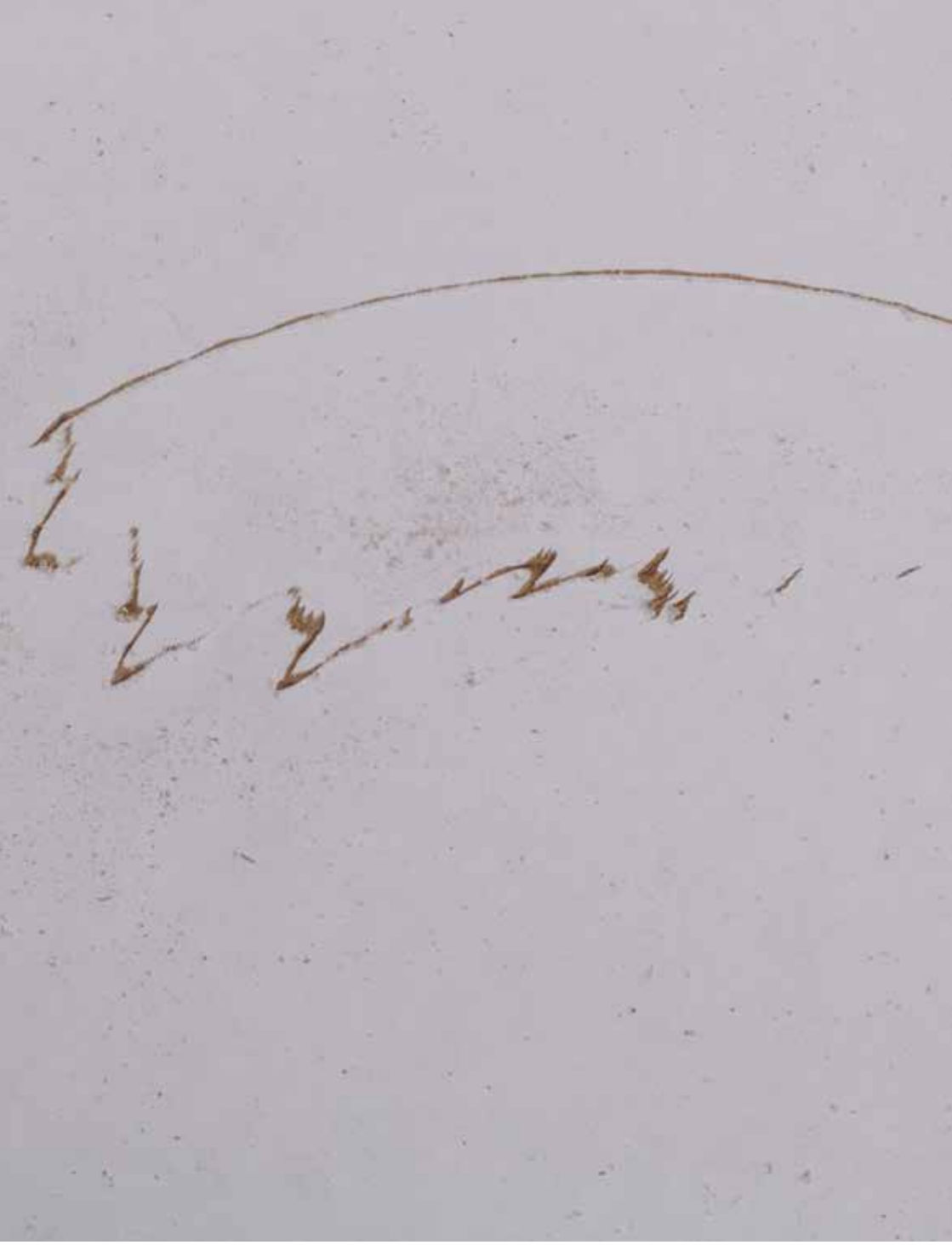


JOËLLE BITTON

Floor Machine

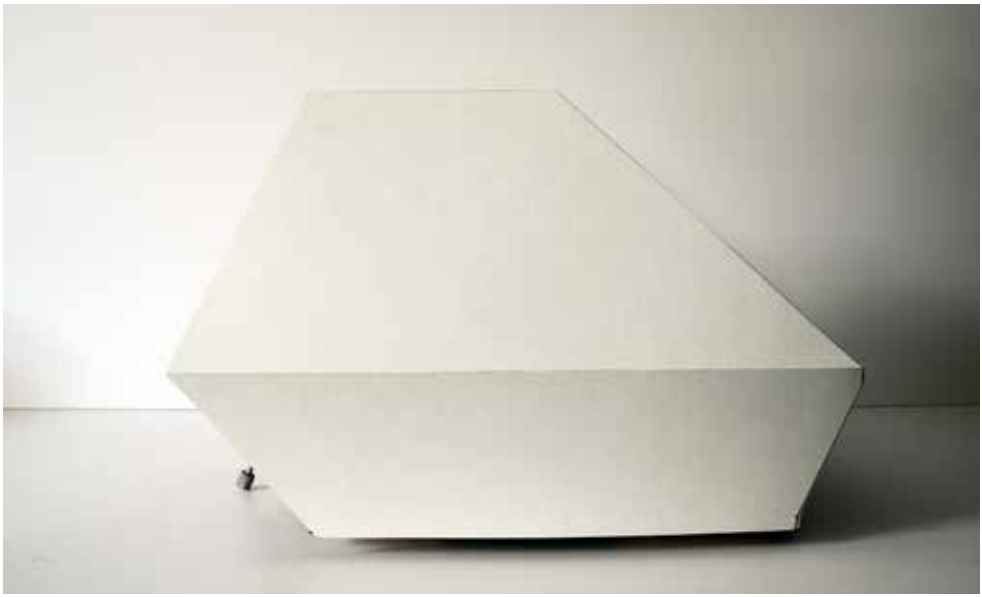
Floor Machine transforms sleep data into a physical alteration of a bedroom floor. In the context of the Data As Artifact exhibition, Floor Machine modifies the perception we have of the usefulness and constructiveness of fabrication machines. We disorient the visitors by literally eroding the floor we stand on. Our machine is inspired by a dysfunctional wood planer that cuts through the floor as it processes data from a sleep tracking device.
We aim to introduce strangeness into a familiar environment. We alter our understanding of the physical space we rely on by using our own sleep data, as if our dreams are having real materiality that takes the floor from under us.
This project is an artistic collaboration between Joëlle Bitton and Ianis Lallemand.





Bio

Joëlle Bitton is an artist and a human-computer interaction researcher. In 2000, she co-founded an experimental art and design collective in Vienna, "Superficiel" in support of works that explore the ideas of surface, screen, and body movement as interfaces.
She's currently enrolled as a doctor of design candidate at Harvard Graduate School of Design. Her thesis addresses interactive processes in digital fabrication with the implication of personal data. Previously, she researched the creative uses of technology at Culture Lab, Newcastle University. And at MIT Media Lab Europe, in the group 'Human Connectedness' she explored the richness of everyday life and intimacy at distance with the projects "RAW" and "Passages". Her work has been featured among others at ISEA, CHI, EXIT, Centre Pompidou, and Gallery éf.
http://joelle.superficiel.org/



BRANGER_BRIZ & BRANNON DORSEY

Probe Kit

Probe Kit is a critical software art project that puts a fragment of the network surveillance and collection capabilities available to larger entities in the hands of "hobbyist network data collectors." Branger_Briz in collaboration with Brannon Dorsey debuted Probe Kit at the eMerge Americas Conference , as aimed at illustrating how simple it is to collect personal network data and how much can be inferred from that data.

Sarcastically pitched as an "amateur data collector kit", Probe Kit turns your wifi card into a "net" that catches the fluttering probe requests (data packets) emitted from the wireless devices of the people around you.


1983 Butterflies (ie. mobile devices)
captured from the immediate vicinity

Bios

Branger_Briz is a group of artists, educators && programmers bent on articulating our digital landscape, creating memorable interactive projects for ourselves && our clients.

Brannon Dorsey is an artist who uses computational technology and reproducible electronic media to explicitly challenge digital consumption.

HEATHER DEWEY-HAGBORG

Invisible & DNA Spoofing

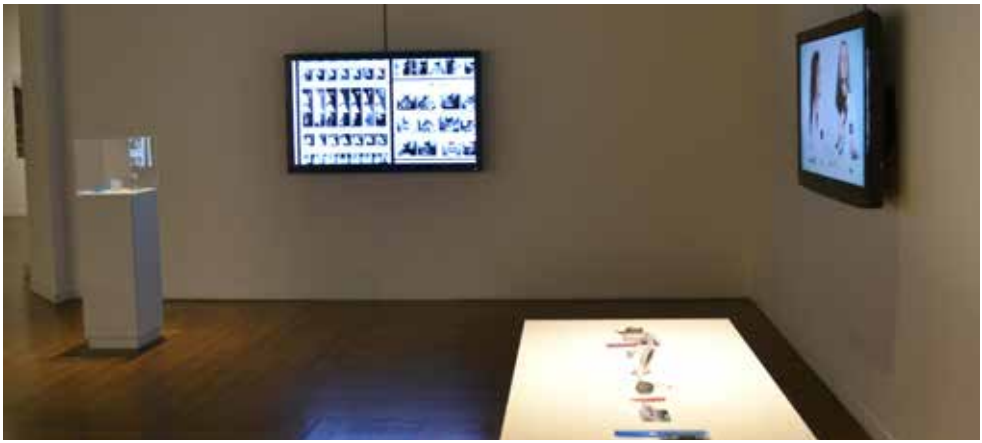
Invisible
Invisible is a working genetic privacy product offered for sale by the imaginary biotechnology company "Biogenfutures." Designed as an artistic provocation, Invisible points beyond surveillance to interrogate the alleged infallibility of the DNA "gold standard." To this end Invisible is an exploit – in the hacker sense of the term. It points out a security vulnerability. If DNA evidence can be hacked, forged, and planted like any other evidence does it deserve its elevated status?

Invisible is a suite of two complementary products. The Erase spray deletes 99.5% of the DNA you leave in public. The Replace spray cloaks biological material with DNA noise. Derived from over 50 different DNA sources and utilizing a special preservative, Replace brings the electronic privacy method of obfuscation to the biological.

Invisible exists as a synthesis of forms: a working product offered for sale in the New Museum store, a company website http://biogenfutur.es, a commercial, an intervention in mainstream and social media, a series of hands-on workshops, an ongoing public intervention where packages are covertly planted in stores around the world, and a set of open source DIY guides available online: http://bionony mous.me/diy-guides/.

DNA Spoofing
In this project, we anticipate the possibility of genetic surveillance in the post-apocalyptic present. As humans, we are constantly shedding genetic material in public space. It is becoming increasingly common to use those traces for surveillance and reconstruction. As IP spoofing makes anonymous internet browsing possible, DNA spoofing extends that potential by scrambling genetic material, enabling anonymous physical trajectories in tandem with digital. In this spirit, our work offers some DIY techniques for counteracting genetic surveillance.

link: http://ahprojects.com/projects/dna-spoofing/

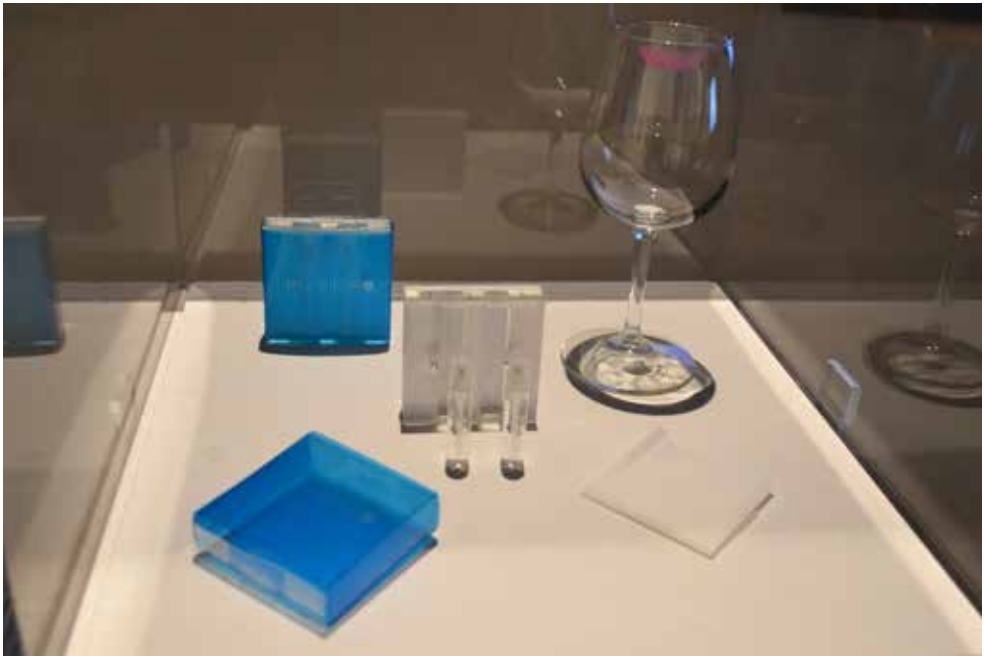



erase
replace

Bio

Heather Dewey-Hagborg is a transdisciplinary artist and educator who is interested in art as research and critical practice.

Heather has shown work internationally at events and venues including the Poland Mediations Bienniale, Norway Article Bienniale, Ars Electronica, Transmediale, Centre de Cultura Contemporània de Barcelona, the Science Gallery Dublin, PS1 MOMA, the New Museum, and Eyebeam Art and Technology Center in New York City. Her work has been widely discussed in the media, from the New York Times and the BBC to TED and Wired. She is an Assistant Professor of Art and Technology Studies at the School of the Art Institute of Chicago.



ANNA DUMITRIU & ALEX MAY

Sequence

"Sequence" is a bio-digital installation created by artist Anna Dumitriu, working in collaboration with digital artist Alex May. The project investigates the emerging technology of whole genome sequencing of bacteria, which makes it possible to study the entire genetic blueprint of an organism. The project considers what this new technology, which is revolutionising the study of bacteria, means to us personally, culturally and socially.

The installation consists of a dress with a video mapped digital projection created using the light output of an Illumina MiSeq as it sequences the whole genome of the Staphylococcus aureus bacteria from Dumitriu's body. The fully assembled genome of the bacterium is projected as a halo behind the dress.

The video mapping is created using May's software Painting with Light http://pwl.bigfug.com/. The dress is impregnated with the Staphylococcus aureus bacteria from Dumitriu's body plus MRSA and VRSA bacteria. It is patterned using natural and clinical antimicrobials. All the components have been sterilised prior to exhibition.

Dumitriu's artistic research has led to her learning how to sequence an entire bacterial genome, from the complex and delicate process of preparing the DNA, to sequencing and assembling the resulting data (around 2.8 million base pairs of DNA long) of the Staphylococcus aureus bacteria that lives on her own body.

She learned that this organism is likely to be a human pathogen and is resistant to several significant groups of antibiotics. Under different circumstances could make her ill or even kill her.

"The bacterium I have studied is one of millions which go to make up my microbiome. The detailed knowledge of this one organism only serves to highlight how little knowledge we have of the workings of our own bodies, as we reflect on the sublime microbiological worlds we carry with us." (Dumitriu)

Bios

Anna Dumitriu (1969) is a British artist whose work fuses craft, technology and bioscience to explore our relationship to the microbial world. She is artist in residence on the Modernising Medical Microbiology Project at the University of Oxford, a visiting research fellow: artist in residence in the Department of Computer Science at The University of Hertfordshire, and an honorary research fellow in the Wellcome Trust Brighton and Sussex Centre for Global Health at Brighton and Sussex Medical School. She has an international exhibition profile, having exhibited at venues such as Waag Society, Amsterdam, Art Laboratory Berlin, V & A Museum, London and The Picasso Museum, Barcelona http://www.normalflora.co.uk

Alex May (1972) is a British artist exploring a wide range of digital technologies, most notably video projection onto physical objects (building on the technique known as video mapping or projection mapping using his own bespoke software), also interactive installations, generative works, full-size humanoid robots, performance and video art. He is a visiting research fellow: artist in residence in the Department of Computer Science at The University of Hertfordshire. http://www.alexmayarts.co.uk

CHRIS HENSCHKE

Dynamics of the Apparatus

"Dynamics of the Apparatus" is an audiovisual project developed as part of the 'art@CMS' residency at the European Organization for Nuclear Research (CERN). During the residency, Chris Henschke filmed various experimental areas of the Large Hadron Collider (LHC). The experiments undertaken at the LHC, the most complex scientific experiment in the world, probe the fundamental nature of the universe, through the focusing of trillions of electron volts of energy on unimaginably small subatomic particles that are accelerated to almost the speed of light around the twenty seven kilometre accelerator ring. When the particles collide with each other, immense energies are released for an instant of time, which are captured by gargantuan detectors such as the Compact Muon Solenoid (CMS) detector.

Although the raw footage is compelling in itself, Henschke sought to convey a sense of the spacetime bending energies present in the LHC, by embedding particle beam and collision event data into the video. The video is algorithmically manipulated in a way that uses the electromagnetic 'sound' of the particle beam vibration to control the flow of the video, plus sonified particle collision events produced in the CMS detector. These sounds were used to affect the video footage of the detector through a computer algorithm that uses the intensity of the sound to map time onto space, and in essence folds the energy and events back into the device that produces it. This manifests the dynamic nature of experimental physics in the way that Niels Bohr describes as a state of ‚complementarity'. For Bohr, the interaction between the object of investigation and apparatus producing and measuring it 'forms an inseparable part of the phenomenon'. The final audiovisual output, itself a kind of experimental outcome, seeks to capture and distil both the overwhelming energies and technologies manifest in the LHC, plus the sensations one feels within such a particle accelerator.

Bio

Chris Henschke is a self-taught artist whose areas of practice and research are in sound and visual relationships, and collaborative art / science experiments. He has exhibited artworks around Australia and internationally, including the Australian Centre for Contemporary Art (2001), the National Gallery of Australia (2004) and the University of Southampton John Hansard Gallery (2014). He has undertaken various art residencies, including two at the Australian Synchrotron, supported by an Arts Victoria Arts Innovation grant (2008), and the Australia Council for the Arts Synapse program (2010). He has developed and lectured courses in timebased and interactive media at Monash University, RMIT University, and the 'Art vs Science' seminar series at the Victorian College of the Arts Centre For Ideas. Currently, he is underaking a Doctorate of Philosophy at Monash University, which includes on-site research at the European Organisation for Nuclear Research (CERN), Switzerland / France, as part of the 'art@CMS' collaborative artist residency program.

RAFAEL LOZANO HEMMER

Level of Confidence

"Level of Confidence" is an art project to commemorate the mass kidnapping of 43 students from the Ayotzinapa normalista school in Iguala, Guerrero, Mexico. It was released on March 26, 2015, exactly six months after the kidnapping took place. The project consists of a face-recognition camera that has been trained to tirelessly look for the faces of the disappeared students. As you stand in front of the camera, the system uses algorithms to find which student`s facial features look most like yours and gives a "level of confidence" on how accurate the match is, in percent.

The biometric surveillance algorithms used, -Eigen, Fisher and LBPH-, are typically used by military and police forces to look for suspicious individuals whereas in this project they are used to search for victims instead. The piece will always fail to make a positive match, as we know that the students were likely murdered and burnt in a massacre where government, police forces and drug cartels were involved, but the commemorative side of the project is the relentless search for the students and the overlap of their image with the public`s own facial features.

The project software is available for free download so that any university, cultural centre, gallery or museum can set-up the piece and exhibit it. To show the work the institution must download the project software and provide a computer, screen and webcam. The full instructions and specifications are in this PDF document.

The project also exists as an open source software, which can be modified by any programmer with knowledge of OpenFrameworks so that he or she can make their own version, with different content. An example may be someone who trains the algorithms with images from missing aboriginal women in Canada. To download the source code please visit our GitHub.

On the launch of the "Level of Confidence" project, already the piece is planned to be exhibited at the MUAC Museum in Mexico City and at Universities across Mexico like Iberoamericana, UAM, Universidad de las Artes, Universidad Autónoma de Aguascalientes and others. Internationally the piece is being shown at Lozano-Hemmer`s exhibition at Art Bärtschi Gallery in Geneva, by the FOFA Gallery at Concordia University in Montréal and by the Universidad Nacional de Tierra del Fuego in Argentina. We shall update this page as more exhibitors show the work.

The piece can be acquired for art collections, but all proceeds are directed to a fund to help the affected community, for example in scholarships for new students at the normalista school. The work is editioned with 12 copies and one AP, includes all the equipment, installation and a certificate of authenticity. It can be acquired through any of Lozano-Hemmer`s galleries.


Identificación facial: Fisher, Eigen, LBPN - Se detecta un parecido de: 749.742 puntos
Con el rostro del estudiante de Ayotzinapa: Luis Ángel Abarca Carrillo
Nivel de confianza: 30 %. Resultado: estudiante no encontrado.
Luis Ángel
Abarca Carrillo

Bio

Rafael Lozano-Hemmer was born in Mexico City in 1967. In 1989 he received a B.Sc. in Physical Chemistry from Concordia University in Montréal, Canada. He is a faculty associate of the Graduate School of Design at Harvard University.

Electronic artist, develops interactive installations that are at the intersection of architecture and performance art. His main interest is in creating platforms for public participation, by perverting technologies such as robotics, computerized surveillance or telematic networks. Inspired by phantasmagoria, carnival and animatronics, his light and shadow works are "anti-monuments for alien agency".

His large-scale interactive installations have been commissioned for events such as the Millennium Celebrations in Mexico City (1999), the Cultural Capital of Europe in Rotterdam (2001), the UN World Summit of Cities in Lyon (2003), the opening of the YCAM Center in Japan (2003), the Expansion of the European Union in Dublin (2004), the memorial for the Tlatelolco Student Massacre in Mexico City (2008), the 50th Anniversary of the Guggenheim Museum in New York (2009) and the Winter Olympics in Vancouver (2010).

Recently the subject of solo exhibitions at the San Francisco Museum of Modern Art, the Fundación Telefónica in Buenos Aires and the Museum of Contemporary Art in Sydney, he was the first artist to officially represent Mexico at the Venice Biennale with a solo exhibition at Palazzo Soranzo Van Axel in 2007. He has also shown at Art Biennials and Triennials in Havana, Istanbul, Kochi, Liverpool, Montréal, Moscow, New Orleans, Seville, Seoul, Shanghai, Singapore and Sydney. Collections holding his work include the MoMA in New York, Tate in London, AGO in Toronto, CIFO in Miami, Jumex in Mexico City, DAROS in Zurich, Borusan Contemporary in Istanbul, MUAC in Mexico City, 21st Century Museum of Art in Kanazawa, MAG in Manchester, MUSAC in Leon, MONA in Hobart, ZKM in Karlsruhe, MAC in Montréal and SAM in Singapore, among others.

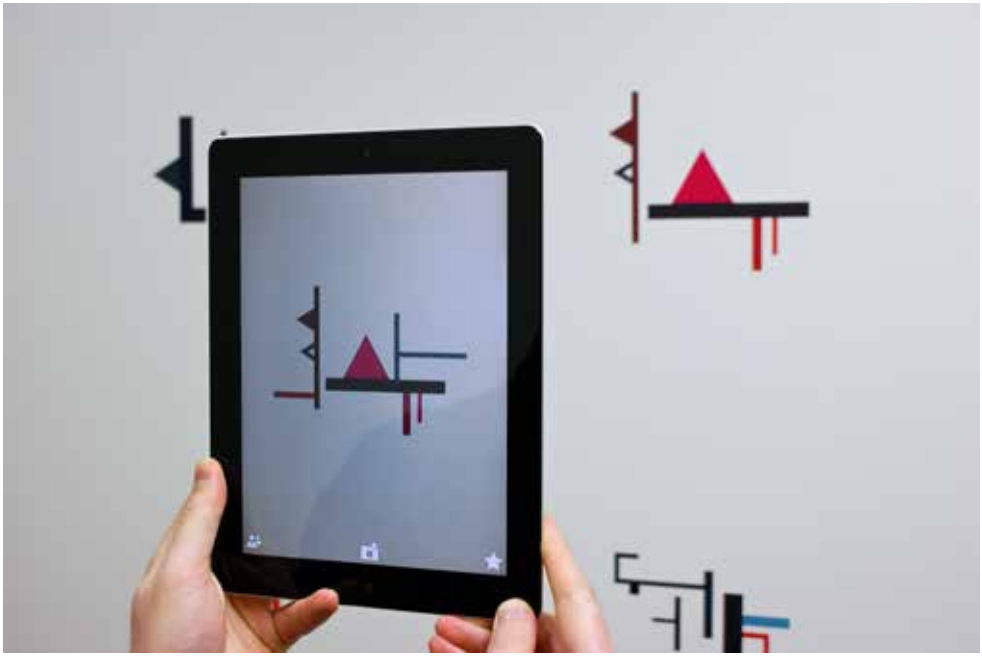
He has received two BAFTA British Academy Awards for Interactive Art in London, a Golden Nica at the Prix Ars Electronica in Austria, "Artist of the year" Rave Award from Wired Magazine, a Rockefeller fellowship, the Trophée des Lumières in Lyon, an International Bauhaus Award in Dessau, and the Governor General's Award in Canada. He has lectured at Goldsmiths college, the Bartlett school, Princeton, Harvard, UC Berkeley, Cooper Union, USC, MIT MediaLab, Guggenheim Museum, LA MOCA, Netherlands Architecture Institute, Cornell, UPenn, SCAD, Danish Architecture Cente, CCA in Montreal, ICA in London and the Art Institute of Chicago.

SHANNON NOVAK

String Section

String Section is an artwork that straddles the real world and a virtual world created by artist Shannon Novak. The work builds on historical examples that use augmented reality, resolving in an artwork that allows the audience to collaborate with one another to produce a musical score.

Artworks using augmented reality may often be developed for an individual experience rather than a collaborative experience. The audience is usually presented with an object orString Section. Three rows of twelve small clusters of geometric forms were spaced evenly on a wall. Each cluster could be activated individually using a mobile device. When activated, a short animation would occur, extending the geometric forms in the cluster outward like a flower, accompanied by a single musical note (a group of orchestral strings playing and holding the same note). Each cluster would generate a different musical note turning the wall into an interactive musical instrument. People could create music alone or with others by moving a mobile device to different clusters to make different musical notes. For example, one person could hold a mobile device over one cluster to generate a high note, and another person could hold another mobile device over a different cluster to generate a low note that may or may not be in harmony with the other note.



Bio

New Zealand artist Shannon Novak, a synesthete, posits that 'music is in everything.' He creates compositions for objects, locations, and people much as musicians might compose for/about places, persons or experiences with emotional resonance for them. Trained initially as a pianist, his practice encompasses painting, sculpture, and installation, with a focus on using geometric forms to explore and render his understanding of the interrelationships between sound, colour, form, time, space, and social context.

Novak's compositions have continued to evolve over time. From painting on canvas, to site-responsive large scale installations using translucent vinyl to, most recently, the use of augmented reality (AR), a digital media form that allows the experience of an embellished version of one's environment through the digital dimension of a smartphone or tablet using a specially designed app. Novak is at the forefront of international exploration in this area, illuminating the wide range of art possibilities this new technology affords. These recent developments fit within Novak's larger project, that is, as curator Stephen Cleland states, the 'teasing out of [the] multifaceted notions of augmentation' in both its physical and virtual forms.

Novak's installations and exhibitions have been seen in national and international institutions, festivals and public spaces, including Auckland Art Gallery Toi o Tāmaki; The McKinney Avenue Contemporary in Dallas, Texas; The University of Auckland's George Fraser Gallery; Pah Homestead and the Aotea Centre in Auckland City; and in New York City in 2013 as part of the Art in Odd Places Festival, on 14th Street and in Central Park.

Novak lives and works in Auckland, New Zealand.

JULIAN OLIVER

Transparency Grenade & No Network

Transparency Grenade
The lack of Corporate and Governmental transparency has been a topic of much controversy in recent years, yet our only tool for encouraging greater openness is the slow, tedious process of policy reform.

Presented in the form of a Soviet F1 Hand Grenade, the Transparency Grenade is an iconic cure for these frustrations, making the process of leaking information from closed meetings as easy as pulling a pin.

Equipped with a tiny computer, microphone and powerful wireless antenna, the Transparency Grenade captures network traffic and audio at the site and securely and anonymously streams it to a dedicated server where it is mined for information. User names, hostnames, IP addresses, unencrypted email fragments, web pages, images and voice extracted from this data and then presented on an online, public map, shown at the location of the detonation.

Whether trusted employee, civil servant or concerned citizen, greater openness was never so close at hand..

No Network
With the flick of a switch No Network implements a blanket ban of mobile telephony in its presence. All access to the cellular (mobile) network within a 6-15m diameter aura around the object is jammed, including calls, SMS and data connectivity.
In an age of mass, persistent communication, the right to not be contactable, to be 'off-the-grid', is enforced in the company of this object.

No Network is the second in a series exploring fully functional, poetic manifestations of 'cyber warfare' and 'cyber weapons', following the Transparency Grenade. Two other tanks are in development, blocking communication of GPS location services and 802.11 (WiFi) wireless networking.

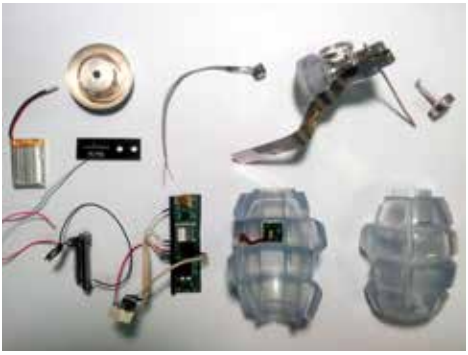

06:86-802.11
TRANSPARENCY GRENADE

Bio

Julian Oliver is a New Zealander, Critical Engineer and artist based in Berlin. His work and lectures have been presented at many museums, galleries, international electronic-art events and conferences, including the Tate Modern, Transmediale, the Chaos Computer Congress, Ars Electronica, FILE and the Japan Media Arts Festival. Julian has received several awards, most notably the distinguished Golden Nica at Prix Ars Electronica 2011 for the project Newstweek (with Daniil Vasiliev).

Julian has also given numerous workshops and master classes in software art, data forensics, creative hacking, computer networking, counter-surveillance, object-oriented programming for artists, augmented reality, virtual architecture, video-game development, information visualisation and UNIX/Linux worldwide. He is an advocate of Free and Open Source Software and is a supporter of, and contributor to, initiatives that promote and reinforce rights in the networked domain.

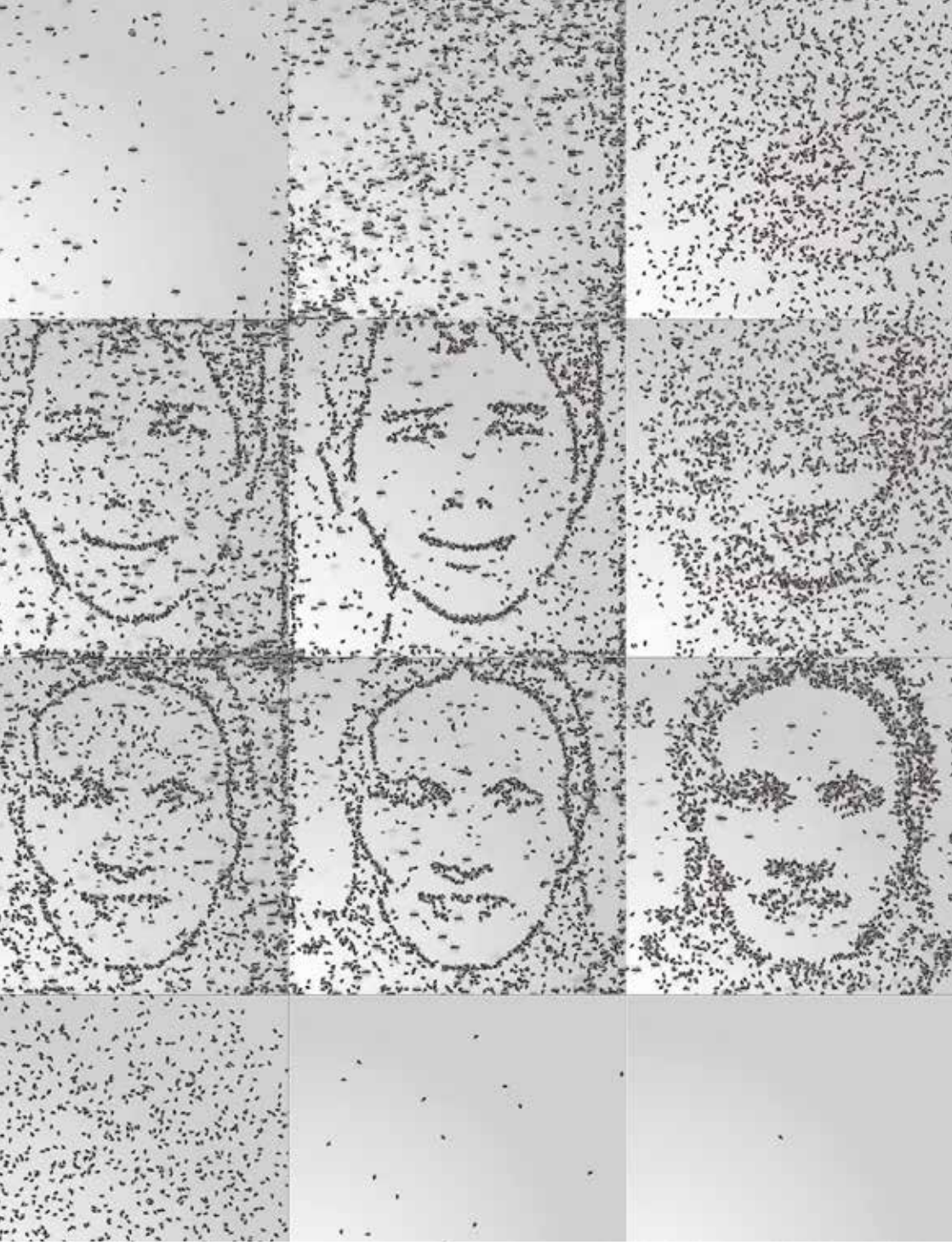
Articles about Julian's work, or work he's made with others, have appeared in many news channels. Among them are The BBC (UK), The Age (AU), Der Spiegel (DE), El Pais (ES), Liberation (FR), The New York Times (US), La Vanguardia (ES), The Guardian Online (UK), Cosmopolitan (US), Wired (DE, US, UK), Slashdot (US), Boing Boing (US), Computer World (World) and several television stations worldwide.



CHRISTA SOMMERER & LAURENT MIGNONNEAU

Portrait on the Fly

Portrait on the Fly consists of a series of interactive portraits, plotter drawings and video sequences of well-known media art experts.
Portrait on the Fly (Interactive Version) is composed of a monitor that shows a swarm of ten thousand flies. When a person positions himself in front of it, the insects try to detect his facial features. They then begin to arrange themselves so as to reproduce them, thereby creating a recognizable likeness of the individual.. Posing in front of the monitor attracts the flies. Within seconds they invade the face, but even the slightest movement of the head or of parts of the face drives them off. The portraits are thus in constant flux, they construct and deconstruct. Portrait on the Fly is a commentary on our love for making pictures of ourselves (Selfie-Culture), it has to do with change, transience and impermanence.
Portrait on the Fly (Plotter Drawings) is a series of plotter drawings. Snapshots of the digital fly portraits are printed out as 1960s plotter-style drawings. Ephemeral moments of interaction are thereby secured in the form of graphical drawings. The first of them is an autoportrait of Sommerer & Mignonneau. The series include portraits of important media art experts, theorists and artists. The aim is to conserve original and precious images of the historic figures who are involved in media art – an ephemeral field that is obsessed with novelty and change.
Portrait on the Fly (Video Portraits) consists of short video sequences where the moving portrait of well known media art pioneers, scholars, artists, theorist, gallerist and organizers are turned into a swarm of flies. These video sequences include portraits by Christiane Paul, Sarah Diamond, Peter Weibel, Peter d'Agostino, Frieder Nake, Mark Wilson, Hans Dehlinger, Hannes Leopoldseder, Christine Schöpf, Edmond Couchot, Marie Hélène Tramus, Nina Czeglédy, Gerfried Stocker, Oliver Grau, Maurice Benayoun, Paul Thomas, Jill Scott, Paul Sermon, Simon Biggs, Greg Garvey, Jean-Luc Soret, Chu-Yin Chen, Dominique Moulon, Ellen Pau, Valérie Hasson-Benillouche, Wolf Lieser, Dierk Maass, Antoinette Airoldi, Anita Beckers, Georg Peithner-Lichtenfels, among many others. It is a growing personal archive of media art experts, who from Sommerer & Mignonneau's personal point of view, significantly contribute to the development and acceptance of media art within contemporary art.



Bios

Christa Sommerer and Laurent Mignonneau are internationally renowned media artists working in the field of interactive computer installation. They are Professors at the University of Art and Design in Linz Austria where they head the Department for Interface Culture at the Institute for Media. Sommerer and Mignonneau previously held positions as Professors at the IAMAS International Academy of Media Arts and Sciences in Gifu, Japan and as Researchers and Artistic Directors at the ATR Media Integration and Communications Research Lab in Kyoto Japan. They also were Visiting Researchers at the MIT CAVS in Cambridge US, the Beckmann Institute in Champaign Urbana, IL, USA and the NTT-InterCommunication Center in Tokyo.
In 1992 Sommerer and Mignonneau met at the Institute for New Media at the Staedelschule in Frankfurt where they teamed up and started their collaboration in the area of interactive computer installations. Mignonneau and Sommerer's artworks have been called "epoch making" (Toshiharu Itoh, NTT-ICC museum) for developing natural and intuitive interfaces and for often applying scientific principles such as artificial life, complexity and generative systems to their innovative interface designs. These works have been shown in around 250 exhibitions world-wide and are permanently installed in media museums and media collections around the world, including the Media Museum of the ZKM in Karlsruhe, Germany, the NTT-ICC InterCommunication Center in Tokyo, the Cartier Foundation in Paris, the Millennium Dome in London, the Tokyo Metropolitan Museum of Photography in Japan, the AEC Ars Electronica Center in Linz, Austria, the NTT Plan-Net in Nagoya, Japan, Shiroishi Multimedia Art Center in Shiroishi, Japan and the HOUSE-OF-SHISEIDO in Tokyo.
Sommerer and Mignonneau have won many international media awards, for example the "Golden Nica" Ars Electronica Award for Interactive Art 1994 (Linz, Austria), the "Ovation Award" of the Interactive Media Festival 1995 (Los Angeles, USA), the "Multi Media Award ,95" of the Multimedia Association Japan and the" World Technology Award" in London (2001).

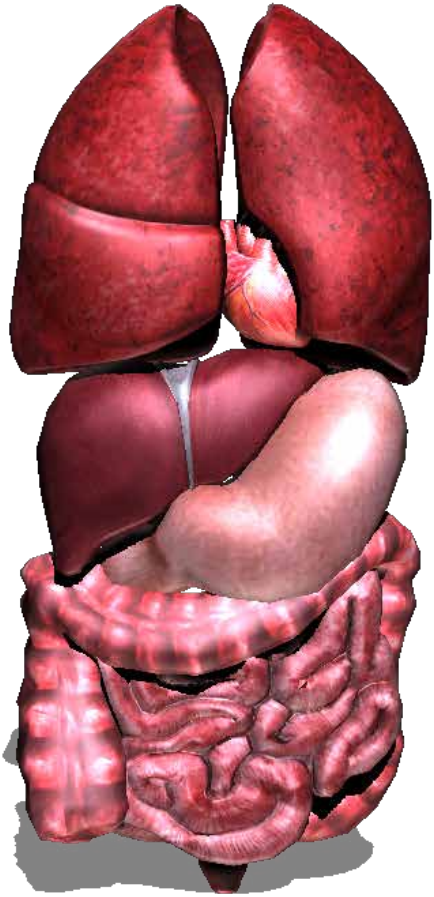
JULIAN STADON

OrgantradAR.v.4.2

What are the relationships between traditional notions of the body and identity in relation to new modes of archiving, production, commodification and biopolitics? OrgantradAR.4.2 presents a juxtaposition of artifacts from organ trade, data mining and synthetic organ manufacture, in order to speculate on how these industries evolve and converge in the age of post-biological, post-digital being. A selection of the artist's organs have been scanned and 3D printed, presented as a diptych alongside current pricings for illegally sold organs across the world. Alongside this plays a documentation of the OrgantradAR series, a body of work spanning 8 years that investigates the relationship between data mining and organ trade. In this series, real organs are digitized via MRI scanning and transferred into a system of monetized trade, using augmented reality as a bridge between physical and virtual space, creating mixed reality environments that allow viewers to access such systems from a ranges of viewpoints. The organs can then be purchased by users of the virtual environment, according to the CPI of the virtual economy within the real monetary system (stock exchange). The organs can be sold to other virtual avatars at individually determined prices, creating a real world economy of virtual organ based data bodies. Also featured, is a nano-scale topology of a single sperm cell (from the artist), that is being colonized by an artificially intelligent bot colony.

These works merge together to articulate the complex relationships between (and the vagueness of information relating to) such systems of post-biological mixed realities. Both organ trade and data mining are actively proliferated, at the cost of (usually unsuspecting and vulnerable) individuals. The victims of these crimes often are without a voice and thus these violations of personal property are rarely included in the mass media. Contributing to this is that much of this predatory behaviour is facilitated by large concentrations of power (corporations and governments) and due to this the reporting of such incidents often places journalists in a potentially dangerous position (and due to the sensitive nature of the crimes, the reporting of cases are often censored to the point of silence).

OrgantradAR.v.4.2 seeks to explore this situation, through the creation of systems for virtual organ trade that bridge, virtual/real world organ/identity ownership and trade...



Bio

Julian Stadon is a mixed reality artist, curator, academic and researcher. Stadon's trans-disciplinary research has included time @ Interface Cultures, Salford University, HITLabNZ, The Australian Centre for Virtual Art, The Fogscreen Centre, The Banff New Media Institute, CIA Studios, Curtin University, Murdoch University, Technical University Graz, Fachhochschule Salzburg, Furtherfield, Ars Electronica and Technical University Munich. Stadon has taken part in exhibitions, research presentations, and workshops including @ Ars Electronica, ISEA, Media Art Histories, Transdisciplinary Imaging, Decode:Recode, Translife and The Perth Festival. Stadon founder Dorkbot Perth (2006-2012) and has been involved with ISMAR for 7 years, including curating the last 3 exhibitions: Transreal Topologies, Beyond the Interface and Data Body as Artifact, while also acting as a conference chair.

Stadon currently lectures at Salzburg University of Applied Sciences and is the Founder/ Director of MARart.org.

STELARC

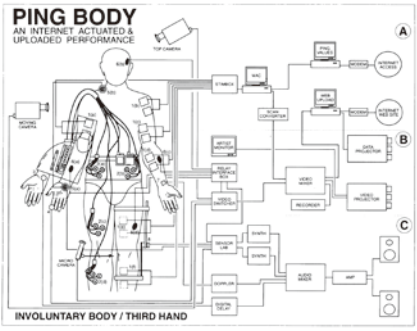
Diagrams, Data & Bodies

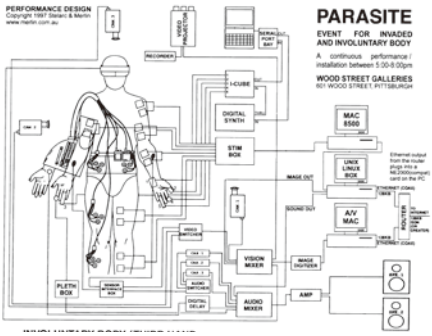
Propel/Ear on Arm & Propel/Ear on Arm on Arm

This collection of works present an overview of the the artistic endeavours of Stelarc, in particular his diagrams relating to his research into the body, flesh and technology. Diagrams, Data & Bodies consists of a series of diagrams from the following works: Involuntary Body, Third Hand, Fractal Flesh, Ping Body and Parasite. It also includes the videos Ear on Arm Surgery and Stelarc on Pain. Through these works, Stelarc questions the relevance of the body in relation to technology, through visually probing and acoustically amplifying his body. Stelarc is an artist that has made three films of the inside of his body and completed over 25 body suspension performances with hooks into the skin. He has used medical instruments, prosthetics, robotics, Virtual Reality systems, the Internet and biotechnology to explore alternate, intimate and involuntary interfaces with the body.

Also part of the exhibition, a live stream will premier two special performances by Stelarc: Propel/Ear on Arm on Arm and Propel/ Ear on Arm, during which Stelarc will mount himself to an industrial robot that is programmed to perform a series of movements and following this, he will mount a 3D printed sculptural artifact of his Ear on Arm project to the robot, which will also perform a series of performative movements.

"As Stelarc observes, his research follows the assumption that ‚To be human is to be augmented, extended and enhanced by technology', actively and critically attempting to explore the potential of unexpected kinds of performative interaction in situations where `you have the choice' to define the performance situation, and where `because you are aware of what's going on, this loop of consciousness creates the possibility of response and interaction' (1998)."
NICHOLAS ZURBRUGG, "Virilio, Stelarc and Terminal Technoculture", Theory, Culture and Society 1999 (SAGE, London), Vol. 16: 177-199.

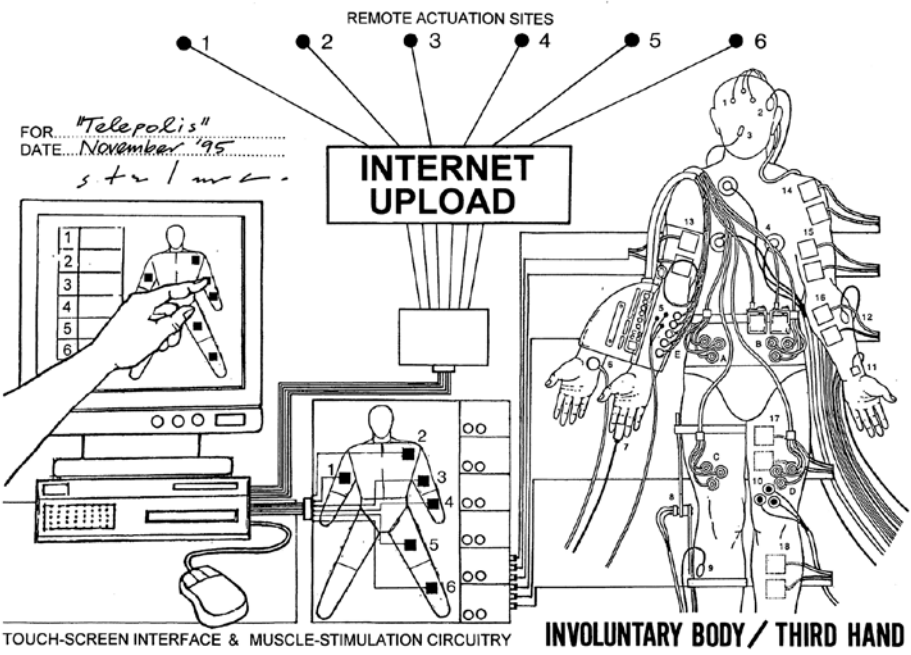




Bio

Stelarc explores alternate anatomical architectures. He has performed with a THIRD HAND, a STOMACH SCULPTURE and EXOSKELETON, a 6-legged robot. FRACTAL FLESH remotely actuates the body with electrical stimulation. PING BODY and PARASITE are internet muscle actuation systems. PROSTHETIC HEAD is an embodied conversational agent that speaks to the person who interrogates it. EAR ON ARM is a surgical and cell-grown construct that will be internet-enabled for people in other places. Publications include STELARC: THE MONOGRAPH, Edited by Marqand Smith, Forward by William Gibson (MIT Press). In 1996 he was made an Honorary Professor of Art and Robotics at Carnegie Mellon University, Pittsburgh and in 2002 was awarded an Honorary Doctorate of Laws by Monash University, Melbourne. In 2010 was awarded the Ars Electronica Hybrid Arts Prize. In 2015 he received the Australia Council's Emerging and Experimental Arts Award. Stelarc is currently a Distinguished Research Fellow and Director of the Alternate Anatomies Lab, School of Design and Art (SODA) at Curtin University. His artwork is represented by the Scott Livesey Galleries, Melbourne.

www.stelarc.org



ADAM ZARETSKY

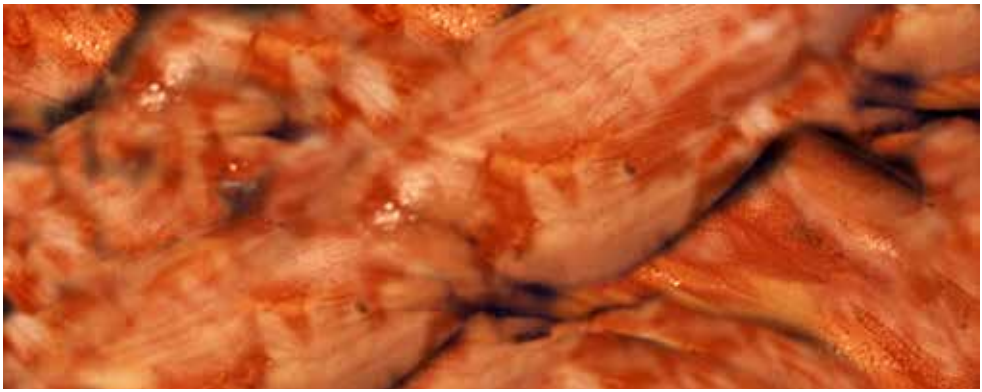
Hybrid DNA Isolation & DIY Embryology

DIY Embryology
Oocyte Aesthetic, Human Design and Mission Creep How do we decide what is worth engineering for? In particular, Babies can be designed along a wide variety of Aesthetic gene expressions. Considering the range of gene expressions possible in a collage of multiple genomic pallettes, economic efficiency is neither a simple concept nor our only deciding force. Beyond public acceptance of the technology, there is also public trend diversity, novelty markets and niche power to be brokered in this global competition for more unusual kindred. Stockpiling difference, in and of itself, is a form of security. We need to explore the entire range of the programmed body. Human cloning = somatic cell nuclear transfer = oocyte modification all of which are built as a bridge to widen the variety pool to include Gene Therapeutic (GT) knock-ins or cassette inserts of signature transgene infections into human ovum, sperm, zygote or human embryonic stem cells (hESC. Can we not consider the protocols valid to be used for esoteric, abject and non-utilitarian breeding projects? Isn't that what we are already involved in? Practitioners or Historians of Futurism, Surrealism, Abstraction, Minimalism and other Contemporary art movements may all have their own special Oogonial clone advisory role to play. Beyond health and beauty lies a glut of diverse industrial beings, born with positive anomalous security for the sake of the widest range of feelings that reaction can attain. Consider what a gifted retro-garde cubist could bring to the table.

http://serpentinemagazine.com/2015/01/oocyte-aesthetic/

Hybrid DNA Isolation Workshop
The Hybrid DNA Isolation Skill-Share Lab
will show you How to Extract DNA from Anything Living. Our lab is all ages. Our lab is a communal performance ritual
that is easily to repeated at home. Participants have been requested to bring one or more samples of living, growing, raw or recently alive materials for hybrid DNA Isolation. We then use artistic techniques to work with this New and Very Old Media. We make group monoprints, sculptures and non-conceptual, time-based, living, mutagenic bioart.

https://www.youtube.com/watch?v=pE8YnjEB9mY




BOSCH
600 W

Bio

Adam Zaretsky, Ph.D. 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). A former researcher at the MIT department of biology, for the past decade Zaretsky has been teaching an experimental bioart class called VivoArts at: San Francisco State University (SFSU), SymbioticA (UWA), Rensselaer Polytechnic Institute (RPI), University of Leiden's The Arts and Genomic Centre (TAGC) and with the Waag Society. He has also taught DIY-IGM (Do-It-Yourself Inhereted Genetic Modification of the Human Genome) at New York University (NYU) and Carnegie Melon University (CMU). He also runs a public life arts school: VASTAL (The Vivoarts School for Transgenic Aesthetics Ltd.) 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. Adam is currently Media Arts Faculty in the School of Communication and the Arts at Marist College.

http://www.diysect.com/fearoftheunknown/

[HEAVY]

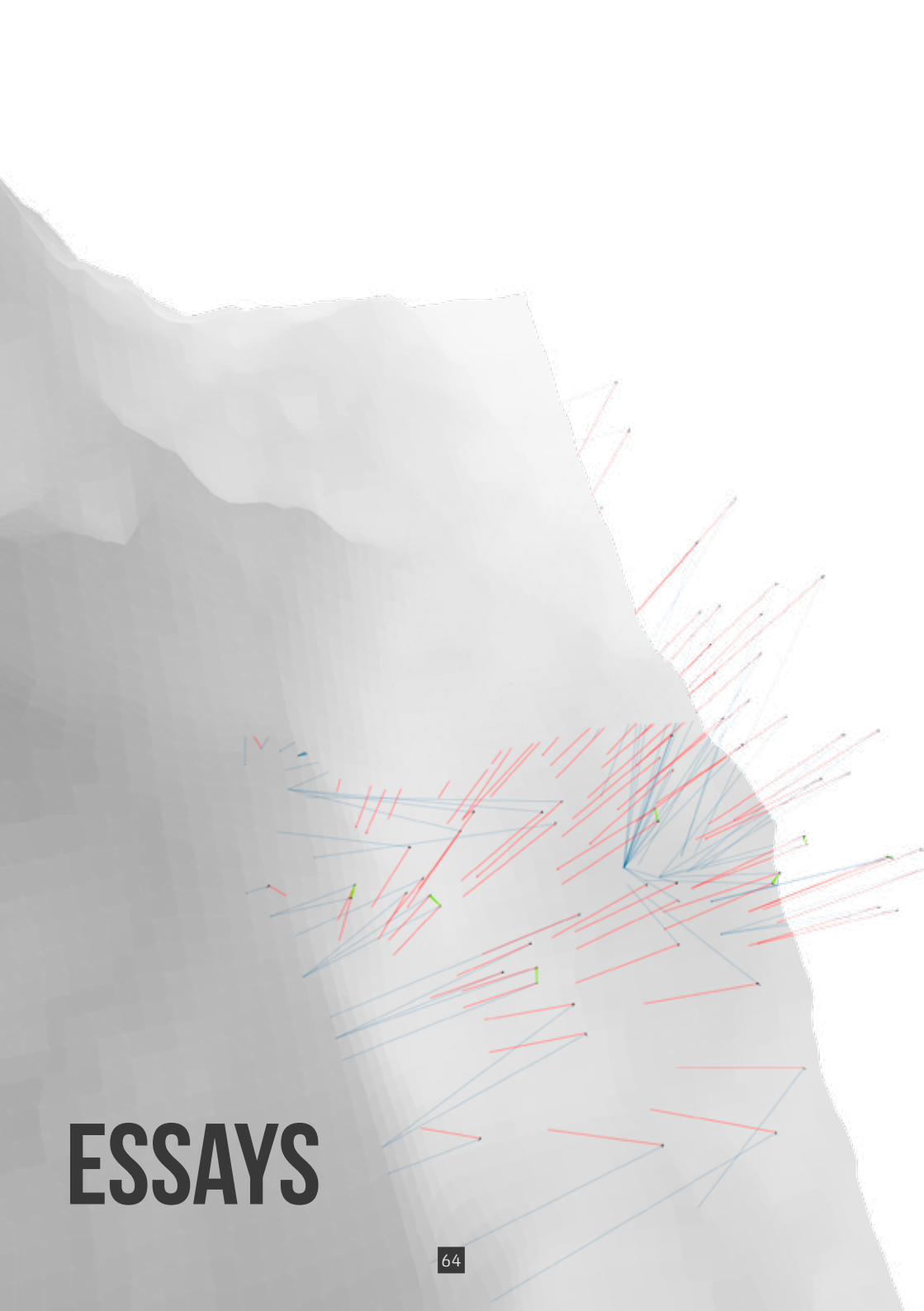
Re+Public

[heavy] is included independently of the Data Body as Artifact Exhibition, as a featured artist at the Fukuoka International Congress Center. [heavy] (AKA) BC Bierman will also participate in the Experiencing AR in Public Environments Panel as part of the ISMAR panel program.

Sponsored by IEEE-SA, Re+Public launched its first solo mural at SXSW14. The wall was donated by the Recess Arcade Bar. Typically collaborating w/ other muralists, Re+Public saw creating our own mural content as the natural evolution in our work. An 84' x 32' wheatepaste mural, the content deals with the concepts of production, advertising, and consumption. Through the Re+Public app, the mural comes alive in digital 3D, animation, and movie textures. Additionally, users can interact with the mural by touching either "production" or "beauty". This choice forms an anonymous data set, which could potentially develop into more intentional data sets with regard to how citizens interact with the urban space that surrounds them.

Bio

[heavy] is an educational technologist, academic, and digital artist living in Southern California. With a PhD in Humanities [Intermedia Analysis] from the Universiteit van Amsterdam, BC derives his alias from his love for philosophical discussion. With an interdisciplinary background that comprises technology, philosophy, and the arts, Heavy has worked as both a university professor and a tech developer in Anaheim, Prague, and Saint Louis. Since 2007, he has internationally presented his academic work, which explores the intersection of emerging technologies and semiotics in public space.
As a kind of synthesis between scholarly inquiry and emerging technologies, he founded The Heavy Projects to investigate how the fusion of creativity and technology can uncover new modes of relaying ideas. Building upon existing technological and theoretical frameworks, Heavy creates innovative interfaces between digital design and physical worlds in ways that provoke the imagination and problematize existing modes of communication and current styles of art, design, and interaction. Heavy is currently serving as IEEE AR Industry Connections Vice-Chair and has presented his tech and artistic work at such events as SXSW Interactive, ISMAR and TEDx Salon and his projects have appeared in such publications as Fast Company, The Atlantic, Creator's Project, CNet, Juxtapoz, and IEEE Spectrum.



ESSAYS

NAKED EXPERIENCES: A PHENOMENOLOGY OF EXPERIENTIAL ART

Brigitta Zics

The human body gained a new precedent in art once technologies allowed integration and reciprocity between viewer and artwork. In this article I will focus on aesthetic experiences that present the body as an interface for utilising our intrinsic, deep-routed nature of being human. I mean by this artworks that exploit the characteristics of the embodied nature of our existence, determining our body as the facade of our conscious and unconscious acts. 'Performativity' is integral to these experiences and the agency of the artwork shaped by the 'now and then' actions of the viewer-performer, often triggering unforeseen reactions and a journey of interception. I will argue that these experiential artworks create their own aesthetic claim whilst interrogating universal questions of being human that challenge the social, political and cultural constructions of the now; the experience that such artworks facilitate will be presented herein as Naked Experiences.

How and why are Naked Experiences different from other aesthetic experiences? A phenomenological comprehension, one that places a paramount importance in how the body interacts with the world around us, is where I believe the answer is to be found. As our bodies acquire new knowledge, 'meaning' arises through our actions. It is this that Mark Johnson (2007 p. ix.) referred to when he wrote "meaning grows from our visceral connections to life and the bodily conditions of life... the bodily sources of meaning". Such meanings are embodied, visceral elements to our everyday being and they exist at a subconscious level; we act them out without a conscious perception whether prompted by internal or external triggers. Such embodied infrastructures are set constructs and are rarely challenged or revised in life. Pioneering pragmatist John Dewey thinks that 'esthetic experiences' retain the potential to do so. He illuminates this as following:

...experience become conscious, a matter of perception, only when meanings enter it that are derived from prior experiences. Imagination is the only getaway through which these meanings can find their way into a presence interaction... (Dewey 2005 [1934] p. 283 -284)

Dewey's viewpoint is that imagination can make us aware of the experience itself; the artist's role, in this sense, is to design with and for the embodied capacity of being and to facilitate a new meaning. Mark Johnson's (2007) insight into visual perception in relation to conscious action provides us with further insight. He explains that the "mechanisms of our vision are not, and cannot be, the focus of our awareness and attention. We are aware of what we see, but not of our seeing". Through Dewey's lens we can interpret that an aesthetic experience allows us to draw our attention to the act of seeing, by which our embodied infrastructure is challenged and their meanings revealed. For example, we may start actively thinking about how we move our eyes, why we look away from bright light or what happens when we excessively focus on any one given point for an extended period of time. These actions are all attached to particular meanings (although not necessarily aesthetic ones) in order to act in the world effectively. Alva Noë (2002) exemplifies the 'paradox of perceptual transparency' through a painter's conflicting desire of depicting the scene that can only make a representation of the room but not able to depict the actual visual perception of the room. Beyond this 'mode of transparency', he explains, there is another option, where we reflect on our experiences through a 'mode of activity' or how things in

the world afford themselves in motion and action. He explains, that the content of an experience is not given all at once — as it is presented on a representational image — but rather, it evolves through 'enaction': an exercise of knowledge through sensorimotor contingency. Like Dewey, Noë emphasises the exclusive nature of aesthetic experiences by confirming that art lends itself to the application of the 'mode of activity'. He illustrates this through sculptures that encourage viewers to actively explore while exposing them to distorted spatial perceptions; another artwork used is a large format portrait that plays with viewer perception by dissolving patterns that reappear in various scales. Dewey, Johnson and Noë refer to experiential artworks that make the experience the subject of the art. These artworks do not attempt to represent experience itself but rather facilitate self-aware explorations and active engagement.

In this respect Naked Experiences are enactive, aesthetic experiences that are designed by an artist with a comprehension for meanings of embodied sensorimotor action. These experiences challenge everyday accounts of life – in which the mode through which we perceive the world is transparent, encouraging actions of the viewer-performer to create a journey of self-exploration. Naked Experiences, with its constantly evolving process, is a significant departure from aesthetic experiences that aim to merely depict. Nigel Thrift's (1996) Non-representational Theory (NRT) provides further insight into the characteristics of just such a 'self-aware experience'. He explains the human body and its interaction within the world as an evolving distribution of different hybrids that constantly provide emergent capacities to act and interact. For Thrift representational accounts of existence are merely a mode of presentation that disregard the embodied and open-ended processes of life. Challenging this dogma within Human Geography Thrift proposes a holistic knowledge production practice that enacts life to understand it. NRT emphasises the pre-cognitive aspect of embodied life and gives importance to the subconscious actions that are 'practices of subjectification'. These practices are the results of a series of irretrievable and indeterminate events that form performative manifestations of the world. Performativity refers to iterability of visceral action, "…pure forces, dynamic lines in space with act intermediary upon the spirit… gestures which develops before organised bodies…" (Deleuze 1994 p.10) that facilitate chance to happen. It is a conscious and continuous enactment of the present moment and its uncertain happenings that lead to transformative experiences. These practices for Thrift (2007 p. 8) are "material bodies of work or styles that have gained enough stability over time, through, for example, the establishment of corporeal routines and specialized devices, to reproduce themselves". In other words actions become part of the embodied infrastructure and not temporary. Artworks usually present a temporary infrastructure, simply because they do not have the chance to provide a long-term facilitation of the experience to become habitual.

Naked Experiences go beyond the representational view of the making of art and challenging the established forms of meaning creation. It introduces a body-centric approach that intends to recreate the dynamic characteristics of life by making the experience the core focus of aesthetics. Similar to Thrift's paradigm change in Geography, Naked Experiences aim to strip off aesthetic values from social, political and cultural constructs and grounds them in Human Ontology. With this the desire is to move back to the very basic questions of what the inherent characteristics of an aesthetic experience are or how aesthetic pleasure may be located in the vascular structures. Naked Experiences embraces performativity, constructs of actions in space and time that facilitate irretrievable and indeterminate events with productive and transformative knowledge production. Instead of non-representations, Naked Experiences create 'performative presentations' (Anderson and Harrison 2010) of a Human Ontology; they are deeply rooted in the intrinsic, biological body ('Body One', Don Ihde 2002) but they also offer a new insight into how to see the socially and culturally manufactured constructions of the

body differently ('Body Two', Don Ihde 2002). It is suggested that designing for such experiences can provide a valuable proposition to aesthetics that struggled to find a cohesive answer to technology in art.

Somaesthetics by Richard Shusterman builds on pragmatist traditions (like Dewey) and is concerned with the "critical, meliorative study of the experience and use of one's body as a locus of sensory-aesthetic appreciation (aesthesis) and creative self-fashioning' (Shusterman 2014 p. 302). Shusterman's claim is focused on the pleasure within the body; a visceral experience whilst perceiving beauty and not purely the perceived representation. He claims that somaaesthetics is to 'correct the actual functional performance of our senses by an improved direction of one's body since the senses belong to and are conditioned by the soma.' (2014 p. 302). Somaesthetics' focal interest is self-knowledge rather than knowledge of worldly facts. It is not only concerned with the body as an external form (representational pragmatic somaaesthetics) but also with the lived experience itself (experiential pragmatic somaaesthetics); it works to improve the awareness of our body, its states, our changes modes and lasting attitudes. It focuses on the "aesthetic quality of its "inner" experience" and "to make the quality of our experience more satisfyingly rich, but also to make our awareness of the somatic experience more acute and perceptive." (Shusterman 2014 p. 305). A significant contribution that somaaesthetics can bring to Naked Experiences is the understanding that the conscious versus subconscious bodily action can create meaning and how these are interconnected. By exploring similar ideas to Dewey's esthetic experience Shusterman (2012 p. 91) introduces "embodied implicit memory that unconsciously helps us perform various motor tasks we have somehow learned through habitation" (earlier we referred to this as sensory-motor coupling). He sees this memory not merely as an uneducated body reflex but as a skilful intelligence that has the capacity to step into the foreground for critical reflection and possible reconstruction to become a conscious part of our experience.

In general our attention is habitually directed to the world. Like Noë's notion of the paradox of perceptual transparency Shusterman concludes that full transparency of our actions is impossible and unnecessary. He goes on to argue that fluidity between the implicit (conscious) and explicit (unconscious), the ability to bring our unconscious to the foreground of our own perception is highly desirable as it facilitates mindfulness with the ability of enhanced enjoyment and awareness of our feelings. Shusterman's somaaesthetic awareness or 'intelligently focused somatic introspection' does bear similar characteristics to Noë's mode of activity; both of them concern themselves with a skilful perceptual activity, a choice of attention in action. Shusterman exemplifies such fluidity with the pianist who plays with spontaneity but has an aesthetic sensitivity of mindfulness. He explains that most of us however are unaware of habitual modes of bodily behavior and that inhibitory power is needed to break our habits of attending other things; this is simply because the hardest thing to attend to is what is closest to ourselves and constantly presented to us. Earlier Dewey explained that such a break might be facilitated through imagination when meaning enters into the presence, making us attend the action as it is evolving. Naked Experiences in this sense facilitate a break with our somatic habits, exercises critical reflection, makes an effort to implement changes and reconstruct our actions, or as Shusterman refers to them, positive actions. Naked Experiences are systematic somatic reflections, a mastery of inhibitory control; the results are a constant learning process and somatic adjustment achieving critically focused awareness.

In conclusion, Naked Experiences are body-centric comprehensions of aesthetic experience. They present a unique proposition in the way that they consider the body as an aesthetic platform to understand what it means to be human. Its central philosophical arena is Human Ontology and the understanding of human aesthetic pleasure as it reveals itself through the visceral intrinsic capacity. Embodiment through Somaaesthetics, Dewey's pragmatist

aesthetics, Non-representational Theory, and views of Embodied Cognition provide rich, multifaceted insights into the phenomenology of Naked Experiences. They explain how natural dimensions of experience of being in the world facilitate a priory action capacity of the viewer-performer that if attended through imaginative rationality creates embodied subjectification and focused somatic introspection. A break from old visceral meanings and habits expedited through bringing the unconscious to the foreground and making viewers aware of the actual act of perceiving provides them with an opportunity to enact new meanings. The method to create Naked Experiences is (i) performativity as an act of repetition (often simple movements) and (ii) performativity as enabling chance through irretrievable and indeterminate events; in the experience this can take a variety of forms as disorientation, distorted space and time, perceptual confusion and novel embodied sensations etc. The result is performative presentations; (i) on one hand meanings and routines of the body that for temporary or for long term becomes part of the viewer-performer embodied infrastructure, (ii) on the other hand objects and technologies that are facilitators of an experiential journey. The experience of self-fashioning in Naked Experiences is an active self-exploration and introspection that promises increased mindfulness and enhanced awareness of emergent feelings.

Naked Experiences facilitate an aesthetic turn; altering the experience into the subject of the art. It configures aesthetic experiences as presented in life and constructs the viewer-performer's thought by making him/her enact everyday life and beyond. Naked Experiences re-acquire the intrinsic and a priory of our existence; it provides us with access to a pleasure state residing in our visceral capacity.

Characteristics of Naked Experience:

1. Resides in Human Ontology.
2. Makes the experience of the subject of art.
3. Breaks habitual modes and visceral meaning of the bodily.
4. It is a `practice of embodied subjectification'.
5. Facilitates `intelligently focused somatic introspection' through self-fashioning.
6. Creates `performative presentations'.
7. A `mode of activity': making viewers fully aware of the actual act of perceiving
8. Facilitates mindfulness, enhanced enjoyment and awareness of our feelings.

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THE BODY IN DIALOGUE WITH ITSELF.

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Nam June Paik's TV Buddha [1974] has been locked in silent philosophical dialogue with itself now for forty years; a contemplative and phenomenological struggle with the digital image of its (em)bodied self. This exhibition, Data Bodies as Artifact, picks up on the digital flavour of Paik's seminal installation, a work that pre-empted the paradigm shift in the dilemma of the body: the body as data. In the ancient Indian parable of the Buddha, Siddhartha Gautama, then a pampered prince, grew possessed by the corporeal problem of his body. In frustration and concern, Gautama took to starving, denying, and resisting his body – at once for love and scorn of its fleeting mortal plight. It was the subsistence and decay of his body and those bodies surrounding him – the sick, the old and the lifeless – which spurred his desire to break free from its corporeal shackles. Paik's work pays homage to the apocryphal tale of Siddhartha Gautama and serves as an updated version of it – to provide contemplative ataraxia for the body-anxieties borne out of the digital age.

From the genetic encoding of our DNA to the digital transmission and replication of culture our very existence is mediated by fields and bodies of data. Our physical bodies; mobile Carbon-based, bipedal structures; serve as the phenomenal centre of consciousness. We experience and perceive our immediate environment via the sensorial equipment folded into the infrastructure of our nervous systems which render conceivable the very fact of our material selves. Of course our DNA-self - or the preconscious information architecture that we biologically 'unzip' from - just like the digital feelers we extend into cyberspace - are not directly equipped with the sensory apparati that inform and coordinate consciousness we associate as "us". This is to say that while the information and technologies via which we extend ourselves out into the universe are not possessed of consciousness per se, they do form and perform processes fundamental in the emergence and curation of what we project of ourselves into material universe. But in the age of information the transmission of consciousness is now no longer an exclusively material procedure.

Paper and canvas are compostable bi-products and indexes of the anxiety of our em-bodied sentience; a biological compostability we share with these materials. For this reason the perishability of material culture warrants it the same anxious safeguarding we provide those physical bodies, ours, that produce them. We lock the most precious examples of our material artifice away in troves, safely stored in underground vaults where they are maintained by the doting and patient hands of restorationists; apothecaries of material culture. Digital "matter" is bereft, nearly completely so, of the resonance of an object's unique trajectory through history and in space - what Benjamin dubbed the "aura". The digital, in this respect, makes the half-life of stone, from which many civilisations have cast their greatest monuments, appear fleeting and temporary for all its ability to resist the ravages of time and entropic energy. Intelligent bodies of robust metal; the cyborg, pales before intelligent bodies of immortalised data.

Social media has rendered digital those haptic and phatic exchanges which once constituted a dialogue spoken by and between our physical bodies. Oral transmission of history and culture, once the exclusive medium of human cultural exchange. Historically, human civilisations have been compelled to transgress the socio-cultural plateau imposed by the biological limitations of the body. Kings and

emperors of early human societies quickly learned that proliferating images that represented their reign were more effective than dispatching soldiers in reiterating and reinforcing political power. Now, possessed of the capacity for immediate, replication of socio-cultural data, digital communities and societies can be forged instantaneously and largely outside the sovereignty of nation-states. Similarly the digitisation of individual material expression means that the art of the self-image, whether literary or pictorial, is largely free from the burden phatic expression. The art of self-imagery or the phenomenal desire to present ourselves to ourselves, finds its new limit effectively in the maximum speed with which light can travel.

The forces of globalisation whose reign has structured the world of the 21st century have effectively terraformed the physical geography of our planet, for better or worse, so as to best yield to the neo-liberal demands of global capital. In this context questions inevitably arise as to the extent of the privatisation of data-space, and by extension our own data-bodies, given the near-total sovereignty of capitalism. As it was first emerging, the internet was heralded as a digital haven of democracy; unfettered by the terrestrial politics that have defined the violent histories of nations and cultures. On the one hand online infrastructure has allowed for grass-roots political movements to circumvent governmental and institutional controls and thus blossom in the safety of collective anonymity in unprecedented fashion – as we have seen in the hacktivist collective Anonymous, and in the so-called Arab Spring. On the other hand the commodification of digital real-estate has rapidly encroached on nearly all forums of digital community. Virtual billboards interrupt the perambulation of our data-bodies often with a frequency and intensity unparalleled in physical space. These interests do not only disturb our movements through cyber-space but rewrite the very parameters of our digital environment.

Our digitally-expressed selves are unceasingly scrutinised; our behaviour tracked and logged and surveyed by national, commercial and criminal interests. Our data-bodies are thus condensed into algorithms of confected simplicity – like the mirrors in department store change-rooms which insidiously gloss over the little details. Our data-bodies are duplicated as extensively as possible, often without our knowledge, which are then artificially flavoured, before being fed back to us. Google's search algorithms are tailored to each unique data-body, and will include or omit certain information based on its familiarity with that body; a body it helps to shape in the first place. Thus a new anxiety emerges over body autonomy and sovereignty when we consider the collapse of the data-body into the folds of intelligent networks – which serve to produce rather than guide our data-bodies.

The data-body is the latest in the legacy of our material desire for self-imagery. This is true not merely of bodies per se but of national, imperial and cultural systems whose very existence and subsistence is predicated on material production. The historical emergence of complex writing for example (the mapping of speech to matter) allowed for the reproduction and dissemination of legal and religious codes and doctrines both physically and conceptually extricated from the site of the body. Furthermore, the prestige and power of oral-transmission was greatly overshadowed before the cold and disembodied authority of the written word. This is not least because writing brought with it new possibilities for co-opting cultural territory. Like the robotic stoicism of Daenarys' army of "unsullied" or contemporary terror of drone warfare – the writing of empire draws as much authority from the political power wielding it as it does from its fundamental inhumanity; its indifference to resistance and threats directed to the physical body. These lexical marks serve as easy-to-install sentries – policing and redefining the nature of cultural borders.

Now, however, with the digitisation and light-speed transmission of visual language, the material distinction between writing and speaking has largely dissipated before a new socio-cultural division rent down the line of digital and analogue. Anxieties have

emerged around phatic encounters by virtue of the naturalisation of the safer modality of written exchange. These disembodied textual exchanges limit nearly totally the possibility of indexing the organic fluctuations of the body (the trace of which is carried in with speech). Digitally broadcast lines of encoded text serve to tether individual IP addresses and unique mobile numbers into global and extra-terrestrial networks of non-phatic exchange. Unparalleled in terms of speed and frequency and reach, digital communication ignores nearly entirely the social limits imposed by physical geography and is shielded more effectively from the whims of our planet's meteorological behaviour. Telephonic devices, by virtue of this anxiety concerned with phatic exchange, are no longer purely a technology for mediating and extending (beyond the capacity of our lungs) the phatic transmission of organic speech. Indeed as telephonic devices adapt to the complex photographic-lexical fabric of social network culture their facilitation of the phatic/spoken word is receding as their exclusive function.

Within the paradigm of exclusively oral cultures, sovereign "borders" of bodies were defined only by sonic-linguistic constraints and the physical parameters of the body-cum-instrument; messengers, envoys, bards, runners, etc. But in the digital age we inhabit a social-cyber space which is effectively without limit and within which the significance of our 'selves' is expressed not through the biological production of speech but through streams of digital data. Thus the sluggishness of phatic expression is here supplanted by immediate transmission and circulation of digital expression. Our digital bodies are amorphous, irregular and drift freely out and into virtual spaces that cannot be transgressed by our material selves. These expanded bodies do exist in physical space – flung through fibre-optic cables and into nerve-centres of online servers, but. In this bio-digital paradigm our bodies have become inverted, like great icebergs impossibly overturned. We inhabit the trans-digital frontier, comfortable amidst the great visible masses of digitised expatiation which remind us that we are still in and amongst other bodies, albeit of a different breed. Into prodigious and yet strange, virtual collectives (social networks) we heap troves of lexical and photographic data. Every tweet, update, like, listing, bio and comment we upload extends out in some small part the micro-empire of the digital "I".

Like Paik anticipated forty years ago, the contemporary question of digital embodiment has forced a paradigm shift in thinking; has spurred a myriad of creative re-imaginings of the relationship between data, bodies, politics and consciousness. The Data Body and Artifact exhibition brings together a range of such reflections and contemporary experimental works which deal with the problem of the augmented body in the digital age.

UNCANNY DESIRES / LIMINAL SPACES: ZOMBIES, CYBORGS, HYBRIDS & HUMANOIDS

Stelarc

In this age of body hacking, gene mapping, prosthetic augmentation, organ swapping, face transplants and gender reassignments, what it means to be other and what generates aliveness and affect becomes problematic. Contemporary chimeras of meat, metal and code mesh into unexpected hybrid systems. As interface, the skin is obsolete. The significance of the cyber may well reside in the act of the body shedding its skin. Subjectively, the body experiences itself as a more extruded system, rather than an enclosed structure. The self becomes situated beyond the skin. It is partly through this extrusion that the body becomes empty. But this radical emptiness is not through a lack but rather through excess - from the extrusion and extension of its capabilities, its proliferating sensory antennae and its increasingly remote functioning. This is the age of Circulating Flesh, Fractal Flesh and Phantom Flesh. A time of extreme absence and alien experience. Of bodies performing in remote spaces with split physiologies and multiple agencies, where bodies are simultaneously possessed and performing. Bodies are inadequate, empty, involuntary, and absent to their agency. We are living in an age of excess and indifference. Of prosthetic augmentation and extended operational systems. An age of Organs Without Bodies, of organs awaiting bodies. Cadavers can be preserved forever with plastination whilst comatose bodies can be sustained indefinitely on life-support systems, whilst cryogenically suspended bodies await reanimation at some imagined future. The dead, the near-dead, the un-dead and the yet to be born now exist simultaneously. This is the time of the Cadaver, the Comatose and the Chimera. Of Zombies, Cyborgs, Hybrids and Humanoids. The uncanny and the creepy proliferate. Being neither one nor the other, being neither here nor there, but partly present and mostly absent. The body is profoundly obsolete. The body has become merely a floating signifier.

Flesh circulates incessantly. Body fluids and body parts have been preserved and are commodified. The blood flowing through my body today may be flowing in your body tomorrow (if you are O+). Organs are extracted from one body and are implanted into another body. Ova that have been harvested can be fertilized by sperm that was once frozen. Limbs that are amputated from a dead body can be reattached and reanimated on a living body. Faces can be exchanged. A face from a cadaver stitched to the skull of the recipient becomes a third face, no longer resembling the face of the donor. A more robust and reliable twin turbine heart circulates the blood continuously, without pulsing. In the near future, you might place your head against your loved one's chest. He may be warm to the touch, he may be breathing, he is speaking, he is certainly alive- but he has no hearbeat. We no longer die biological deaths. We die when our life-support systems are switched off.

Until we can engineer, stem-cell grow or bio-print a teratoma-like lump of living tissue whose skin is slimy, whose muscles are twitching, whose orifices are sighing- and we can caress and probe it, if we can do that we will have a more potent artwork that interrogates what it means to be alive and what it means to be human. There is now a proliferating of liminal spaces where bodies are blurring. For bio-art, robotics or virtual entities to display aliveness, they need to be embodied and interactive (responsive and expressive). To engineer alternate anatomical architectures and actions. What a body is and how a body operates and what constitutes its aliveness, is no longer clear with the proliferation AI

and AL. Genetic modification and machine augmentation produce the monstrous. Once a liminal body, the monster is now common-place, being manufactured and multiplied. We are now populated by Cyborg and Zombie bodies, becoming increasingly automated and involuntary. A Cyborg is a hybrid human-machine system, a Zombie has no mind of its own and performs involuntarily. We fear the involuntary and are anxious about becoming automated. But we fear what we have always been and what we have already become. Cyborgs and Zombies. There will be no Singularity, only a multiplicity of contestable futures that can be examined and evaluated, possibly appropriated but most likely discarded. There is already a proliferation of competing Cyborg constructs. Manga and military Cyborg bodies massively extended by exoskeleton machinery are only one possibility. All technology in the future might, on the other hand, be invisible because it is inside the body- the body as a host for nano-recolonization of its interior. More surveillance is needed, but not of public spaces. Internal medical surveillance of the body needs to be implemented and nano-sensors and nano-bots need to be deployed. But perhaps the age of the post-human may not be in the realm of bodies and machines but rather in the realm of viral entities sustained in electronic media and the World Wide Web. These interactive and operational viral codes may be embodied as images. Bodies and machines are ponderous. They have to operate in gravity, with weight and friction. Images operate at the speed of light. They perform smoothly and seamlessly. Bodies are ephemeral, images are immortal. Avatars have no organs. Issues of identity and alternate, intimate and involuntary experiences of the body, as well as the telematic scaling of experience, become more potent. Technology is inserted and contained. The body is invaded, augmented and extended. Virtual-Actual interfaces enable the body to perform in electronic spaces. What becomes important is not merely the body's identity, but its connectivity- not its mobility or location, but its interface.

The body is now operating with extruded and interconnected selves. A body that is possessed by remote agents. The schizo-body becomes a split body. Bodies will become portals for people in other places, neither bounded by their skin nor the local space that they inhabit. Imagine seeing with the eyes of someone in London, whilst hearing with the ears of someone in New York, whilst someone in Tokyo is initiating a task with your left arm and you are completing the task with your right arm, situated in Perth. Your sensory perceptions and motor actions generate an experience of being an extended operational system. Everyone will be in at least two places at once. Being a single agent, located in only one place and performing purely as a biological body is inadequate. Seeing, speaking and moving one body sequentially- or multiple bodies simultaneously. With immediate and adequate feedback loops, bodies collapse into an electronic screen of sensory and physical experience- an electronic screen that has both optical and haptic thickness. Fractal Flesh proliferates, Phantom Flesh becomes potent. Contestable futures are engineered and interrogated. Uncanny desires / liminal spaces.

BIOLOGICAL/BIOPOLITICAL SURVEILLANCE

Heather Dewey-Hagborg

Surveillance is essential to biopower through its production of visible, quantifiable, and ultimately "knowable" subjects. By keeping a classifying eye on the whole population, outliers along the 'normal curve' can be spotted and adjusted accordingly through normalization – ideally prior to the occurrence of deviant activity. Biopower is exercised through the production of knowable subjects who reinforce this power through their participation in making themselves knowable, and exercising the power/knowledge constructed about others.

Foucault noted that the shift to a biopolitical society was also a shift to a society of security.[1] Security is a set of biopolitical technologies that are used to maintain social equilibrium. The dispositif of security operates statistically, calculating the costs and benefits of actions as instances in a series of probable events.[2] Security is the exercise of biopower to maintain the population. It is the management of uncertainty through the production of probabilities to reign in outliers and to maximize efficiency. The secure society tolerates a certain amount of crime for example, a certain amount of sickness, and a certain amount of inefficiency. The key, Foucault says, is to regulate this deviance "within socially and economically acceptable limits and around an average that will be considered as optimal for a given social functioning."[3] Security is the apparent guarantee that the population as a whole will be made to live, kept healthy and productive, with those let to die confined to the footnotes and classified as collateral damage:

"But we will have an absolutely fundamental caesura between a level that is pertinent for the government's economic-political action, and this is the level of the population, and a different level, which will be that of the series, the multiplicity of individuals, who will not be pertinent, or rather who will only be pertinent to the extent that, properly managed, maintained, and encouraged, it will make possible what one wants to obtain at the level that is pertinent. The multiplicity of individuals is no longer pertinent, the population is."[4]

In Surveillance as Biopower Ayse Ceyhan describes surveillance as a "political technology of population management."[5] The security apparatus depends on surveillance to generate the data by which uncertainty can be mitigated. Population behavior is quantified and their future trajectories plotted; tracking informs the models, forecasts, and predictions essential to security and the biopolitical society.

In a statistical regime the individual is significant only as a data point, identified, quantified, and plotted on innumerable social graphs. This is the real promise of 'big data,' to make the individual increasingly knowable, increasingly predictable. The more evidence that becomes available to biopower, the easier it is for algorithms to model behavior and forecast future outcomes.[6]

As Ceyhan points out, today biopower is not concentrated in the state, which so often was the focus of Foucault's analysis, but rather is deterritorialized, circulating in global and local flows between corporations, governments, and populations, all of whom are oriented toward the neoliberal aims of efficiency, market stability, and economic growth.[7]

Within this broad perspective, biological surveillance is that subset of surveillance

technologies that take as their explicit aim the rendering of the physical body into data. As I describe in my introduction to a collaborative website devoted to the topic:
"Biological surveillance is the means by which biological science is used to track, monitor, analyze, and turn bodies into data. It is the extraction of DNA and microbes from our skin, nails, hair and body fluids. It is the analysis of identifying body parts like faces, fingerprints and irises. It is the tracking of life itself by body heat, pulse, perspiration, and involuntary movement."[8]

It is the technology by which bodies are made visible to the quantitative machinery of biopower, and through which they become known.

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1. Michel Foucault et al., Security, Territory, Population: Lectures at the Collège de France 1977--1978, ed. Michel Senellart, trans. Graham Burchell (UK: Palgrave Macmillan, 2009), 25.
2. Ibid., 20.
3. Ibid.
4. Ibid., 64.
5. Ayse Ceyhan, "Surveillance as Biopower," in Routledge Handbook of Surveillance Studies, ed. Kirstie Ball, Kevin Haggerty, and David Lyon, Reprint edition (London: Routledge, 2014), 40.
6. "FUTURE MAP," Continental Drift, accessed July 20, 2015, https://brianholmes.wordpress.com/2007/09/09/future-map/.
7. Ceyhan, "Surveillance as Biopower," 38–39.
8. Heather Dewey-Hagborg, "Biononymous.me," 2015, http://biononymous.me/.

ARTIST PANELS

Panel 1. Bodies of Matter

13:30 - 15:30 on 30 September 2015
Moderator: Julian Stadon and Jorge Ramirez
Participants: Adam Zaretski, Stelarc, Heather, Chris Henshke, Joëlle Bitton, Marios Athanasiou

Panel 2. Matters of Embodiment

15:50 - 17:50 on 30 September 2015
Moderator: Julian Stadon and Jorge Ramirez
Participants: Dewey-Hagborg, Nick Briz, Brannon Dorsey, Julian Oliver, Cesar Escudero Andaluz

These two panels see the more discursive side to the Data Body as Artifact Exhibition at The Fukuoka City Museum for ISMAR2015. These panels seek to discuss the respective works in the exhibition through the voices of the artists themselves, along with several directed inquiries into the topics related to the exhibition. Such topics include embodiment, embodied data, data bodies, bodies of matter, object orientated ontologies, mixed reality art, sensory augmentation as medium, postbiological identity, biopolitics, trans-everything and so one. The panels will consist of a combination of artistic overviews of individual works and curatorial responses to them, along with open dialogues and audience initiated discussions. In some case videos will be shown as catalysts for stimulating more in depth explorations of the conceptual components to such a body of innovative and challenging investigations. The works were selected according to a number of parameters, two of which being Bodies of Matter and Matters of Embodiment (within data augmentations in mixed reality artworks). The artists have been distributed along these paradigms in order to develop an artist panel program that is both focused yet productively expansive. The first panel, Bodies of Matter, focuses on the works in the exhibition that explore the archiving of post-biological identity, and the data bodies that in particular connect directly with bodies of matter, be they human, non-human biological, inherently codified, expansively micro/macro based, trans-disciplinary/ real/ human/ augmented/ environmental/media/ topological/ everything. How do we negotiate such new novel spaces of society? How do we even define such spaces? This panel gathers experts from this method of inquiry together in order to answer such queries and speculations. The second panel, Matters of Embodiment, explores the more subtle aspects to Data Body Archiving, Meta Data Creation and Meta Narratives, Surveillance, Signification of Arbitrary Signifiers, Cultural Remix, Obfuscation, Sous-veillance, Autonomy and Situational Cartography. This panel will adopt a post-digital approach to referencing bodies of matter in regards to the long history of self-representation, with particular focus on today's contemporary scope of understanding in this field. Both Panels sit in-between the opening of the exhibition and the main MASHD'D Program of ISMAR. This is an important conceptual positioning within the context of the program and these two panels seek to best utilise the content of the exhibition program and those who contributed to it's construction in as a productive fashion as possible.

Panel 3. Contextual Engineering

15:50 - 17:50 on 1 October 2015
Moderator: Carl Smith
Participants: Masahiko Inami, Adrian David Cheok (tbc), Jack King, Mark Farid, Daniel Pinchbeck, and Luke Mason

This panel session on Contextual Engineering will investigate hybrid technologies and techniques that combine the affordances of the analogue with the digital to enable a new era of Hyper Function, Sensory Augmentation and Perceptual Adaptation. Context Engineering will give us new abilities, control over our senses and the ability to develop new forms of perception, providing us with a new type of self-control. HCI that relies predominantly on vision alone or the engagement of a limited range of senses can cause individual (and by implication - societal) dissonance creating a diminished rather than an augmented reality. To counteract this, making more of the context available for human centred augmentation is crucial.

Context engineering creates a new economy where we focus less on transforming content (as the primary activity), and more on how we can make our own perception the 'content'. This is made possible by new advances in various fields including biotech, neuro-electronics and mixed reality technologies meaning that the lenses through which we experience the world are becoming more adjustable than ever. Products are being developed to intentionally manipulate various components of our own physiology. For instance f.lux modifies the computer's display colour wavelength to shift with the natural external light, reducing potential circadian rhythm problems that can develop from using devices at night. These subtle shifts can produce real changes in our bodies. hether there is an inherent self. To do this a subject will wear a virtual reality headset seeing, hearing and replicating the experiences of the other from first person point of view for 24 hours a day, for 28 days. Crucially to immerse himself further into the context where identity may be subverted the subject will simultaneously do whatever 'the other' does.

Questions to be addressed:
How adaptable is our perception? How neuroplastic is the brain? What are the biological risks? How can hybrid technological devices, of often-prosthetic alienation, help us to reconnect to ourselves and to the surrounding environment? How can we find an appropriate balance in this hybrid environment? How can we draw a structure, ethics and sustainability of interdisciplinary hybrid unification?

Panel 4. Experiencing AR in Public Environments

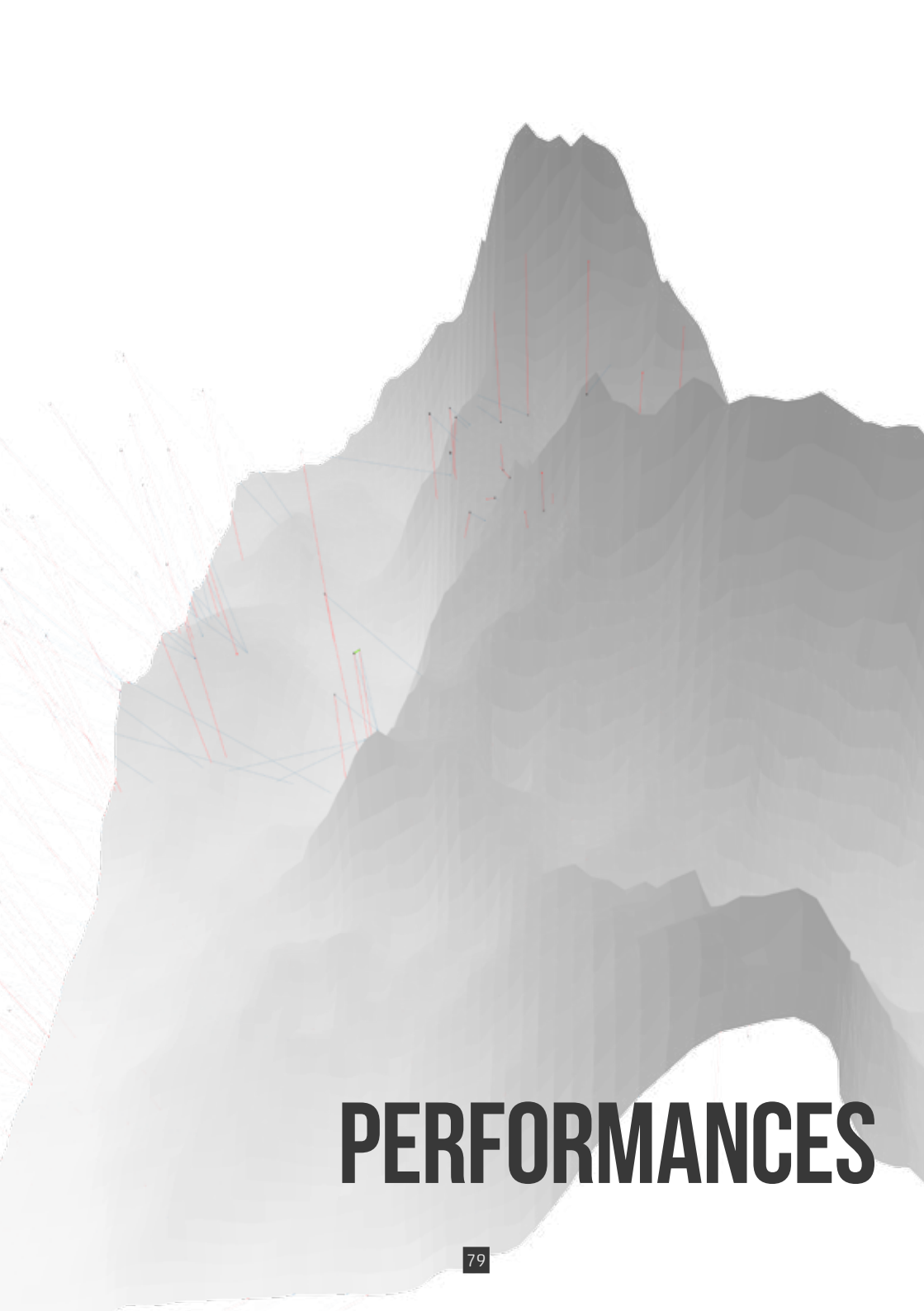
10:45 - 12:15 on 2 October 2015
Moderator: Ian Gwilt
Participants: Mark Billinghurst, Julian Oliver, BC Bierman (via skype), Shannon Novak, Lu Weiquan, Ian Gwilt

Abstract: Moving AR into a shared public domain we reveal a set of theoretical, philosophical and practical considerations that come into play when people are invited to interact with AR content on hand-held mobile devices. In this panel we will discuss the cultural experience of AR; how do we signal the presence of AR content in a public space? What are the responsibilities for AR artists and producers, public authorities and cultural institutions, in respect to how we make, access, and consume creative AR content? Are there ethical, ownership or operational issues and tensions between the desires of the AR author/producer, commissioners and public bodies, and the expectations of the general public?
The panel members will discuss AR in museums, street art, and outdoor social/ cultural contexts and will examine how the creative use of AR might enliven physical locations, add interest or intrigue, and play with notions of time, place and space.

Panel 5. 5th Anniversary MARart Aesthetics Panel: Bodies, Embodiment and Data Aesthetics

13:30 - 15:30 on 2 October 2015
Moderator: Julian Stadon
Participants: Nick Briz, Heather Dewey Hagborg, Chris Henshke, Adam Zaretski, Joelle Bitton, Cesar Escudero Andaluz, Carl Smith

This panel sees the 5th installment of of the Mixed and Reality Art Aesthetics Session. Since the first panel discussion @ISMAR 2010 in Seoul, this ongoing series of discussions have sought to explore the new aesthetic properties that mixed reality art, as a medium can and has produced. The panel sees the convergence of artists, theorists and academics under a framework of representation methods and their affects. Previous panels explored codification, mixed reality art as a medium, remediation through such mediums, ontologies beyond paradigms, innovation and avant-garde, surface and reality, along with an infinite number of expansive nodes relating to such a discourse. How, in this age of image expansion, meaning flattening, delivery acceleration and environmental destruction do we, as humans, negotiate handling aftermaths of such phenomena as post-digital culture, the Anthropocene and new wave identity construction, participation and proliferation? In culture this can come with hierarchal intervention, or it can be purely social, as is the inherent quality of articulation through artistic endeavour. Mixed reality Artists Offer a unique insight to matters relating to how we develop audiovisual response to our ever-evolving spatio-cultural spaces in which we colonise and inhabitant? Through a series of impulse points and pragmatic moderator initiated comments on certain prevalent topics, panelists will offer unique insights into particular topics, from a range of subjective inquiries into this field. This panel aims to build on previous years, with the purpose of continually expanding perceptions of mixed reality aesthetics in regards to certain frameworks.



PERFORMANCES

PERFORMANCE PROGRAM

Overview

This year sees for the first time at ISMAR, a performance program, facilitated by MARart.org. This consists of 2 main performances, Data Body as Performance and Algorave (which is in fact the premiere performance of what will be the first ever Algorave tour of Japan). Both performances consist of a range of acts that use data explicitly within the production of audio and visual outputs. This ranges from pure live coded audio, to remediated weather data in patched audiovisual environments. The performances seek to both compliments the exhibition, along with providing revolutionary approached to live performance in traditional art spaces. The artists performing come from a range of different backgrounds and disciplines, including architecture, art, audio engineering, design, biological science and computer science, also coming from a range of nationalities, including Australian, Austrian, Mexican, American, German, Argentinian and Japanese.

APNOA

www.apnoa.com

Chris Henschke

www.henschke.anat.org.au

Smell in Stereo

www.soundcloud.com/jorge-ramirez

Renick Bell

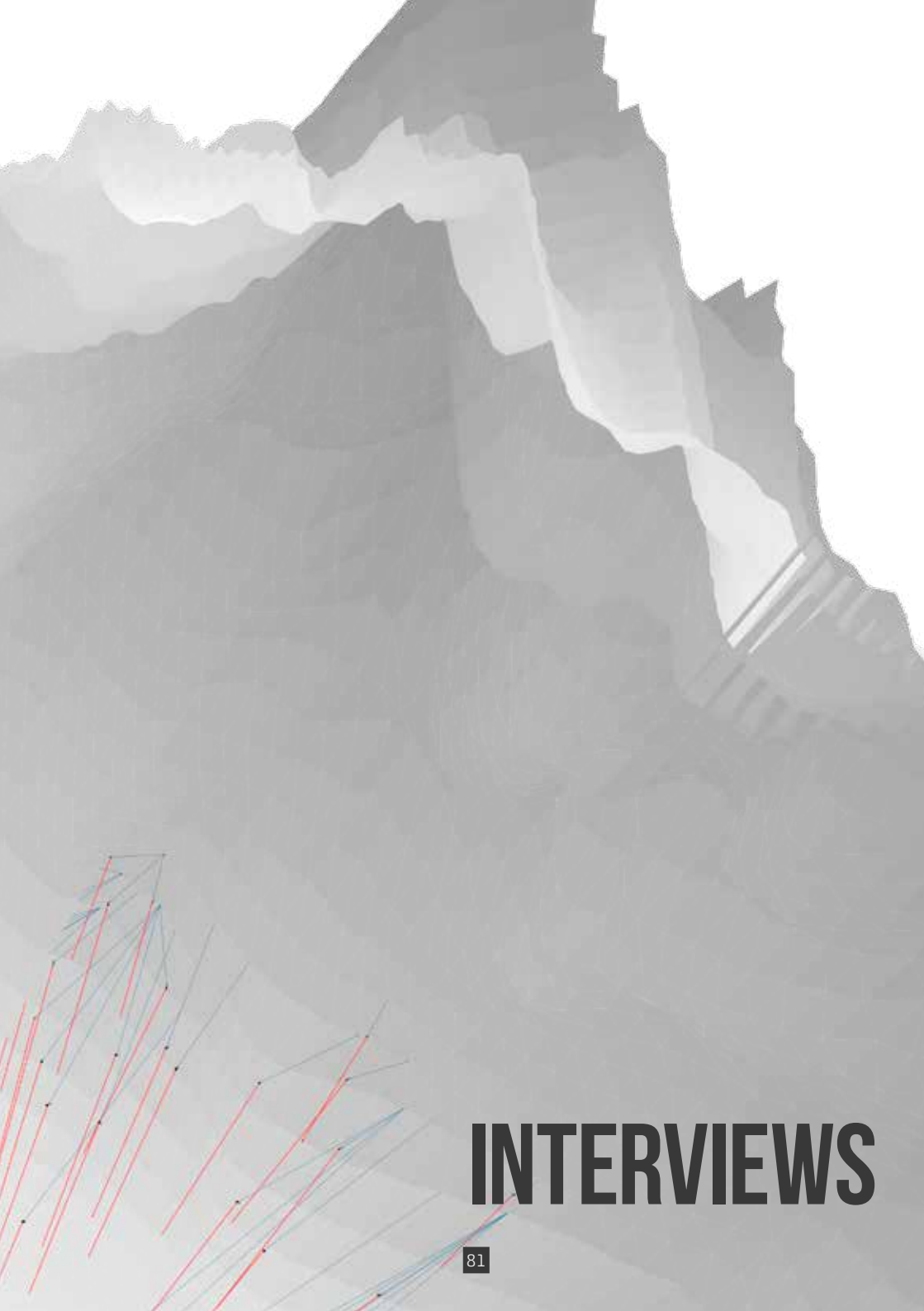
www.renickbell.net

Swan Panda

www.julianstadon.net

Janosch

www.stereofreezed.at



INTERVIEWS

Cesar Escudero Andaluz

What is the role of the body in your work?
According to our anatomy our body is a prisoner of interfaces, which are not yet developed. Interfight is based on capacitive object tracking. Made of conductive material, works by taking the human body capacitance as input through a capacitive sensor or surfaces like trackpads and touchscreens. Somehow they are an extension of our bodies.

How do you think data transformed the notion of the body? How would you describe the experience of embodiment in your work?
Into a concrete context, data can be used in order to interact or modify the human perception (thoughts) through facts or and experiences. Interfight works in opposite direction, taking the position and acting instead of the human body as an autonomous agent. In Social-networks replaces the human decisions creating random data.

What inspires your work?
Always a critical feeling, I think that the users are entitled to know what the interface hides. Access to knowledge is a fundamental right.

What ideas (of the body) are you exploring at the moment?
In early projects as File_món (series of images generated on the computer desktop through the distribution of icons and files arranged over images extracted from the internet), the human shape is covered and censured for icons and folders that I use in my daily life. File_món is talking about the information beyond the people, the lack of affinity between viewer and referents, the insensitivity to the events and disasters.

How does the datafication of the body and identity affect our understandings of ownership and authorship, both in society and within art practice?
We can understand technology and the Internet as an extension of our nervous system, the datafication of our body as the datafication of our decisions. That makes sense in the social networks, where we make public some aspects of our life, our movements and wishes. An artistic example can be Tape_book, project developed in 2013. It involves the conversion of data, which are extracted from social networks into audio documents. They are recorded on cassettes.
Tapebook takes the information directly from the GUI, alters the rhizomatic (root-likes) structure of the hypertext and converts it into linear sequence of sounds. The user is able to select and listen to recordings made from the text of philosophers, artists and writers who talk about media art in their profiles.
Tape_book is an archive of decisions, movements and wishes extracted without permission, but in a public sphere where concepts as ownership and authorship tend to disappear.
If something can be measured then in all likelihood a vast archive of data is already being compiled, Ben Grosser with his work, Demetricator, plugin for Face-book, deletes all the numbers from the social network, pointing out the importance for our society to take measures.

Marios Athanasiou

What ideas (of the body) are you exploring at the moment?
I am interested into the effects of digital technology and communications on the human body and identity. As the Internet is now deeply embedded in society it is allowing us to be at multiple places at the same time and to constantly switch between different digital identities. It is allowing us to expand our consciousness by absorbing unlimited amounts of information. It is slowly bringing us together to form an Internet Gaia, a universal proto-consciousness.

What is next for data bodies, embodiment and bodies of matter?
The more we absorb digital technologies and communications into our bodies and embed them into our consciousness, the more we will dissolve from singular identities and bodies into the ether of a proto-consciousness experience. This expansion will eventually dissolve the surface of the ego into one universal body. At that point we

will have reached the Omega Point, which according to French Jesuit priest Pierre Teilhard de Chardin "is the purported maximum level of complexity and consciousness towards which some believe the universe is evolving".

What inspires your work?
My work currently is inspired by similarities between Virtual Reality technologies and Quantum Mechanics. I got interested in quantum mechanics while I was researching current theories of consciousness for one of my previous projects, Omega Point. One of these theories, by Stuart Hameroff and Sir Roger Penrose, states that consciousness exists as quantum information everywhere in the universe; we are merely the receivers of it rather than the creators. Quantum physics presents us with a reality where time and materiality do not exist as we know it. In quantum mechanics an object is just a wave of possibilities until we observe it and it collapses into the actual object we perceive. It is a strange reality that everything that can possibly happen, does happen but we only experience one of these possibilities. Similarly, in the virtual realm, materiality is a perceptual illusion. A virtual object can exist everywhere at once as computer code until we perceive it on our screens as a virtual object. Living in an object-obsessed society I find the way materiality is presented in quantum mechanics and virtual reality fascinating as well as liberating.

Joëlle Bitton

What is the role of the body in your work?
I always saw the body as an interface, a way to gain access to technologies in an intuitive manner. The body in my work is often the medium: whether in the art piece 'Passages' for instance or 'Abstract', the participant uses the body as a 'screen' that hides or shows a content.

How do you think data transformed the notion of the body?
It's not so much a transformation as a translation. A multisimultaneous translation of endless body facts, whether we want to send the body into a virtual space or whether we want to understand our body in terms of machinery. But for now it's the very privileged few who can make real use of that.

How would you describe the experience of embodiment in your work?
My current research at Harvard GSD addresses the notion of interactive fabrication, or the ways that we can use human-based data as parameters for machine control, and in particular fabrication machine control. It's my premise for involving users with fabrication, in a playful, intuitive and emotional manner, such as what an interactive experience implies.

What is next for data bodies, embodiment and bodies of matter?
In the context of my reseach, the focus on the impact of a human interaction at the different stages of the fabrication process enables me to uncover ways that the body can be involved thus reinforcing the user's engagement. It's not just about the materialisation of data but also about the way the user engages its data at the moment it's being materialised. It's acknowledging the possible impact for our collective material culture.

What ideas (of the body) are you exploring at the moment?
I'm exploring the body in its most trivial everyday settings and the poetic traces it leaves.

Branger_Briz & Brannon Dorsey

How do you think data transformed the notion of the body?
Within the systems of capital in his time, Marx said "the worker sinks to the level of a commodity and becomes indeed the most wretched of commodities." [1] The same has become true of the "user" in the datadriven economic/social/political systems of our time. As the saying goes, if it's "free" you're not the customer, you're the product. The relationship our bodies have to labour is similar to our body's relationship to data

(specifically the personal information we generate via our use of and activity on the Internet). Yet we voluntarily offer up (when we "agree" to "terms") the maximum amount of data possible for the most trivial of online services, and because data security is such a low priority for much of the popular software/hardware we use today, it isn't difficult for third parties (think governments and company) to collect and leverage much of the personal data we produce.

We see this datafication of the body as part of a long lineage of significant historical moments which include (if we could be so bold) the introduction of the written word and the HinduArabic number system. These things don't simply change our understanding of the world, they change what it is; they change who we are. The personal data we generate everyday is one of the most valuable currencies today and more so tomorrow. Despite this fact many of us don't really understand what this data is, how it's collected/exchanged and how it's turned into wealth. Sadly, while today's users are akin to yesterday's proletariat , we haven't quite organized the same way.

What inspires your work?
A big impetus behind the work we do is digital literacy, by which we don't mean simply teaching people to code (which is a typical reductive understanding of that term) but rather that we aim to articulate, through a combination of projects and efforts, the intricacies of living in a digital age. Looking at this ecologically , new media and digital technologies aren't simply tools, they're also environments. In "Close to the Machine" Ellen Ullman writes, "I'd like to think that computers are neutral, a tool like any other, a hammer that can build a house or smash a skull. But there is something in the system itself, in the formal logic of programs and data, that recreates the world in its own image (...) we conform to the range of motion the system allows (...) The data prove the need for more data! We think we are creating the system, but the system is also creating us. We build the system, we live in its midst, and we are changed." This relationship and interaction between people and our digital environments is what drives our work—in particular starting conversations on the significant factors (like the datafication mentioned before) which frighteningly go unnoticed.

How does the datafication of the body and identity effect our understandings of ownership and authorship, both in society and within art practice?
The datafication of the body and identity has/ishaving massive effects, though sadly popular understanding of these effects is lacking. A recent Pew Research Center Poll [2] showed that the vast majority of Americans feel it's important to control their data, yet at the same time the vast majority also have little confidence in the way government and corporations are using the data. Still, these same folks willfully and carelessly hand over troves of data. Ultimately, we suspect this boils down to digital illiteracy.

For years the New Media artist collective F.A.T. (Free Art and Technology) was devoted to raising awareness of various political issues inherent in our digital lives, like the agency lost when we don't have control of our datafication. In a "we lost" farewell post, artist and F.A.T. member Evan Roth said about their perceived failed efforts: "Convenience is a hell of a drug, and we are in over our heads." [3] This is true, but we suspect that most folks willing to trade data for convenience really don't understand the sideeffects of that drug, most are digital illiterate (possibly the "digital natives" most of all). This is because a true understanding of our digital ecology isn't about how intuitively you take to a new interface, it's more about
understanding how our relation to data at present is akin to our relation to labor in the past and how it might become inseparable from our notion of identity in the future. To lose control of our data, to flippantly declare that privacy is dead is to forfeit all agency in the modern world.

In a recently published article for the New Yorker Tim Wu explained that Facebook is, "assumed to have more data than anyone else. That data is useful for advertising, which is Facebook's main source of revenue.

But the data is also an asset. The twohundredandseventybilliondollar valuation of Facebook, which made a profit of three billion dollars last year, is based on some faith that piling up all of that data has value in and of itself." [4] This faith isn't misplaced, it's well understood by those invested in these technologies that the data collected today will fuel the systems of tomorrow (self driving cars won't teach themselves, we're all teaching them today).

The influential philosopher and cultural critic Walter Benjamin once said, "Facebook attempts to organize the newly created proletarian masses without affecting the property structure which the masses strive to eliminate. Facebook sees its salvation in giving these masses not their right, but instead a chance to express themselves. The masses have a right to change property relations; Facebook seeks to give them an expression while preserving property." ...well he didn't say Facebook (which of course is after his time), he used another F word[5].

1. https://www.marxists.org/archive/marx/works/1844/manuscripts/labour.htm
2. http://www.pewinternet.org/2015/05/20/americansattitudesaboutprivacysecurityandsurveillance/
3. http://fffff.at/
4. http://www.newyorker.com/business/currency/facebookshouldpayallofus
5. https://www.marxists.org/reference/subject/philosophy/works/ge/benjamin.htm

Anna Dumitriu & Alex May

What inspires your work?
As an artist I work in clinical microbiology laboratories, creating artworks that interrogate the sublime world of bacteria, which are both my medium and subject. I'm fascinated how science works at a technical and sociologial framework, how it affects ordinary people, and how they can understand it and participate in research themselves. I enjoy the hands on practice of microbiology and I use bacteria as a medium to create my work, often staining textiles with bacteria and creating patterns by using antibiotics to control their growth. I find the concept of whole genome sequencing of bacteria very challenging to grasp. Whole genome sequencing of bacteria builds on the work of the Human Genome Project but as bacterial genomes are much smaller they are easier to work with. Sequencing can provide the precise diagnosis and also reveal drug resistances, pathogenesis and virulence. It replaces the current range of tests with one single test, but it is very difficult to grasp and even harder to communicate. I've set myself the task of artistically exploring this new field and that has led me through many strange experiences.

What ideas (of the body) are you exploring at the moment?
I am specifically interested in the impact of bacteria on our bodies and specifically our health, and the notion of infection. We are currently going through a revolution in medical microbiology as new genetic sequencing technologies of provide us new tools to better understand the bacteria that live on and inside our bodies, our microbiome, far more fully. There is almost a ‚gold rush' feel as new things are being discovered on an almost daily basis. We live in the so-called ‚age of antibiotics, and since the introduction of drugs like penicillin we have been able to treat bacterial infections and save millions of lives. But since the beginning of the antibiotic age it has been a kind of arms race with bacteria evolving resistance to drugs, sometimes very quickly, and humans countering that by developing new drugs, and so on. In recent years humans have fallen behind in this battle. Jeremy Farrar Director of the Wellcome Trust (a major biomedical research charity) recently stated: "We are failing to contain the rise of resistance, and failing to develop new drugs to replace those that no longer work. We are heading for a post-antibiotic age." My current work is focussed around whole genome sequencing of bacteria and I have been using this emerging technology to get to know just one of the millions of bacteria; species that lives on my body, some Staphylococcus aureus from the front of my nose.

How does the datafication of the body and identity effect our understandings of ownership and authorship, both in society and within art practice?
Through shadowing researchers on The Modernising Medical Microbiology Project have learned to perform the entire whole genome sequencing process myself. The aim of their research is to fully integrate whole genome sequencing technology into clinical microbiology over the forthcoming decade so that it becomes an integral part of the diagnostic process in healthcare settings. As an artist I wanted to understand and respond to this work, which is revolutionising microbiology and healthcare; shifting the practice of bioscience from hypothesis testing to hypothesis generating through big data bioinformatics; and raising issues of privacy, access, ownership and ethics. Within this framework a human body is represented by the millions of bases of a pathogenic bacterium with which they are or have been colonised (infected), but in the future it should be possible to whole genome sequence an entire human microbiome, all the bacteria that live on or inside us. Bacterial cells in the body outnumber human cells by an order of magnitude. New research shows they may affect out weight, our mental health, our physical health and possibly even our creativity. As we understand more we might come to realise that out bacteria are in fact the authors of our art practice, or at least as much as the so-called ‚human` part.

Chris Henschke

How do you think data transformed the notion of the body?
In 1991, IBM physicist Rolf Landauer stated that 'Information is physical', and is measurable, in both electronic systems (i.e. computers) and the human body (i.e. the brain and sense organs). My understanding of this relation connects material manifestations of knowledge with contemporary techno-scientific agencies of observation, such as the Large Hadron Collider (LHC), the largest and most complex scientific experiment in the world. The LHC probes fundamental qualities of the universe, through the focusing of trillions of electron volts of energy on subatomic particles that are accelerated to near-light-speed around the twenty seven kilometre instrument, and are then smashed together in gargantuan detectors. Through the use of such apparatuses, indeed through any "agency" or decisions and actions, can be described as ‚intra-active` dynamic reconfigurings of the topology of spacetimematter relations (Barad, p.140). In the video project, Dynamics of the Apparatus, made during my art@cms residency at the LHC, this relationship is manifested through the manipulation of video footage taken around CERN, using the data produced from the energetic and particle collisions produced in the LHC. The algorithmically modulated output audio-visually folds the machine and attendant scientists into a dynamic topology of matter, energy and information.

How would you describe the experience of embodiment in your work?
Dynamics of the Apparatus conveys experimental and experiential aspects of being within the realm of the 'megalithic machine' that is the LHC. It is an almost physically tangible sensation, one can nearly feel the spacetime warping energies that have been produced in the awe-inducing experiment. As well as conveying the sublime scales and complexities of the science and technology involved, the video also embodies experiential qualities of both the human and subatomic bodies' relationships with the apparatus, entwined in the high-energy entanglements of matter and meaning, of space and time, of destruction and creation.

What inspires your work?
The nature and expression of matter and energy, plus all of the above!

Shannon Novak

What is the role of the body in your work?
I often see the body as something that generates music, much like a conductor might direct an orchestra to play. This is the case in String Section where the audience move their mobile device like the conductors

baton, triggering different musical notes. I also see the body as a way of strengthening memory, or increasing the mnemonic impact of the artwork; the more we are involved in a work physically, the more likely we are to remember that artwork.

What inspires your work?
I am inspired by the sound different shapes make and the colours they evoke. This is a result of synesthesia or a mixing of the senses. For example, I can look at a city skyline and hear the shapes of the buildings as a series of very specific drumbeats. I then see these drumbeats as specific geometric forms and colours. I tend to focus on objects and locations that are often overlooked, or are abandoned in some way. For example, if I'm given an exhibition space, I often develop work everywhere but the exhibition space: the reception area, connecting hallways, foyers, and the outside of the building.

What ideas (of the body) are you exploring at the moment?
I am continuing to investigate the relationship between the body and music, in particular, how the body generates music through movement, and how the body itself reacts and responds to music. For example, I have been looking at the relationship between the field of cymatics (or how material reacts to sound) and the human body. When you apply a particular sound frequency to water (or sand on a metal plate), geometric patterns naturally form. I have been looking at how this replicates in the body at a cellular level, for example, how a cell responds (with cymatic patterns) to sound/music.

Christa Sommerer & Laurent Mignonneau

What is the role of the body in your work?
Many of our artworks are interactive and the audience is invited to participate. This can be in the form of touching plants, drawing forms on a touch monitor, typing text on a retro type writer, or in the case of "Portrait on the Fly" moving in front of a monitor. The audience's bodily interaction is always necessary, if the interactive artwork should develop and evolve.
How do you think data transformed the notion of the body?
These days with the quantified self-movement people start to perceive their own body differently than around 10 or 20 years ago. Now we know that we are tracked and traced through digital and communication technologies and the notion of privacy and ones own body and individuality has significantly changed. We become sources of data that companies and agencies analyze and exploit.

How would you describe the experience of embodiment in your work?
In the work "Portrait on the Fly" the visitors' body becomes an attractor for virtual flies that try to sit on his/her body. As real flies can be quite annoying, these virtual flies also follow every movement and one can hardly get rid of them. Around 1000 flies try to stick wherever one does not move and eventually they cover the whole body outline when the visitor stands still. However this can be quite beautiful as ones features become recognizable, the flies "draw" the person's outline and make his/her portrait visible.

What inspires your work?
The work was inspired by Guiseppe Arcimboldo's fantastic composite heads from the mid 15th century. Roland Barthes maintained that the artist was doing something akin to scientific research when he painted those portraits, as they were composed of many details taken from zoological and botanical specimens. For the series "Portrait on the Fly" we modeled virtual insects that can align themselves so as to compose human portraits in real time.

The interactive version consists of a monitor that shows a swarm of a few thousand house flies. When a person positions him/herself in front of it, the insects try to detect his/her facial features and then begin to arrange themselves so as to reproduce them, thereby creating a recognizable likeness of the individual. Within seconds the insects invade the face, but even the slightest movement of the head or of parts of the face or body drives them off. The portraits are thus in constant

flux; they construct and deconstruct, they are living systems and depend on interactions with the subjects. Portrait on the Fly is a commentary on our love for making pictures of ourselves (Selfie-Culture), it has to do with change, transience and impermanence.

What is next for data bodies, embodiment and bodies of matter?
There will probably be a countermovement where privacy, ownership of ones own data and exclusivity will become more important.

What ideas (of the body) are you exploring at the moment?
We are now producing analog plotter drawings of media art experts. Snapshots of digital fly portraits produced with our "Portrait on the Fly" software are printed out in the style of 1960s plotter drawings. Ephemeral moments of interaction are thereby secured as original illustrations. The first of these artworks was an autoportrait of Sommerer & Mignonneau. The growing series includes portraits of important media art experts, theorists and artists, such as Frieder Nake, Mark Wilson, Hans Dehlinger, Edmond Couchot, Marie-Hélène Tramus, Hannes Leopoldseder, Christine Schöpf, Peter Weibel, Peter d'Agostino, Oliver Grau, Christiane Paul, Paul Thomas, Simon Biggs, Jill Scott, among many others. The aim of this series is to conserve images as well as video sequences of the historic figures who are involved in media art – an ephemeral field that is obsessed with novelty and change.

How does the datafication of the body and identity effect our understandings of ownership and authorship, both in society and within art practice?
Over the past 10 years the sense of ownership and authorship has been replaced by a sharing and gift culture. Outsourcing and crowd sourcing the creativity of the public has become quite common.But there is a growing longing for the analog, for the original, for the artistic sublime. This is what the "Portrait on the Fly" plotter drawings series is about.

Julian Stadon

What is the role of the body in your work?
I would say that the body is the central component in all of my work. What most people would consider to be the "art" in my works are merely tools, props and platforms for the viewer, as a body, to converge with, in order to reach the questions I really want them to ask themselves. All art is subjective and the body is the interface for the subjectivity of the artist and the subjectivity of the viewer to become one embodiment.

How do you think data transformed the notion of the body?
Data has totally revolutionised the body in the way in which we interpret it in terms of identity and reality, however it is a misconception that this transformation has affected our materiality. Our existence as multiple selves, in multiple reality states, is far easier to grasp with the advent on networked presence. Unfortunately many are still stuck in this cyber culture rhetoric of Cartesian dualist approaches to digital and natural systems. It is important to remember that data is a product of nature and that all representations of both are subjective and therefore related through their direct relation to the bodies that exist in them.

What is next for data bodies, embodiment and bodies of matter?
The next battle (which is already being fought) is over ownership. This situation is becoming more and more complex due to the nature of codification, observation, interpretation, obfuscation and of course media/corporate/governmental interference. Who, for example owns one's augmented self? How far removed from the physical do our identities need to be in order for them to be considered legally autonomous and when this does happen, and at what level of consciousness must these independent agents/beings need to be at, in order to have ownership of themselves as independent, free bodies? I think this will be the next phase for humanity, when enough people realise that they have lost ownership of what they personally identify as theirs online and through this process start to understand the materiality of

the situation better and therefore put it into a context that then makes them realise that it is the same in regards to bodies of matter (in other words we don't really own anything). In terms of art, particularly digital art, this has been a point of discussion for many years: how can one 'own' such work and therefore sell or purchase it? And I guess more importantly, how does this affect artistic production, validity and integrity?

Adam Zaretsky

What is the role of the body in your work?
I am interested in the transgenic human body. What is it like to live in a pre-engineered body? Who bought which genetic inserts for babies collaged with metabolic or anatomical difference? Who gets sold on what and why do parents pick particular packages for their baby design? In particular, what was the aesthetic ideal that leads to the most popular human+ target groups? As a focus, I like to imagining all of the options a synthetic biobody can be remodeled into.

How do you think data transformed the notion of the body?
Bioinformatics is the banking of massive data collections of human and non-human living diversity. Online private and public databases unravel our private metabolic potentials. We are witnessing a translation between the world of biology and the digital world and back again. The scanning of specific alleles into one of the many DataBanks (i.e. GDB, GSequenceDB, GENBank, EMBL, DDBJ, BLAST, PSI-BLAST) is creating an on-line source for the codes/semiotic systems that will make Virtual-HomoSapiens/Cyborgs/Clones (our replicants). Literal translation of the Human Genome to a digital format involves the forcing of a metaphor of legible, semiotic translation of the flesh. In the name of fixing deleterious mutations, human genomic sequence data is translated into digital clouds of zeros and ones beamed between satellites. Our species identity has become our own electric ether. Really, this is the poetry of the ages. Genetic codes are more like evolutionary jazz. We are scanning and digitizing and copying and pasting the free verse of deep time changes. From a common archaic parent organism, our embodiment is on of infinite possible versions. Now, world culture is hoarding genetic data. It a new kind of colonialism There are patents for living beings. The veneer of scientism surrounding these new tools for life tuning should not preclude the original impetus for these procedures. Geneticists and Salesmen will tell you its all for medicine and preventing pain, then they tell their stock holders that its all for profit and progress. This is kinky fuckery.

How would you describe the experience of embodiment in your work?
But, WE as life, we are not dry code. We are not mere blueprints, maps and pattern. WE are flesh based machines, if we are machines at all. Our circuits are flesh and our signals are very analog and glitch and WET. All life has a keen investment in the fleshy. We are erotic and slick with fluids. From an engineering standpoint, the embodied experience of the grotesque and excremental is what makes life exotic. Existence itself is hot and erect and virulent and slimy. Therefore, the technical challenge of genomic engineering should not be about pure ordering of our eccentric evolutionary path. Merely eliminating errors and defragging our inherited hard drive is not a keen goal.

What inspires your work?
Novel and mutants and bizarre genetically modified organisms inspire me. Transgenic organisms are the most amazing contemporary, time-based, new media sculptures on planet. For instance, Masayuki Sumida, a professor at the Institute for Amphibian Biology at Japan`s Hiroshima University, helped make a see-through frog. I generally think of these playfully altered being specimens as art. This helps appreciation without the utility or health based propaganda that hides their true and obscure beauty. I also tend to think about the human application possibilities. There is a general worldwide yet subaltern attraction to novel pathologies and differently abled bodies as erotic idols. This freakshow aspect to organism engineering is intense and often ignored. It is up to the arts to let the grotesque and obscure beings of technical potentiality enter the human germline.

MARART.ORG

Mixed and Augmented Reality Arts Research

The Mixed and Augmented Reality Arts Research Organisation (MARart.org) seeks to develop new dialogues in regards to high-end research methodologies, cultural inquiry and representation in the increasingly immersive and pervasive field of mixed and augmented reality art. We aim to do so independently of any institutional involvement as we value a (non hierarchical) networked community approached to research and discussion.

This initiative aims to scope the field of MARart, through the presentation and analysis of particular research outcomes, in order to develop criteria that can assess MARart's production and position within the media arts.

The research endeavours to develop flexible strategies for hybridised research practice, in a number of open platforms that will scope current trends and exemplary models from a variety of approaches. Artistic practices in MARart will be discussed in order to locate new research (paradigms?) that address issues including cultural absorption, post-biological identity, social codes and systems, mobile computing, commercialization and intellectual property, with particular regard to the media art field.

This is an open group for researchers dealing with mixed reality art focusing on augmentation as a medium. It has a specific (conceptual) focus on convergent realities as art mediums and the theoretical discourses that surround this field.

We are not a commercial/advertsing group, in fact we strive to be the opposite of this- an open community for free exchange of ideas, projects and discussion relating to this really cool media art field.

MARart Friends & Advisers

Mónica Bello, Zach Blas, Gerhard Blechinger, Jay Bolter, Mez Breeze, Nick Briz, Paul Brown, Heath Bunting, Ruth Catlow, Oron Catts, Sean Cubitt, Nina Czegledy, Boris Debackere, Annette Doms, Marc Garrett, Oliver Grau, Raphael Grasset,Ian Gwilt, Ross Harley, Jens Hauser, Alan Hook, Troy Innocent, Wolf Lieser, Mike Phillips, Pierre Proske, Kate Richards, Jorge Ramirez, Jill Scott, Hartmut Seichter, Paul Sermon, Vicky Sowry, Carl Smith, Christa Sommerer, Julian Stadon, Christopher Stapelton, Stahl Stenslie, Nathaniel Stern, Mike Stubbs, Paul Thomas, Pontus Wärnestål, Adam Zaretsky, Brigitta Zics

THX

Special Thank You from the Organiser/Curator:

For the last 3 years I have organised and curated the ISMAR/MARart.org exhibition and as usual, there are many people to thank for helping make this show into a reality this year. To Hirokazu Kato, Ryoko Ueoka, Hideaki Uchiyama and the rest of the general chairs for ISMAR this year, plus the chairs from previous years, thank you for believing in me and trusting in my ability to create suitably appropriate exhibitions for the yearly themes and program content. You have all been integral to the organisation of this exhibition and I cannot thank you enough for your assistance! I'd also like to thank Mark Billinghurst and Raphael Grasset for getting me involved with ISMAR and Gudrun Klinker for her continued support also.

To all the MARart.org friends and advisors, I would like to give you special thanks for your continued support and advice throughout the last 3 years since we launched MARart.org @ ISEA Sydney. I would like to thank my employer, Salzburg University of Applied Science for their support and understanding throughout each year of this endeavour. In particular I would like to thank Gerhard Blechinger for his advice and endless support and encouragement of my wider research interests. To my fellow chairs, Ian Gwilt and Carl Smith, thank you for a very enjoyable experience establishing this year's themes and directions. To my main man Paul Thomas, you are always my first point of advice and I thank you for 11 years of mentoring and inspiration. To the production team, Jan-Nahuel Jenny, Jorge Ramirez and our helpers, to our host at the Satoya house Kaz Iwanaga, thank you for so much local advice and constant assistance getting us all organised for this year!

To all my friends, thank you for keeping my feet on the ground and my perspective clear during the process of organizing this show! Each year sees new challenges and the same issues and each year sees new rewards, and most importantly, this is due to the group of fantastic artists that have participated in the last 3 years of this show. Too all of the artists: I thank you for your fantastic ability to identify meaningful topics of discourse, thoroughly investigate them and then be able to present them in interesting ways that challenge our understandings of our world and being.

Thanks lastly to the human ability to represent itself through artist means.

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