

Baltan Quarterly

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Baltan Laboratories initiates, mediates and shares innovative research and development at the intersection of art, design, science and technological culture.

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Hack The Body

Critical reflection on the blurry boundaries between intimacy, privacy and technology.

By Olga Mink

Technological developments such as wearable sensors and mobile applications enable us to generate an unlimited amount of data – data generated from our most intimate resources: our bodies and our lives. Now that we can store this data in the cloud, we have access to a limitless repository of information. The Internet enables us to share this information with the rest of the world in the blink of an eye. However advanced and glorious this instantly gratifying self-expression may seem, the question remains: What do we gain by capturing, saving and sharing all? And equally important, what do we lose?

It's time to face the fact that many of us are enmeshed in technology. Some say the current time is one of an interregnum: a period in which the old is dead and the new cannot yet be born. In order to enable new birth, we must face new challenges and questions: what is the

impact of technology on the human being? What does this increased and shared intimacy between technology and our bodies mean? What do we gain by these technologies?

What do we gain by capturing, saving and sharing all? And equally important, what do we lose?

Is it the ultimate way to bypass our subjective memory? Or do we strive to reconnect with a deeper inner self, by measuring all we can as our last resort of ultimate self-expression, to celebrate human individuality in an increasingly techno-dominated society? Baltan Laboratories is taking these challenges head on in the *Hack the Body* program, in which we explore the relationship between technology

and the human, through artistic research. With *Hack the Body* Baltan brings together several (artistic) projects that share the same underlying idea: using new sensor and information technology to explore innovative concepts within biometric measurement, neuro-feedback and data generation.

We're very proud to present the *Hack the Body* theme in the 4th edition of the Baltan Quarterly. At this current critical point there is a need to address and share the implications of intimacy, wearable technologies and the shifting boundaries of privacy. Through the *Hack the body* programme all this knowledge and all these ideas can be further developed and presented. We extend our thanks to all for their contributions to this edition of Baltan Quarterly. Flora Lysen for her charming essay about the origins of kissing her best friend, inspired by the E.E.G. Kiss by Karen Lancel and Hermen Maat; writings by Chris Salter on his



visions of how we might become more aware of the increasing data surrounding us; Marco Altini reveals how wearable technology improved his life; Marco Donnarumma elaborates on the dissolving gaps between human and machines, while the interview with Gaëlle Dhooghe gives us a feel for “flow”, in her telling of how classical musicians were submitted to a research trajectory by using EEG headsets; and finally Hester Swaving for her piece on the travelling installation WE ARE DATA and the relationship between privacy, awareness and technology in their project.

Underpinning all these projects is the platform that enables a diverse mix of disciplines to collaborate and participate – be they artists, designers, scientists, engineers, researchers, knowledge centres, industry, or the general public: this cross-disciplinary, unfettered way of inspiring innovative developments is a key distinguishing factor of Baltan Laboratories. Precisely, this open attitude towards co-creation and mutual inspiration is elemental in coming to new insights. They may be considerations of the present, or speculations of futures that we – all of us – collectively imagine to come ... or the ones we hope to avoid in more dystopian scenarios.

Living in the Age of the Data-Driven Self

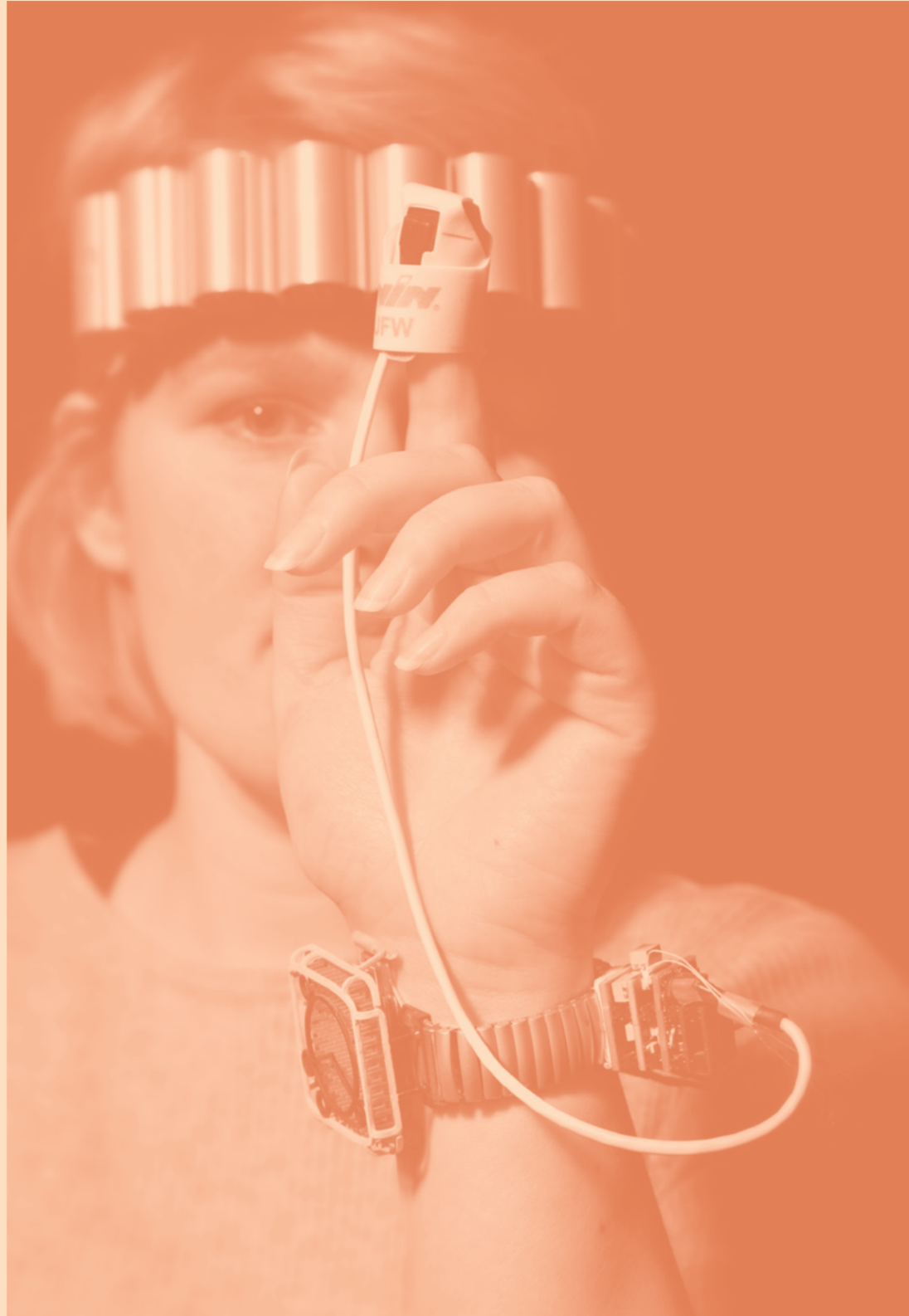


Image: Holst Centre

By Chris Salter

Setting 1: Two lone individuals enter onto either side of a narrow room, divided by what appears to be a mirrored frame. They each sit down in their own time on chairs and before the other, proceed to attach a set of apparatuses to their bodies: a wristband-like device and a set of EKG electrodes under their shirts. What is strange is that the set-up is asymmetrical – one can see the other, but the other can only see herself. As they sit, a subtle but gradually intensifying pulse seems to move up from the floor and into each of their bodies. As this haptic utterance increases in force, the room suddenly goes dark and each person is left staring at their own image. Suspended in this awkward Narcissian moment where the other has been temporarily erased, small bursts of light appear to bring the other back, but only in a fleeting, almost imperceptible manner. The bursts of light accelerate as both images, “self” and “other”, begin to intermingle and merge in a strange blend of becoming both face and body. The room goes dark as the faces meld into a stroboscopic blur.

Setting 2: A group of three individuals, outfitted with an array of biometric sensors such as EKG, GSR (Galvanic Skin Response) and

respiration detector that measures the expansion and contraction of the chest, sit together on a couch facing a white wall. The wall becomes alive with a series of colours: red, then orange, white and finally green. The colour sequence is repeated. At times, the sequence appears to follow the same colour pattern. At other times, the white seems to hover in the air, frozen in time as the greenish tint announces itself only in the fading moments before the next cycle. The rhythm and hue appear to follow a programmed logic and yet, the pulse has the quality of breathing – in and out, in and out, in and out...

Both examples above describe experiments on works that have not yet come to be. They are part of a large-scale research-creation project directed by myself, TeZ and Luis Fernandez entitled *Qualified Self* (QS), which brings together a roster of artists, designers and researchers in engineering, computer science, perceptual psychology and cognitive neuroscience from a range of organisations in the Netherlands and Canada including Baltan, Philips Research, Holst Centre, Concordia and McGill Universities in Montreal, under Baltan Laboratories’ *Hack the Body* program. In the best sense of the Latin root to experiment, experiri,

that is “to try out”, these evocative descriptions (re-)present initial attempts, trials and tests that explore our contemporary *experience* of “self”, and “other”. This exploration of the transformation of “self” is deeply embedded into our contemporary technosphere and, in particular, is enabled by the increasing use, manipulation and transformation of biometric data within what Mark Andrejevic has labelled the “sensor society” – “a set of emerging practices of data collection and use that complicate and reconfigure received categories of privacy, surveillance, and even sense-making” (Andrejevic 2015).

With the growing interest in wearable devices (Apple watch, Nike+, OM Signal’s sensor-based sports clothing) that can measure biometric signals such as heart-rate, breathing patterns, stress and brainwaves, health researchers are increasingly focussed on how such data can be used to modify behaviour. But this proliferation of biometric data has not only led to interest in the modification of behaviour in scientific circles. In an April 2010 article for the *New York Times Magazine* entitled “The Data-Driven Life,” Gary Wolf, author and co-founder of the so-called “Quantified Self” movement (“an international

collaboration of users and makers of self-tracking tools”) argued that by way of our phones, computers, and other devices, we are increasingly conducting “self experiments.” According to Wolf, when we track our every step, breath, heartbeat, acceleration and even emotion, when “we quantify ourselves, there isn’t the imperative to see through our daily existence into a truth buried at a deeper level. Instead, the self of our most trivial thoughts and actions, the self that, without technical help, we might barely notice or recall, is understood as the self we ought to get to know” (Wolf 2010). For as we don’t have a pedometer in our feet, or a breathalyser in our lungs and so on, Wolf says we need machines to help us take stock of ourselves, to know who we are.

But the ability to monitor, track and change our behaviour based on the quantification of ourselves suggests a more problematic aspect to Wolf’s techno-utopian viewpoint. Indeed, as the French philosopher Michel Foucault described in his 1979 lectures on neoliberalism entitled *The Birth of Biopolitics*, we are entering a new age of reason in which we as human subjects increasingly become the governors of ourselves – the conductors of our conduct, through

new “technologies of the self.” These technologies, as Foucault argued, extend from habitual ways of doing things in order to create daily rituals (like exercise, dieting or self-tracking) to more elaborate strategies “which permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct and way of being so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection or immortality” (Foucault 1988, 17).

The quantified self is thus an ideal model for our late capitalist moment in which the age of quantification of our bodies and desires easily segues into the transformation of humans into what economist Gary Becker famously called “human capital” – the extension of *homo-economicus*, economic man, into every conceivable facet of everyday life and experience. In other words, continual quantification, modulation and transformation of self is the perfected mould for our neo-liberal lives – a mold which seeks to render every action and thought into acts of competition, ranking and revenue.

While the examples given at the introduction of this article are descriptions of prototypes, works

in progress, they contain the seeds of a series of projects that we are currently developing within the context of the “data-driven life” that Wolf so acutely articulates, under our perhaps even ironic title of *Qualified Self*. The first one described here above (*OtherSelf* – the current working title) is an artistic work that explores the fragile line between the “self” and “other” utilising shared biometric signals in the form of a synchronised heart-rate between two or more individuals. The second, which we are calling *Self Lab*, is a series of what will eventually become public research experiments with groups of participants that examine whether a “collective self” is possible and what are the conditions necessary for its emergence.

Although they follow different timelines and conceptual trajectories, both projects have two things in common. First, the works aim to deeply trouble the notion that we can even access something called “self” through the tools of quantification and statistics. Wolf and *Qualified Self* co-founder Kevin Kelly’s tagline for the highly branded “Quantified Self” movement is that of “self knowledge through

clear structures of power?”

In the *Qualified Self* project, we are interested in exploring how such synchrony operates between groups of people and what the aesthetic-political-social ramifications of such synchrony could be. Using synchrony as a basis, we want to address three core questions: (1). How can a large group of participants synchronise their physiological signals with each other and what measure of synchrony can be established? (2). How can synchrony be encouraged or indeed, *induced* through specific kinds of temporal patterns occurring in light, sound, or haptics, the study of touch? (3). How can this synchrony be visualised, sonified, converted into vibrotactile stimuli within the environment and used as a catalyst for feedback?

Imagine, for example, that the synchronisation of breathing and heartbeats among the participants causes the predominance of a certain colour in the lighting or specific haptic patterns or rhythms on areas of the participants’ bodies, all of which can be collectively “steered” by the group without any clear set of instructions? Indeed, if

Given that our data can now be saved, analysed and interpreted by mechanic acts almost instantaneously, the question of resistance to these forces becomes critical.

numbers”; a branded marketing-driven statement if there ever was one, which seems to update the ancient Greek aphorism “Know Thyself” inscribed on the Temple of Apollo in Delphi, in contemporary big data terms.

Secondly, both works described at the start of this article can be understood under the scientific and aesthetic backdrop of what the mathematical physicist Steven Strogatz calls the “new science of sync” – the concept that spontaneous order appears when physical, biological and social systems come in lock step with each other in what is called “interactional synchrony” (Strogatz 2003). Interactional synchrony refers to the “matching of behaviour, biological rhythms or emotional states between people, as a result of their interaction” (Feldman 2007). How indeed is it possible that groups of human and non-human systems – from fireflies and fish to human beings, pendulums and chemical molecules – suddenly and spontaneously come into synchronous relation with each other in the absence of obvious rules or

the *Quantified Self* paradigm argues that one’s individual “self” can be accurately represented by monitoring and visualising data, the *Qualified Self* proposes a perhaps more challenging question: how does the “self” emerge and become collective through means of synchronisation with “others”?

With the increased quantification of our every move, act, behaviour and thought, we are increasingly becoming fragments of “self”: malleable, plastic, ever *becoming* subjects constituted by rankings, likes and profiles that are able to be tracked and targeted by ever more sophisticated biopolitical regimes of capital. Given that our data can now be saved, analysed and interpreted by machinic acts almost instantaneously, the question of resistance to these forces becomes critical. As the radical French collective Tiqqun’s manifesto *Preliminary Materials for the Theory of a Young Girl* suggests, capitalism’s ultimate triumph is the colonisation of our souls and bodies. It is thus these stakes that our work on the *Qualified Self* seeks to address.

References

- Andrejevic, Mark, and Mark Burdon (2015) “Defining the sensor society.” *Television & New Media*. Vol. 16, no. 1. January
- Feldman, R (2007) “Parent–infant synchrony and the construction of shared timing: physiological precursors, developmental outcomes, and risk conditions.” *Journal of Child Psychology and Psychiatry*, 48(3-4): 329–354.
- Foucault, Michel, François Ewald, and Alessandro Fontana (2010) *The Birth of Biopolitics: Lectures at the Collège de France, 1978-1979*. Ed. Michel Senellart. New York: Palgrave Macmillan.
- Strogatz, Steven (2003) *Syn: The Emerging Science of Spontaneous Order*. New York: Hyperion.
- Tiqqun and Ariana Reines (2012) *Preliminary Materials for a Theory of the Young-Girl*. Cambridge, MA: MIT Press.
- Wolf, Gary (2010) “The data-driven life.” *The New York Times*, April 28.

Artists wanted:

To question, imagine and reflect on the relationship of humans and technology.

(Or suffer the consequences ...)

By Marco Donnarumma

We are no strangers to the use of computational, physiological and sensing technology in today’s art practises. In performances, installations or participatory artworks, performers’ and visitors’ bodies are increasingly integrated into technological systems. Bodies and machines become linked through wearable sensors, signal amplifiers, transmitters and transducers. For those who can afford it, body technologies have become easy to attain and operate; artists can experiment freely with the coupling of human and machine. This is not only an opportunity to enrich the palette of artistic tools available, but, more importantly, it is a chance to foster a more widespread understanding of the cultural and political aspects involved in the interaction of humans and technologies. The purpose of this article is to help construct a critical viewpoint on the kinds of relationships shared by humans and machines, and the principles that drive those relationships. To be critical does not mean to simply criticise; it means to consider as many viewpoints as possible and to be aware of the nuances of this unique sort of bond.

Let us begin by considering the role of human-machine relationships in advanced capitalism. Here, the term ‘advanced capitalism’ indicates societies where capitalism is deeply rooted and highly developed. But even the current form of capitalism is very different from that of decades ago. A basic tenet of capitalism is to accumulate capital by investing in and exploiting human labour; but today, as human beings are increasingly replaced by machines, investing in human labour is less and less appealing. Today’s capitalism has developed a new strategy; according to philosopher Rosi Braidotti, it aims to accumulate profits by investing in the scientific and economical commodification of all living beings, from genomic research on human beings, plants and animals, to bio-technological intervention, to transplant research, and also to the industry dubbed ‘Big Data’, which relies on the trade of personal information databases by multinational corporations and mass-marketing (think Facebook, Amazon, Google and the like).

In this world, human genes are hybridised, human organs are grown inside machines, personal and bodily data are uploaded to cloud servers, body shapes and personal identities are categorised by swarms of algorithms. Our bodies are the favourite currency of capitalists’ profit: they are quantified, categorised and modified, for the sake of capital. As a result, the human body becomes an integral part of technological systems, and vice versa: technology becomes an integral part of the human body. It is an ‘intermix’ – or interdependent combining – of flesh and circuits, thoughts and algorithms, organic materials and silicon chips. This melding of capitalist strategies and life-mining technologies shows, therefore, that human development does not exist independently of technology. Rather, human development is shown as a continuous and open-ended process – so much so, that the supposed boundaries of the human being are ‘blurred out’, so evocatively described by Donna Haraway in her 1985 article, *Manifesto for cyborgs*.

The boundaries of ‘Man’ as we know it, or the very idea of the human being as being independent – or the antagonist of other beings and technologies – becomes open to different interpretations. This view pitches

human beings and machines as *interdependent*; that is, entities whose capacity to exist and develop relies upon how they intermix with each other. But human nature is not open-ended just because machine technology makes it so. The human body is what it is as a result of the continuous changes and reactions provoked by the relation of humans to other beings, instruments and the environment; without interaction with them, the human body would be lifeless. In other words, the human body has always been open to changes, and has never been an immutable object; its own ‘live’-ness depends on interactions with others, living and non-living. Artistic practise is a means to understand those interactions and envision new kinds of relationships.

So, what can artistic practice do to help change this capitalist-driven human-machine relationship? And why it should bother at all? The extension or disruption of the form and capacities of the human body through technology has an important consequence: as technology progresses, our understanding of, society’s understanding of gender, bodily shapes, race and identity are modified. Put differently, as technologies become

In other words, the human body has always been open to changes, and has never been an immutable object; its own ‘live’-ness depends on interactions with others, living and non-living.

increasingly integral to the development of human bodies and identities, the societal models change, when it comes to guiding how human bodies are perceived. Artists are not merely spectators of this change: whether an artist wants it or not, any given artwork using human bodies and technologies conveys viewpoints that recall, reinforce or disrupt those models. If even indirectly, the way a human body combined with a piece of technology is shown and used in a public artwork refers to societal standards of what a body is, what race and identity mean, and what technology can be used for.

There is a tendency in art and technology artworks to equate the artistic value of an artwork with its level of displayed beauty and uncritical engagement. This implies discarding the political aspects that are implicit to art and technology; it means to isolate artistic practise in a limbo of disillusionment. However, to be *fully* aware of the political value of art and technology practice means – for artists, curators and audiences – to gain a means to actively change the way we understand the relations of human bodies and technology. Advanced capitalism is silently changing what human and technologies are able – and allowed – to do. And if left alone, it will be capitalists and magnates who dictate the rules and conditions for this change. It is artists’ responsibility to take up this challenge and creatively question the nature of human-technology relationships. It is artists’ responsibility to critically reflect on the possibilities of human-machine relationships and to imagine what human and technology will be able to achieve together.

The Neurofutures of Love

Reflections on E.E.G. KISS, an art-science experiment at Baltan Laboratories.

By Flora Lysen

Kissing for the sake of science and art

I kissed my best friend. I think the audience could tell we were not lovers. Our kiss was clumsy, not in an exciting, first date kind of way, but just painfully awkward. Fortunately, it was all for the sake of science, and art. Sci-fi-looking electrode helmets measured our brain activity during the act; next to us, a computer screen displayed a live feed of the zig-zagging lines of our alpha and theta waves to the audience. Did it show we were just friends? That we were, (and are still) best friends? Did it indicate that I thought her saliva tasted sweet and that I felt the EEG-helmet aching in its metal grasp of my skull? That my boyfriend was watching us? These were just a few of the questions that came to me as I participated in the ongoing art-project *E.E.G. KISS* by Karen Lancel and Hermen Maat, part of the *Hack the Body* programme at Baltan Laboratories. Over the past two years, hundreds of volunteers have created "digital portraits" of their kisses during installments of *E.E.G. KISS* at art-science evenings and popular science festivals. With this project, the artists aim to ask questions about the concept of 'digital intimacy': can we transfer a kiss to a virtual space? Can we quantify the feeling of a kiss? Do we want to save our private kisses in an open database? In this performance – what the artists call a "social lab" – we, the "co-researchers," look at the EEG-score on the screen and see a dance of zig-zagging scribbles.¹ Sometimes the lines meet in a calm rippling motion, and at other times they oscillate completely out of sync. We, the co-researchers, point to the screen: "Was this a successful kiss?" "Do you think we are a good match?" "Can I take a picture of our kiss?" "What will happen to my data?" Indeed, the artwork very effectively prompts an examination of the ethical and political issues related to the use of new and imagined neuro and media-technologies. Will our future love-lives be carefully monitored, managed and controlled? Yet, I think there are other important

questions raised by *E.E.G. KISS* that are less directly visible, but need to be asked. Why do so many agree to exhibit and archive their intimate lives within the context of this art-science experiment? What position is claimed for art and science, respectively, by this performance? Allow me to briefly brush the cheek of these complex questions, by moving from the first cinematic kiss towards the spectacle of contemporary neuroscience.

The paradox of love science

In 1896, the first on-screen kiss premiered in a New York theatre. Thomas Edison's *May Irwin Kiss* – a fifteen second shot in which lips briefly rubbed – enraged critics because of its vulgarity, yet turned out to be the most popular film that year.² A closer look at this very first cinematic kiss teaches us that science can legitimise the public display of the intimate act of kissing. Although etiquette rules discouraged the public view of kissing, the context of the cinema changed the situation. First of all, cinema allowed viewers to see a mediated kiss, one that guarded the audience from the embarrassment and impropriety of a real-life kiss.³ But more importantly, a newspaper article of 1896, *The Anatomy of a Kiss*, framed the viewing of the cinematic kiss as a scientific event: as pedagogical demonstration, the kiss was no longer off-limits. Cinema turned the kiss into a phenomenon that could now be scientifically examined: up close, enlarged on the screen, looped and freeze-framed for extra scrutiny.⁴ In a tongue-in-cheek fashion, the article licensed the public view of a "vulgar act" by turning the audience into co-researchers and pupils of a scientific demonstration. As such, cinema transformed the kiss into a new entity, a "kinetoscopic kiss," fourteen yards long (the length of the film strip) and forty-two feet tall (the height of the screen). This new kiss – "a kiss transferred to a film," offered, according to the article, "unlimited possibilities": the audience would now be able to see the difference between false cheek rubbings and real lip-to-lip kisses, and perhaps, the newspaper humorously speculated, young

women could send their kisses by post simply by tearing "one yard of them from a kinetoscope strip." Long before today's *E.E.G. KISS*, the new medium of film allowed for the imagination of a mobile kiss that could be stored, judged and mailed. In 1922, another American newspaper article, *The latest 'love science' exposes the thrill of the kiss*, allowed readers to linger on photographs of cinematic kissing couples as the images were overlaid with anatomical diagrams of neural pathways that showed how the spark of a kiss traveled from the lips to the brain and finally to the heart.⁵ In teaching readers that "It's just electricity", the article was authorised to print a "Movie Kiss" which, so it told its audience, had been limited from view in the theatre by a maximum of three feet of film strip – or, one might say, three feet of kiss. With some irony, popular science articles camouflaged what must have been implicitly obvious to the readers: that cinematic kisses are just as exciting as real kisses, and that mediated kisses also move their audiences, make bodies quiver in their longing for a similar touch.⁶ Hence, appropriate and permissible scientific views of kisses were captivating, exactly because they allowed a view of the inappropriate, titillating spectacle of the kiss; thus, early popular accounts of 'love science' consciously made use of this paradoxical situation.

We love neuroscience!

The *E.E.G. KISS* of 2015 is strikingly different from the 'love science' of one century ago. It is not primarily the kiss that draws our attention, but it is neuroscientific kissing that excites the participants of *E.E.G. KISS*. We do so love neuroscience! While the early popular science stories employed a scientific framework to enable the staging of the spectacle of the kiss, I would argue the reverse; that in *E.E.G. KISS*, kissing serves as an iconic case study for a spectacle of science. As such, this art project straddles a difficult and ambiguous line: while it draws upon the authority and popular appeal of neuroscience research and turns us into objects of research, it simultaneously puts the scientific research itself on display

and turns us into co-researchers of the scientific situation. What is a 'natural' kissing situation? How does a view of my data influence my kiss? *E.E.G. KISS* assembles objects, subjects, researchers, viewers and machines into a hybrid mix – with new agency and intensity. Indeed, if we regard this performative experiment as a site of creative production, it becomes impossible to simply untangle the logics of 'art' and 'science' – hybrids defy easy classification. Beautiful images of cyborg-looking couples surrounded by a sea of data-waves are the afterlife of every *E.E.G. KISS* per-

formance. On the one hand, these images are shared by artists and participants, who thereby reclaim the interpretation of recorded data. Yet, on the other hand, attractive pictures of neuro-kissing also serve as public promotion for commercial neuro-tech-companies. *E.E.G. KISS* actively reshapes and also reinforces the aesthetics of popular 'neuromania' and partakes in the imagination of neurofutures. And it did one more important thing. It allowed me to kiss someone for the sake of art-science. It allowed me to kiss my best friend.

Popular science articles camouflaged what must have been implicitly obvious to the readers: that cinematic kisses are just as exciting as real kisses, and that mediated kisses also move their audiences, make bodies quiver in their longing for a similar touch.

at the same time, this performative "social lab" has many other effects. It drives data engineers to madness, for example, by constantly subverting the boundaries of what counts as a valid scientific measure of brain activity. During a Baltan event, I heard the lead programmer of the *E.E.G. KISS* visualisation software ask: how do we know what the data means, if it isn't clouded by the muscle movements of our faces? For the artists, in contrast, the idea of a muscle-body-brain-hybrid that shows up on the screen is not problematic; on the contrary, it

is a gorgeous and provocative new 'artifact' produced by the work. It is this artifact that is at the heart of *E.E.G. KISS* – ambiguous data appropriated by co-researchers into a novel entity – 'a kissing portrait' – with new agency and intensity. Indeed, if we regard this performative experiment as a site of creative production, it becomes impossible to simply untangle the logics of 'art' and 'science' – hybrids defy easy classification. Beautiful images of cyborg-looking couples surrounded by a sea of data-waves are the afterlife of every *E.E.G. KISS* per-

References

- 1 Maat, Hermen and Karen Lancel, "E.E.G. KISS", <http://www.lancelmaat.nl/work/eeg-kiss/>
- 2 Musser, Charles. "The May Irwin Kiss: Performance and the Beginnings of Cinema." In *Visual Delights Two: Exhibition and Reception*, edited by Vanessa Foulmin and Simon Popple, 96–115. Eastleigh: John Libbey Eurotext, 2005.
- 3 Sokalski, J.A. "Performed Affection: The Spectacle of Kissing on Stage and Screen." In *Allegories of Communication: Intermedial Concerns from Cinema to the Digital*, edited by John Fullerton and Jan Olsson, 299–319. Rome: J. Libbey Pub., 2004, 310.
- 4 Guirk, M. "The Anatomy of a Kiss." *New York World*, April 26, 1896.
- 5 "The Latest 'love science' exposes the thrill of the kiss", *The Morning Tulsa Daily World*, October 8, 1922.
- 6 On 'embodiment relations' in viewing kisses, see Williams, Linda. "Of Kisses and Ellipses: The Long Adolescence of American Movies." *Critical Inquiry* 32, no. 2 (2006): 327.

The latest "Love Science" Exposes the Thrill of the KISS

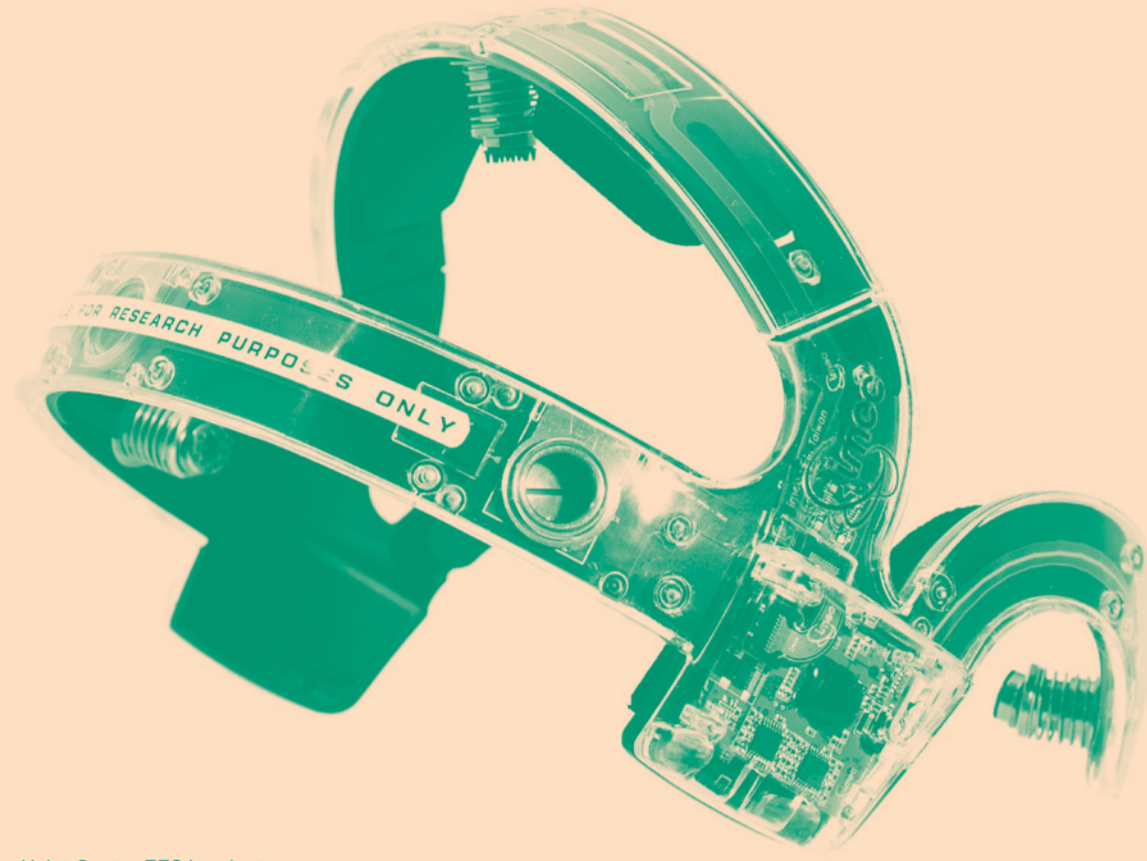
It's Just Electricity! Lovers' Lips Are "Conductors" and "Spark" When They Meet, Says Famous Dr. Andre Tridon

According to the Electrical Theory of Kissing, the current generated in the brain...
The "Vampire Kiss," or Kiss of Passion, Which Dr. Tridon Also Analyzes Scientifically.
Even Birds and Animals Kiss. These Affectionate Horses Were Snapped at the London International Horse Show.

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Holst Centre EEG headset

Research tool



Holst Centre EEG headset:
 - Wireless (BT)
 - 4-channel active dry electrodes
 - Targets medical grade data
 - Seconds calibration and startup time

Fourtress: embedded software services

Programming a kiss

By Koen Snoeckx

How do you translate an artistic vision into a technical implementation? That's the main challenge that Fourtress – an organisation for embedded software services – has been tackling throughout the E.E.G. KISS project. "It has been very motivating to interact with artists, who have a different focus than our average clients," says Fourtress programmer Tom Hilgeman. "Normally, our clients have a lot of technical know-how themselves and specific demands regarding the implementation of our solutions. The artists were much more focussed on the desired outcome, and we had more freedom and a more pronounced advisory role regarding the technical choices that needed to be made."

Tom got involved in the very beginning of the project, then concentrated on another assignment, and finally resumed participation almost a year later. He was happily surprised by the progress that had been made during his absence. "I remember in the beginning we were tackling the very basics, such as getting a proper read-out of the raw EEG data from the headset. Less than one year later, we have implemented a complete platform in Python code with various filters, and adjustable for multiple sensor types. On top of that, we built an engine in C++ code that runs the visual and audio feedback of the E.E.G. KISS."

What started as 'a nice idea' for Fourtress's 15th anniversary turned into a full-scale project. It was assigned

its own account manager and Fourtress treated the E.E.G. KISS project exactly as it would a paying customer. Throughout the year, at least four programmers got directly involved, spending an average of three days a week programming the E.E.G. KISS.

"A lot of the Fourtress programmers have creative hobbies themselves. Apart from the technical challenges in the project, we got a lot of satisfaction from the interaction with professional artists. We are very proud knowing that the result of our efforts will travel around the world in the form of an artistic installation."

Sjors Ruijgrok and Bas Kooiker, the main programmers on the Fourtress team, retell an amusing anecdote: "We used the E.E.G. KISS to exhibit at a technical conference. The positive responses were numerous. Only ... there are typically not a lot of couples at these kind of conferences. At the end, two friends spontaneously decided to kiss, as they said, 'for the sake of science'. For us, it was an eye-opener how this artistic installation triggered people in a very different way than we are used to, when we present our technologies."

E.E.G. KISS will première in March 2016 in the Belvedere Museum in Vienna (Austria). With Gustav Klimt's kiss being part of its permanent collection, artists Karen Lancel and Hermen Maat couldn't have dreamt of a more iconic location.

Making waves, making music

By Jane Hardjono

Festival of Flanders "Pressure Cooking" festival extracts local and international musicians from "fixed" ensembles and puts them into temporary "mixed" ones. Removed from their comfort-zone, these brave music-makers are put into different combinations where they learn, rehearse and perform new repertoire every day of the festival. This results in exciting, "live" one-off experiences, for musicians and audience members alike. For years the organisers had a hunch that the changing composition of performers had an impact on their creativity, or their state of flow. They felt that "flow" was certainly elevated in the new, less-rehearsed situation. So what better way of proving their hypothesis than hacking the body?

Earlier this year Kris Jannis & Bob Permentier (B-Classic – part of Flanders Music Festival), Tom De Smedt (Experimental Media Research Group St. Lucas Antwerp), Gaëlle Dhooghe (clinical psychologist) and partners came together to conduct a performance experiment entitled FLOW. Dhooghe describes the process and the findings:

What were you measuring to be precise?

"We were looking at the concept of flow as the state of mind where you are totally into what you were doing. You are focussed, concentrated, but in quite a relaxed way that promotes creativity. We knew from previous research that with EEG equipment you can measure alpha and beta waves. Beta waves are typical when people are under a lot of stress or anxiety, which is not the type of wave you are looking for when you are trying to promote flow or creativity. Alpha waves show you are relaxed, you are calm inside but your attention is very focussed. Research shows that

a kind of art-piece behind the musicians. There was a reflection of their brainwaves in figures of light and these changed while the brainwaves changed. The musicians themselves could not see the art-piece, because that might influence them, based on bio-feedback. The audience could see the changes in the musicians' brainwaves. There was also someone in the audience who wore a sensor and that conducted light in the audience; light bulbs would glow brighter or dim according to how the person in the public reacted. Further, that was not measured, but it seemed like fun to include that in the process to make the audience a participant of our idea."

How did you conduct the research, and what were the findings?

"We used EEG equipment to measure brainwaves. We did one measurement for each musician when they were rehearsing with their "fixed" ensemble, and one measurement when they were performing in the new, "mixed" ensemble at the festival. When we compared the musicians, we compared each musician with himself. In general, you could actually see the alpha waves increasing in the new performing ensemble, which is quite what we expected. They were also slightly elevated during musical parts (in the score) which the musicians themselves would refer to as "more intense". The alpha waves generally decreased when stress went up, for example when a musician played a mistake."

What were the limitations of this experiment and what further research is in order?

"There was one person in whom we did not see this pattern. The alpha waves went down instead of up. We had conducted personality

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alpha waves are strongly linked to creativity and coming up with more creative solutions."

The Pressure Cooking festival also mentions how these types of concerts require the musicians to interact with the audience - how did the audience get involved at the experiment-performance/s?

"The (head-set) sensors on the musicians were translated into

WE ARE DATA

By Hester Swaving

Please can you briefly describe the project WE ARE DATA?

WE ARE DATA is a travelling installation that allows the audience to experience how they become data. As in: every movement we make, every action we take, every emotion we feel ... is data. This data is stored and presented as 'truth'. The factuality of data gives us information, but it can also have a downside. If technology can hack our very minds, the privacy debate becomes intrusive and deeply personal. WE ARE DATA examines how far technology might enter into our private domain.

WE ARE DATA was initiated during the Mediafund/Sandberg Masterclass 2014. Can you describe your initial ideas and how you came to develop this concept?

In the public debate the generation and storage of personal information (data) and associated questions about security and privacy play an increasingly important role. And this role will only increase in future, as we make technological

advances in collecting personal data and using it.

During the Masterclass/Sandberg Media Fund in 2014, documentarian Thomas Blom and designer Tijn Akkermans researched the theme of 'Quantified Reality'; a story between power, privacy and data'. They realised that while we can hardly influence this development described above, we can make a contribution by creating more awareness about it. To do this we make the abstract discussion about data and privacy more concrete. The WE ARE DATA 'Mirror Room' will make the subject of data and privacy tangible by confronting people with their own (hidden) information.

The following questions were raised during the Masterclass/ideas incubator, for the idea of the WE ARE DATA 'Mirror Room':

"When viewed through the window of the world, figures appear to be increasingly transparent. 'Big Data' promises insight, transparency and oversight, but also raises questions. What remains of privacy in a fully transparent world?"

"Can our lives be caught in numbers? And which numbers, then? Who decides what sort of data is decisive? *Quantified Reality* can be just as revealing as it can be

veiled. Most of our questions about data cannot be answered objectively. Rather, the answer depends on the subjective framework within which the question is asked. These frameworks have a moral, ideological or metaphysical foundation. Technology is one of the frameworks that align our lives. The wheel, the written word, the sword, gunpowder, the printing press, the computer - all these inventions have changed not only the humanity of life, but also how we humans experience life."

What is your ambition with the installation?

WE ARE DATA is not an indictment of technological development or privacy violation nor does it oppose the destruction of our physical integrity potentially resulting from it. Technical progress has enabled the collection of personal information, or data; the subject of debate is the recording and storage of data. Still, most people are too far removed from all this. Privacy is an abstract and diffuse topic that most of us gladly leave to politicians and policy-makers.

The WE ARE DATA 'Mirror Room' makes the subject tangible and gives people a conscious-action perspective. We focus specifically on various target groups: young

freedom of thought, and their own conscience. We want to hold a mirror up for visitors and help them become "data-savvy" so that they gain a better understanding of the new technologies to which we are exposed.

From April 2016 to October 2017 at least 15 locations will programme the WE ARE DATA 'Mirror Room'. The project will be launched on 14 April 2016 in Amsterdam at the FabCity Campus during the Dutch Presidency of the European Union - we are still working on the finer details of the tour schedule.

The technology in your installation will be analysing the 'subject' using non-invasive technology. These days, (wearable) sensors and tracking online data can just as easily extract personal information, so why did you decide not to make use of these easily accessible tools and practices?

WE ARE DATA aims to go beyond what other similar projects are doing. When it comes to 'Big Data', the sharing and storing of personal information via Facebook, Instagram, Twitter and other Social Media platforms is a hot topic. Also

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people at festivals, diverse populations in the public space (train stations, city squares), but also well-informed audiences at conferences and events on the subject of data, privacy and the development of new technology.

Our goal is to create an intriguing experience and a moment of confrontation for visitors – using their own, individual, personal (literally, from their person – their body and mind) data. They are made aware of their right to a safe environment, ownership of their personal data,

The shifting boundaries of our privacy is also a hot topic. Still many are indifferent about it because they say they have nothing to hide. With terror threats being top-of-mind the idea of connecting all kinds of systems and tracking personal data has been put back high on the agenda for security reasons (in the western world). How do you feel about this discussion?

WE ARE DATA is not a political statement. We want to create awareness on a very personal and individual level. But technical innovations are developing so rapidly. Soon computers and machines will be able to read the emotions of another person better than a human can. This development will definitely influence our world and our environments. Technology can help us track people and 'feel safer', but the flip side of that is that we will always be monitored, and analysed – we will not even be able to hide our deeper thoughts and emotions. Technology can make us transparent – which is pretty scary.

American philosopher, writer Jaron Lanier wrote about the commodification of personal data in his book *Who owns the future?*. Lanier elaborates on the idea of a future society in which data is our new gold. Or oil. He proposes an alternative in which we get paid by everything we 'achieve' or contribute online. Your thoughts?

Data is not a commodity – data is a *new way to transact*. If a company provides a product that is so attractive people think they cannot live without it, people will cross their own borders and hand over or contribute their data in order to get this product – even if the investment is objectively disproportional. In 'the old days' we plundered our savings accounts to buy some gadget, service or once-in-a-lifetime experience. In the future we might share our personal data to get what we want. For some this might feel like making a major purchase, but in the end people will decide themselves, whether it's worth it – or not. WE ARE DATA aims to make people more "data-conscious" so they can keep a grip on the (possible) consequences of their actions.



You can't lie to your body

Marco Altini is a busy man. Back in 2014 he found himself living away from familiar Europe in Silicon Valley, pouring his heart and soul into two new start-ups, attending to a long-term long distance relationship, completing his PhD and learning the hard way that the sweet spot of work-life balance can easily run off-kilter - especially if you're not keeping it all in check. Lucky for Marco, he could easily hack his body.

By Jane Hardjono

'Wearable technology' - where information is acquired from different sensor modalities connected to our bodies - and 'digital health' are terms that weren't banded around all that much only a decade ago. Marco Altini got into it around 2009 when he was finishing his Masters in Computer Science Engineering. When he took a course that was less about traditional computing, but more focused on sensors and data mining in the context of medical applications, he says "that was probably the first moment I realized I could apply my skills for something more meaningful, and it definitely triggered something."

Back in 2014/2015, Altini found himself in a unique situation, far from home, at an exciting point in his career ... and then things started to fall apart. By chance - at this exact time - he started tracking his stress and productivity using phone apps and a phone camera. "When I moved to San Francisco I was far too optimistic about my ability to handle these new changes. I've always piled up

the work hours, so I didn't see that as a problem at all. But many other sources of stress started accumulating. Distance from Alessandra, my wife, was hard. We've spent about 8 of our 10 years together *apart* in different cities or countries, so we thought we could do it - but definitely underestimated this challenge. Additionally, living in a totally unstable environment, sleeping at the office, no privacy, 2 companies and a PhD to take care

of ... they were not helping. I definitely didn't see it coming."

Some years back, Altini had (as a toolmaker/hacker and runner) developed an app to measure physiological recovery from training using just a smartphone's sensors.

It can capture heart rate variability (HRV), which is regulated by the autonomic nervous system. It can reveal information on how our body reacts to stressors (social, physical, psychological, environmental, etc.). "In San Francisco, I was collecting this information for (running) training. But when we measure HRV, our body reacts to all stressors in a similar way, whether they are physical or psychological. This data turned out to be extremely useful to better understand what was going on with my 'life stress'. I basically got a wakeup call. It was time to change something."

"At first, I was amazed by the relation between my physiological stress (as measured by HRV) and working hours. In stress research we typically see or expect to see a reduction in HRV, i.e. an increase in physiological stress when working

number of working hours. Thinking about this more thoroughly, it made a lot of sense. In today's society things can be very different. I was working many hours trying to build

in making better decisions and hopefully being more effective for longer. You can't lie to your body. This is one more reason to hack it: measure what is going on, and try

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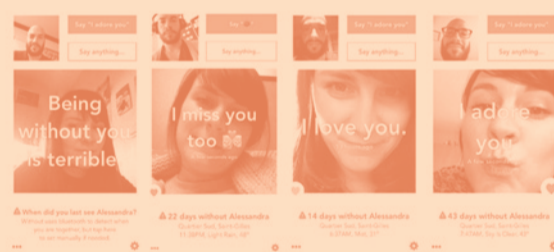
something I believe in, and that was definitely *positive* stress. I am not implying any causal relation here, but a better physiological state (i.e. higher HRV) was always associated with my ability to work effectively for much longer." He goes on to mention that the instability, distance from loved ones, eventually got the better of him and it was hard to stay productive; his physiological stress then ended up high once again.

"For people who love what they do, we really live to work. We are very badly represented by standard clinical studies, where work is always a negative stressor. However, we do put ourselves through much more than what people can normally withstand, and hacking the body can open a window on how we are actually coping with all of it, eventually helping

to make adjustments before it's too late. You can always convince or deceive yourself that everything is all right - but numbers don't lie."

Marco was resistant to change when he came to the conclusion that he might have to introduce "work-life balance" or the dreaded Monday to Friday 9-5 schedule. "I haven't really reduced my working hours or shifted my way of thinking. The key difference here is not working less. What matters is another kind of balance, and I don't think there is any easy recipe for this. Each person is different. For me, it's as simple as being with Alessandra. As soon as I got back from San Francisco last summer, after my "burnout", I was back working 300+ hours/month on different projects.

We'll move to San Francisco *together* in January."



For more than a year, this was my relationship with Alessandra, my wife.

Colophon

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