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VOL 18 NO 3 VOLUME EDITORS **LANFRANCO ACETI, JANIS JEFFERIES, IRINI PAPADIMITRIOU /** EDITORS **JONATHAN MUNRO** AND **ÖZDEN ŞAHİN**

Touch and Go is published in collaboration with Watermans and Goldsmiths College in occasion of the Watermans' International Festival of Digital Art, 2012, which coincides with the Olympics and Paralympics in London. The issue explores the impact of technology in art as well as the meaning, possibilities and issues around human interaction and engagement. *Touch and Go* investigates interactivity and participation, as well as light art and new media approaches to the public space as tools that foster engagement and shared forms of participation.

TOUCH AND *GO*

Watermans International Festival of Digital Art, 2012

Touch and Go **is a title that I chose together with Irini Papadimitriou for this** LEA **special issue.** On my part with this title I wanted to stress several aspects that characterize that branch of contemporary art in love with interaction, be it delivered by allowing the audience to touch the art object or by becoming part of a complex electronic sensory experience in which the artwork may somehow respond and touch back in return.

With the above statement, I wanted to deliberately avoid the terminology 'interactive art' in order to not fall in the trap of characterizing art that has an element of interaction as principally defined by the word interactive; as if this were the only way to describe contemporary art that elicits interactions and responses between the artist, the audience and the art objects.

I remember when I was at Central Saint Martins writing a paper on the sub-distinctions within contemporary media arts and tracing the debates that distinguished between electronic art, robotic art, new media art, digital art, computer art, computer based art, internet art, web art... At some point of that analysis and argument I realized that the common thread that characterized all of these sub-genres of aesthetic representations was the word art and it did not matter (at least not that much in my opinion) if the manifestation was material or immaterial, conceptual or physical, electronic or painterly, analogue or digital.

I increasingly felt that this rejection of the technical component would be necessary in order for the electronic-robotic-new-media-digital-computer-based-internet art object to re-gain entry within the field of fine art. Mine was a reaction to an hyper-fragmented

and indeed extensive and in-depth taxonomy that seemed to have as its main effect that of pushing these experimental and innovative art forms – through the emphasis of their technological characterization – away from the fine arts and into a ghetto of isolation and self-reference. Steve Dietz's question – *Why Have There Been No Great Net Artists?* [1] – remains unanswered, but I believe that there are changes that are happening – albeit slowly – that will see the sensorial and technical elements become important parts of the aesthetic aspects of the art object as much as the brush technique of Vincent Willem van Gogh or the sculptural fluidity of Henry Moore.

Hence the substitution in the title of this special issue of the word interactivity with the word touch, with the desire of looking at the artwork as something that can be touched in material and immaterial ways, interfered with, interacted with and 'touched and reprocessed' with the help of media tools but that can also 'touch' us back in return, both individually and collectively. I also wanted to stress the fast interrelation between the art object and the consumer in a commodified relationship that is based on immediate engagement and fast disengagement, touch and go. But a fast food approach is perhaps incorrect if we consider as part of the interactivity equation the viewers' mediated processes of consumption and memorization of both the image and the public experience.

Nevertheless, the problems and issues that interactivity and its multiple definitions and interpretations in the 20th and 21st century raise cannot be overlooked, as much as cannot be dismissed the complex set of emotive and digital interactions that can be set in motion by artworks that reach and engage large groups of people within the public space. These interactions

generate public shows in which the space of the city becomes the background to an experiential event that is characterized by impermanence and memorization. It is a process in which thousands of people engage, capture data, memorize and at times memorialize the event and re-process, mash-up, re-disseminate and re-contextualize the images within multiple media contexts.

The possibility of capturing, viewing and understanding the entire mass of data produced by these aesthetic sensory experiences becomes an impossible task due to easy access to an unprecedented amount of media and an unprecedented multiplication of data, as Lev Manovich argues. [2]

In *Digital Baroque: New Media Art and Cinematic Folds* Timothy Murray writes that "the retrospective nature of repetition and digital coding—how initial images, forms, and narratives are refigured through their contemplative re-citation and re-presentation—consistently inscribes the new media in the memory and memorization of its antecedents, cinema and video." [3]

The difference between memorization and memorialization may be one of the further aspects in which the interaction evolves – beyond the artwork but still linked to it. The memory of the event with its happening and performative elements, its traces and records both official and unofficial, the re-processing and mash-ups; all of these elements become part of and contribute to a collective narrative and pattern of engagement and interaction.

These are issues and problems that the artists and writers of this LEA special issue have analyzed from a variety of perspectives and backgrounds, offering to the reader the opportunity of a glimpse into the complexity of today's art interactions within the contemporary social and cultural media landscapes.

Touch and Go is one of those issues that are truly born from a collaborative effort and in which all editors have contributed and worked hard in order to

deliver a documentation of contemporary art research, thought and aesthetic able to stand on the international scene.

For this reason I wish to thank Prof. Janis Jefferies and Irini Papadimitriou together with Jonathan Munro and Özden Şahin for their efforts. The design is by Deniz Cem Önduygu who as LEA's Art Director continues to deliver brilliantly designed issues.

Lanfranco Aceti
Editor in Chief, Leonardo Electronic Almanac
Director, Kasa Gallery

1. "Nevertheless, there is this constant apparently inherent need to try and categorize and classify. In Beyond Interface, an exhibition I organized in 1998, I 'datamined' ten categories: net.art, storytelling, socio-cultural, biographical, tools, performance, analog-hybrid, interactive art, interfacers + artificers. David Ross, in his lecture here at the CAD-RE Laboratory for New Media, suggested 21 characteristics of net art. Stephen Wilson, a pioneering practitioner, has a virtual – albeit well-ordered – jungle of categories. Rhizome has developed a list of dozens of keyword categories for its ArtBase. Lev Manovich, in his Computing Culture: Defining New Media Genres symposium focused on the categories of database, interface, spatialization, and navigation. To my mind, there is no question that such categorization is useful, especially in a distributed system like the Internet. But, in truth, to paraphrase Barnett Newman, "ornithology is for the birds what categorization is for the artist." Perhaps especially at a time of rapid change and explosive growth of the underlying infrastructure and toolsets, it is critical that description follow practice and not vice versa." Steve Dietz, *Why Have There Been No Great Net Artists? Web Walker Daily* 28, April 4, 2000, http://bit.ly/QjEWlY (accessed July 1, 2012).

2. This link to a Google+ conversation is an example of this argument on massive data and multiple media engagements across diverse platforms: http://bit.ly/pGgDsS (accessed July 1, 2012).

3. Timothy Murray, *Digital Baroque: New Media Art and Cinematic Folds* (Minneapolis: University of Minnesota Press, 2008), 138.

Touch and Go: The Magic Touch Of Contemporary Art

It is with some excitement that I write this preface to Watermans International Festival of Digital Art, 2012. It has been a monumental achievement by the curator Irini Papadimitriou to pull together 6 ground-breaking installations exploring interactivity, viewer participation, collaboration and the use or importance of new and emerging technologies in Media and Digital Art.

From an initial call in December 2010 over 500 submissions arrived in our inboxes in March 2011. It was rather an overwhelming and daunting task to review, look and encounter a diverse range of submissions that were additionally asked to reflect on the London 2012 Olympic and Paralympic Games. Submissions came from all over the world, from Africa and Korea, Austria and Australia, China and the UK, Latvia and Canada and ranged from the spectacularly compli-cated to the imaginatively humorous. Of course each selector, me, onedotzero, London's leading digital media innovation organization, the curatorial team at Athens Video Art Festival and Irini herself, had particu-lar favorites and attachments but the final grouping I believe does reflect a sense of the challenges and opportunities that such an open competition offers. It is though a significant move on behalf of the curator that each work is given the Watermans space for 6 weeks which enables people to take part in the cul-tural activities surrounding each installation, fulfilling, promoting and incorporating the Cultural Olympiad themes and values 'inspiration, participation and cre-ativity.'

Some, like Gail Pearce's *Going with the Flow* was made because rowing at the 2012 Olympics will be held near Egham and it was an opportunity to respond and create an installation offering the public a more interactive way of rowing, while remaining on dry land, not only watching but also participating and having an effect on the images by their actions. On the other hand, Michele Barker and Anna Munster's collabora-tive *Hocus Pocus* will be a 3-screen interactive art-work that uses illusionistic and performative aspects of magical tricks to explore human perception, senses and movement. As they have suggested, "Magic – like interactivity – relies on shifting the perceptual rela-tions between vision and movement, focusing and diverting attention at key moments. Participants will become aware of this relation as their perception catches up with the audiovisual illusion(s)" (artists statement, February 2011). Ugochukwu-Smooth Nzewi and Emeka Ogboh are artists who also work collaboratively and working under name of One-Room Shack. *UNITY* is built like a navigable labyrinth to reflect the idea of unity in diversity that the Games signify. In an increasingly globalized world they are interested in the ways in which the discourse of glo-balization opens up and closes off discursive space whereas Suguru Goto is a musician who creates real spaces that are both metaphysical and spiritual. *Cymatics* is a kinetic sculpture and sound installa-tion. Wave patterns are created on liquid as a result of sound vibrations generated by visitors. Another sound work is Phoebe Hui's *Granular Graph,* **a** sound instrument about musical gesture and its notation.

Audiences are invited to become a living pendulum. The apparatus itself can create geometric images to represent harmonies and intervals in musical scales. Finally, Joseph Farbrook's *Strata-caster* explores the topography of power, prestige, and position through an art installation, which exists in the virtual world of Second Life, a place populated by over 50,000 people at any given moment.

Goldsmiths, as the leading academic partner, has been working closely with Watermans in developing a se-ries of seminars and events to coincide with the 2012 Festival. I am the artistic director of Goldsmiths Digital Studios (GDS), which is dedicated to multi-disciplinary research and practice across arts, technologies and cultural studies. GDS engages in a number of research projects and provides its own postgraduate teaching through the PhD in Arts and Computational Technol-ogy, the MFA in Computational Studio Arts and the MA in Computational Art. Irini is also an alumni of the MFA in *Curating* (Goldsmiths, University of London) and it has been an exceptional pleasure working with her generating ideas and platforms that can form an artistic legacy long after the Games and the Festival have ended. The catalogue and detailed blogging/documentation and social networking will be one of our responsibilities but another of mine is to is to en-sure that the next generation of practitioners test the conventions of the white cube gallery, reconsider and revaluate artistic productions, their information struc-ture and significance; engage in the museum sector whilst at the same time challenging the spaces for the reception of 'public' art. In addition those who wish to increase an audience's interaction and enjoyment of their work have a firm grounding in artistic practice and computing skills.

Consequently, I am particularly excited that the 2012 Festival Watermans will introduce a mentor-ing scheme for students interested in participatory interactive digital / new media work. The mentoring scheme involves video interviews with the 6 selected artists and their work, briefly introduced earlier in this preface, and discussions initiated by the student. As so often debated in our seminars at Goldsmiths and

elsewhere, what are the expectations of the audience, the viewer, the spectator, and the engager? How do exhibitions and festival celebrations revisit the tradi-tional roles of performer/artist and audiences? Can they facilitate collaborative approaches to creativity? How do sound works get curated in exhibitions that include interactive objects, physical performances and screens? What are the issues around technical sup-port? How are the ways of working online and off, in-cluding collaboration and social networking, affecting physical forms of display and publishing?

As I write this in Wollongong during the wettest New South Wales summer for 50 years, I want to end with a quote used by the Australia, Sydney based conjurers Michele Barker and Anna Munster

> *Illusions occur when the physical reality does not match the perception.* [1]

The world is upside down in so many alarming ways but perhaps 2012 at Watermans will offer some mo-mentary ideas of unity in diversity that the Games signify and *UNITY* proposes. Such anticipation and such promise!

Janis Jefferies
Professor of Visual Arts
Goldsmiths
University of London, UK

23rd Dec 2011, University of Wollongong, NSW, Australia

1.   Stephen L. Malnik and Susana Martinez-Conde, *Sleights of Mind: What the Neuroscience of Magic Reveals about our Everyday Deceptions* (New York: Henry Holt and Company, 2010), 8.

Leonardo Electronic Almanac
Volume 18 Issue 3

An account of using medical imaging systems to photograph consciousness in the context of a digital arts practice

BLACK BOXES AND GOD-TRICKS

ABSTRACT

Throughout the Spring and Summer of 2011 I attempted to photograph my own 'consciousness.' My reasons for engaging in this research stem from a long-term interest in the limits of representation, a research process that began with pragmatic attempts to represent my own missing memories. Using sensory technologies and software I developed for the purpose of streaming live EEG readings into digital images I extended my research to incorporate the imaging of consciousness. The imaging systems I have developed and their implications will be explored here.

by

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Eleanor Dare

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Is the meaning and knowledge embedded in an image ever generative of direct knowledge or truth, as a positivist interpretation might claim, or are images of concepts such as consciousness and identity illusions in the nineteenth century tradition of photographing fairies and ghosts? What does it mean for arts practice to engage with instrumentalist, scientific methodologies, to draw upon medical imagery and the truth claims of neuroscience? My own work with EEG (electroencephalography) and other types of bio-sensing technology has explored these questions

at first hand, providing me with the opportunity to outline here some of the difficulties and pleasurable paradoxes of attempting to photograph consciousness, and of drawing upon insights from neuroscience in my own photographic and programming practice.
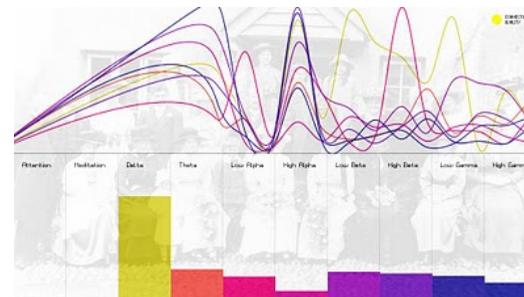
Above, my brainwave data streamed from an EEG headset into software.

The entire visual world has been described as a 'grand illusion,' [1] a realm which we can only ever encounter with partial information, in which we must constantly discard information in order to interpret it. This grand illusion requires no tricks to be perpetrated, but In the 19th century so-called *phantasmagoria*, was to quote Antonio Lopez:

> ... *a popular entertainment spectacle that incorporated smoke, mirrors, and projected light to create illusions during live performances. The term itself combines roots for ghost or spirit (phantasm) and gathering (agora). Webster defines it as, 1: an exhibition or display of optical effects and illusions; 2 a: a constantly shifting complex succession of things seen or imagined b: a scene that constantly changes; 3: a bizarre or fantastic combination, collection, or assemblage.* [2]

But, in attempting to generate any type of photographic self-portrait are we perpetrating a type of fraud, an illusion of both stable subjectivity and direct representation?

Throughout the Spring and Summer of 2011, and, I will argue, in the spirit of such phantasmagoria, I attempt-

ed to photograph my own 'consciousness.' My reasons for engaging in this research stem from a long-term interest in the limits (and reliability) of symbolic representation, particularly the formal systems of representation embedded in programming practices. The research process began with pragmatic attempts to represent my own missing memories. Using sensory technologies and software I developed for the purpose of streaming live EEG readings into digital images I extended my research to incorporate the imaging of consciousness, or perhaps, more strictly speaking the 'neural correlates' of consciousness, shadows of consciousness reflected on the metaphorical walls of digital structures.

The images I have generated range from 'medical imagery' of my brain activity to the 'Pepper's Ghost' illusion, images of 'etheric bodies' and Chakras (representative of 'universal consciousness') and high-speed images of saccades, capturing the ninety waking minutes a day each of us reputedly spends in total darkness.

Above, film stills of my electrocution, which was triggered in response to brainwave data, E.Dare, January 23, 2011. [3]

The project evolved from an initial attempt to work with my absent memories, or rather, events that were not remembered, through what I could describe in orthodox terms as the 'medium of photography.' But the images I have worked with are not only mediums, but actants, mutable and agential, changing their shape in response to my anxieties and embodiment, the electricity in my brain, and in turn, changing my brainwave activity. Having worked this way with EEG sensors and photographs I decided to see if I could similarly pho-

tograph my own 'consciousness,' but, consciousness is a contentious notion. Combined with the no less contentious practice of photography, or 'photographic truth' the project rapidly revealed itself as a discourse upon illusion and epistemic uncertainty. Conscious-ness is both private and subjective, interdisciplinary and slippery. A 400 page book such as Susan Black-more's *Introduction to Consciousness* (2007) self-consciously fails to provide a definition of conscious-ness, it is therefore intrinsically problematic to claim to represent it. Which brings me to the central questions engendered by this research, which are: what exactly am I photographing and what kinds of photographs am I generating?
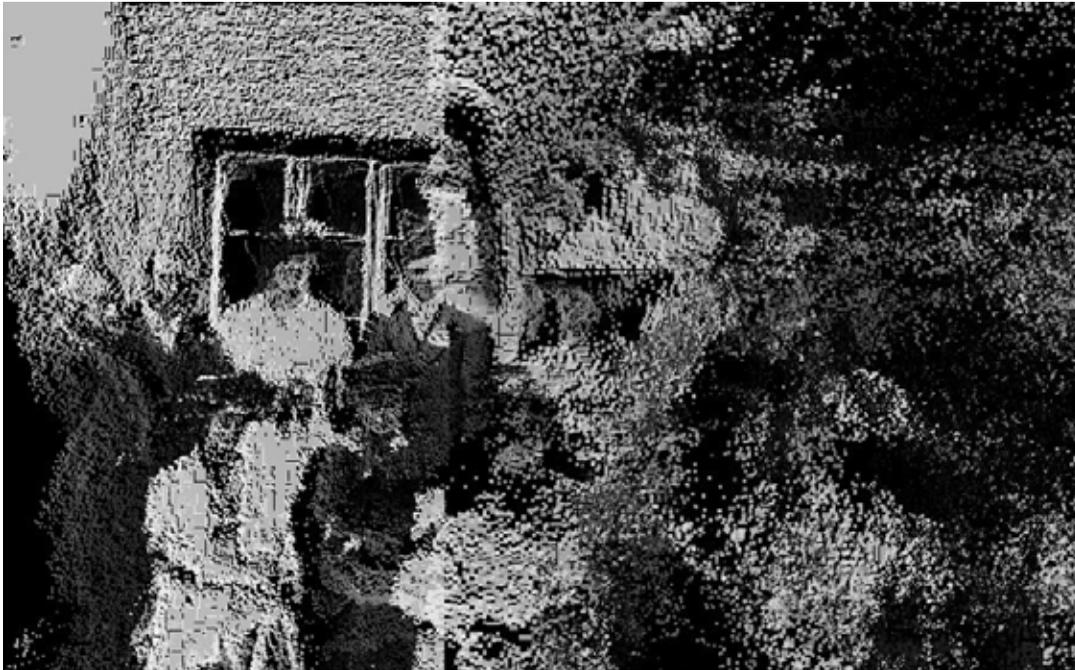
Above, images of my grandmother and other relatives variously transformed by EEG data streamed from my brain into custom-made software. The aim was to respond to brain-wave frequencies indicative of anxi-ety (E. Dare, 2011).

Are these photographs generative of consciousness, ontologically embedded one with the other, or, on the other hand, is all vision a grand delusion of reality as Alva Noë (2002) has asked? Susan Blackmore and her colleagues, write:

We believe that we see a complete, dynamic pic-ture of a stable, uniformly detailed, and colourful world, but our stable visual world may be con-structed out of a brief retinal image and a very sketchy, higher-level representation along with a pop-out mechanism to redirect attention. The richness of our visual world is, to this extent, an illusion. [4]

What I have undertaken in pursuit of answers to these questions is arguably, and inevitably, an unsatisfac-tory form of reductionism that is bound by process, a symbiosis that I will argue is similar to the rela-tions between the self and subjectivity, a system of representation that is epistemically and dynamically co-dependent, but not fixable as rigid representa-tions. In constructing these images I also construct consciousness, which becomes, like the ego or subjec-tive identity, both a thing and an impalpable no-thing (nothing).The relationship between consciousness and subjectivity is clear, consciousness is by definition something that happens to someone, the 'hard prob-lem' of consciousness identified by David Chalmers, [5] is understanding the connection between the realm of objective materials and subjective 'inner' experiences, sometimes framed (though not by Chalmers) as the unique experience of qualia – or subjective conscious experience of tastes, colors and feelings.

But how might such experience be represented visu-ally while preserving the paradox and complexity at play? Sturken and Cartwright describe the "aura of machine objectivity" that "still clings to mechanical and electronic images. All camera generated images, be they photographic, cinematic, or electronic (video or computer generated) bear the cultural legacy of still photography, which historically has been regarded as a more objective practice, then say, painting or drawing. This combination of the subjective and the objective is a central tension in camera-generated images." [6]

Positivism arguably denies photography its performa-tive theatricality, its illusory artfulness, the subjective mediation and articulation that we readily ascribe to hand-rendered images. This is a tension that Cartwright and Sturken identify as embedded in our shared belief "that photographs are objective or truth-ful records of events. Our awareness of the subjec-tive nature of imaging is in constant tension with the legacy of objectivity that clings to the cameras and machines that produce images today." [7] This is no less true in my own work, in which I must repeatedly ask myself what exactly am I photographing, and like oth-ers before me what exactly is a photograph?

FUNCTIONALISM

If functionalist definitions of consciousness, those that model consciousness as a network of inputs and outputs, are credible then the problem of photograph-ing consciousness might be easily reduced to a type of medical imaging procedure. In approaching the conundrum of photographing my own consciousness I researched the possibility of reducing the task to a type of electro-physical imaging algorithm and will report the outcome of that approach here. Perhaps, however, it is no surprise that this course of action left

the problem unresolved, arguably entangled in meta-phor rather than the epistemically generative images I was interested in producing. And so I pursued a range of other processes that each address the core concep-tual and philosophical questions attached to the idea of representing consciousness photographically.

The first question I asked of these images is ontologi-cal – is the notion of photographing consciousness inevitably realist? By this I mean, is consciousness a material that can be visualized, in keeping with an orthodox scientific materialism, that, to quote Amit Goswami, assumes "that only matter – consisting of atoms or, ultimately, elementary particles – is real"? [8] In order to investigate this idea I initially focused my energies into imaging an electro-physical visual model of my own consciousness.

IMAGE 1: ELECTRO-PHYSICAL IMAGING OF CONSCIOUSNESS USING EEG (ELECTROENCEPHALOGRAPHY)

Electro-physical imaging of consciousness has been attempted, and it is easy to find claims for the reli-ability of such images. Medical imagery is now quite familiar, for example ultrasound images of foetuses are almost common-place. Yet, for all their mundan-ity (or, indeed, because of it) such images should not remain un-theorized, as Kember states "science and technology are fully cultural and ideological processes." [9] Kember provides us with a thorough critique of pho-tographic objectivity, in particular the "omnipotence fantasies" of medical epistemology. [10] But, what Kember calls the "sovereignty of the empirical," is far from able to solve the problem of consciousness.

Above, my brainwave frequencies are mapped to colors as I capture EEG readings from the front of my brain. Blues and purples are at the 'aroused' or more acutely conscious end of the spectrum, while yellows and oranges are at the lower end of the frequency spectrum, typically characterized as less alert and closer to (or actually in) a sleeping state.

These models reduce consciousness to a flow of information, they are dualist, disembodied, computationalist. [11] An idea that frames inner experience as a series of computations, no more than the manipulation of symbolic representations. In this model the notion of photographing consciousness is trivial, a matter of using accurate electro-physical technology to capture a flow of 'data.'

IMAGE 2: FRACTIONAL FIXATIONS AND THE GLASGOW COMA SCALE

According to the mechanistic view of mind outlined above, the presence of consciousness is neither necessary nor empirically provable. This view is compatible with the images I have just discussed, in which, what some of us might like to think of as consciousness, is instead reduced to a flow of data that is no more conscious than a telephone is conscious
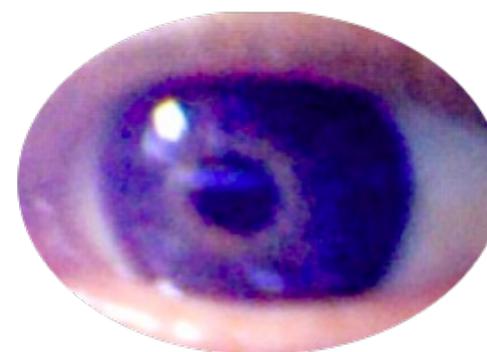
of conversations or a computer is conscious of the concept of algorithms. But this is where computer and cognitive science depart from medical science, which clearly does believe in consciousness, or a particular type of consciousness which is physically and empirically measurable. The Glasgow Coma Scale (GCS) is a measure of consciousness that assesses responsiveness and comprehension. It is an "objective way of measuring the level of consciousness after a trauma by checking three types of responses—eye opening, motor responses (movements), and verbal responses (talking; knowing time, place, and who they are). The GCS is performed in the emergency room and intensive care unit to help decide the seriousness of the brain injury." [12]

My first attempt to use a computer program to assess my level of consciousness on the Glasgow Coma Scale worryingly suggested that I might have a mild head-injury, but on further investigation I was glad to find no loss of consciousness was detectable. Is this, however, a too literal approach to consciousness? Many people may find this a facile proof that humans (and possibly other animals) posses consciousness. Perhaps this disdain for so literal, or pathologized a framing of consciousness intuitively implies that consciousness is an idealist construct, that it is a non-physical phenomena? I concur that the GCS is not particularly helpful

proof of consciousness outside of non-medical definitions of the term, after-all, these responses could also be programmed into a computer or a robot (but that is a long way from saying either could pass a Turing test, or in other words, pass for human).

Below, my first attempts at self-assessment with the Glasgow Coma Scale suggested I might have a 'mild head injury.' [13]

Above, proof of consciousness, my eye responding and opening spontaneously to external stimuli.

But am I conflating one type of consciousness with another? If so, what are the differences between the consciousness measured by the GCS and the notion

of consciousness that other disciplines find so hard to define, let alone prove? Is, proposing two types of consciousness an unhelpfully dualist proposition? Gilbert Ryle proposed that the very notion of consciousness was dualist, generative of false constructs that separate consciousness from language and action.
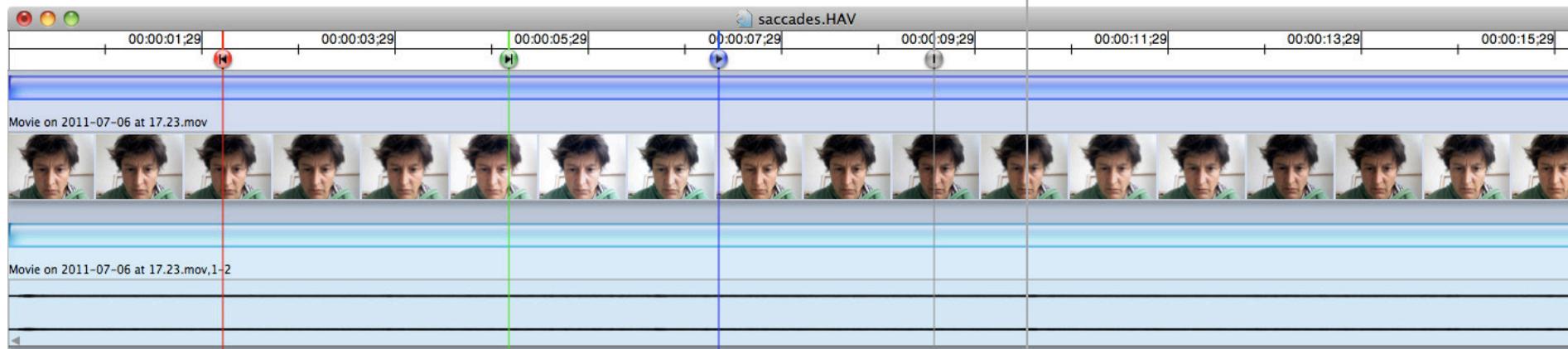
Above, images of saccades, the moments in between 'fractional fixations' or the ninety waking minutes a day each of us reputedly spends in total darkness. These are cognitively indiscrete moments of darkness, a partial loss of awareness. At no point during the filming of this sequence was I conscious of being in darkness.
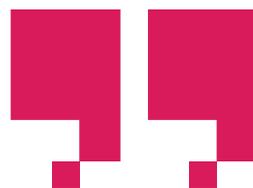

IMAGE 3: GHOSTS IN THE MACHINE

Above, a Pepper's Ghost illusion of the Buddha. The box that contains the Pepper's Ghost (a system of mirrors and lights) is connected to an EEG machine, if the EEG machine detects significant frequencies that correlate to non-localized, or meditative consciousness, the box becomes lighter, revealing an illusion of the Lord Buddha praying. Digital images and system, Eleanor Dare, 2011.

The next set of images I generated addressed the question, "What might an absence of localized, self-identified consciousness look like?"

IMAGE 4: CHAKRAS, ETHERIC BODIES AND UNIVERSAL CONSCIOUSNESS

Having photographed myself in a state of apparent oblivion, the next set of images I generated addressed the question, *what might an absence of localized, self-identified consciousness look like?* Insight into the absence of an absolute self is not only a Buddhist notion but also as Epstein (2007) points out, a practice explored by Freud in papers written by him between 1912 and 1923. Freud recommend the analyst should "withhold all conscious influences from his capacity to attend, and give himself over completely to his unconscious memory" [14], that they should surrender to "evenly suspended attention." [15] This takes us back to the double-bind of the selfless self-portrait, taken automatically by my software when I am apparently in a state of 'impartial attention," indicated by my Theta state (tantamount to a dreamless sleep), a state of impersonal consciousness. One could argue this is a state of proxy consciousness, in which the computer observes a meta-consciousness on my behalf and decides when to take the picture. So is this strictly a self-portrait, or a non-self portrait, of minimal presence, raising the question, who is that person? But this is not to establish a polarity between two different types of person, paradoxically, "conscious intellectual

activity' is not opposed to evenly suspended attention but is consistent with it." [16]

Goswami's conception of evenly-spread consciousness, or "non-local knowing" [17] brings us closer to a unitive consciousness [18] in which subjective separation is illusory.

Below, results from my Chakra Test, and mapped to my body, July 8, 2011. [19]

PROPOSITIONAL CONSCIOUSNESS: WHAT RED IS LIKE: 'MARY' THE COLOR EXPERT

The neuroscientist David Chalmers (1995) has highlighted the difficulty of understanding how the experience of external phenomena is generative of unique consciousness. Chalmers investigates this problem through the question, how do we 'experience' red? Do we, Chalmers asks, have a knowledge of red beyond that of the computer that generated the image of the red square below? Blackmore suggests we can divide people between materialists or dualists by a simple question (Blackmore, 2009: 28): if a color-blind scientist knew everything there was to know about colors (everything except ever having seen those colors), and s/he lives in a future era where we know everything there is to know about color and its perception, would the sudden recovery of color vision add anything to her knowledge of the color red?

Below, the 'purest' red I can generate via programming language on a MacBook Pro. Through this code the computer chooses which color to use based on conditional logic, but what do we know about red that a computer does not know? How is our experience of color different from a computer's? Do computers 'experience' color? If computers cannot 'experience' color in the sense that we do, does that point to our 'consciousness' as David Chalmers asks?


```
sketch_jul08a §

String red;
String blue;
String green;

String temperature;

void setup() {
  size(400, 400);
  red = "red";
  blue = "blue";
  green = "green";
  temperature = "red";
}


void draw() {
  noStroke();

  if (temperature.equals(red) == true) {

    fill(255, 0, 0);
    rect(0, 0, width, height);
  }
  else if (temperature.equals(blue) == true) {

    fill(0, 0, 255);
    rect(0, 0, width, height);
  }
  else {

    fill(0, 255, 0);
    rect(0, 0, width, height);
  }
}
```
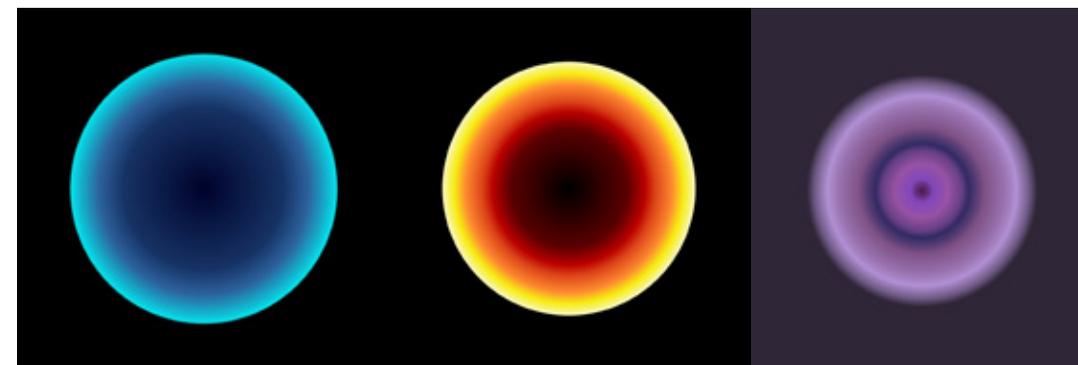

If you believe Mary will gain additional experience and knowledge of color once she is no longer color-blind, then you may be surprised to know you are taking a dualist, materialist position. This position requires the premise that we inhabit two realms, with two types of experience available to us, the physical-material and non-material, where we experience qualia. Qualia might be described as the 'feeling' of red, an irreducible subjective experience that cannot be reduced to the materiality of colors, tastes, smells etc. Qualia might be the individual experience of eating a cake, smelling a perfume, subjective feelings that arguably separate our own experience from the knowledge computers might have of colors. If, however, you believe Mary will gain nothing new from becoming fully color sighted, then, like the philosopher of mind Daniel Dennett, [20] you are a materialist, physicalist. To be a materialist means you believe there is only material, no irreducible, ineffable subjective experience.

A propositional knowledge of red could arguably be programmed into a computer (though such an approach would be exponentially generative of further rules – known as an *infinite regress*, for example, in the code above I have described colors in terms of temperature but I have not defined temperature. If I began to define temperature I would then have to define the terms of that definition. I could also provide the computer with a huge database of associative terms and connotations for colors, such as 'red for danger,' blood, Matadors, apples, traffic lights etc as well as exhaustive scientific data about color that might easily surpass most non-expert human knowledge of it. But as David Chalmers [21] asks, does this type of knowledge equate to experiencing red, to being conscious of color? In other words, and to paraphrase Antonio Damasio, what is the feeling that happens when we experience the color red? [22]

My own research and my own practice suggests that no one can answer this question definitively. Fortunately within the context of my own practice such causal non-closure is not problematic, indeed, it is in keeping with a post-modern methodology and a process based approach to arts-research, but I am not convinced this methodology is easily reconcilable with either the practice of medical imaging or the universal truth claims of neuroscience.

CONCLUSION

Above, images of my 'consciousness' streamed through an EEG machine into custom-made software, the different gradients correlate to different brainwave frequencies. Red is stereotypically linked to hypervigilance/anxiety, blue to a 'meditative' state, yellow is somewhere in between these putative states of consciousness.

In the tradition of Zen Buddhism Koans are non-ratio-nal but non-dualistic questions that stimulate or even shock practitioners into obtaining insight into the ma-ture of reality. The phantasmogoric koans I have pre-sented in this text are similarly unanswerable, at least in positivist terms – there are no absolute answers to the question of what consciousness is or what it might look like, or indeed, if there really is such a thing. Ko-ans, unlike orthodox science, do not pursue absolute, final answers to the 'hard question' that Chalmers asks, how is the outside, material world, generative of sub-jective, inner, experience? My own photographic work, like the Koan, aims to eschew causal closure, the im-ages I have generated, like phantasmagoria, are pro-cessual, non-binary, and, in the tradition of the Koan, ultimately unitive, aiming to wake us from the grand illusion of the visible world and the sense of absolute separateness that illusory world (including the realm of mainstream neuroscience) sustains. ■

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