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LEONARDO ELECTRONIC ALMANAC

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

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FACT

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LEONARDO ELECTRONIC ALMANAC, VOLUME 18 ISSUE 3

Touch and Go

VOLUME EDITORS
LANFRANCO ACETI, JANIS JEFFERIES, IRINI PAPADIMITRIOU

EDITORS
JONATHAN MUNRO, ÖZDEN ŞAHİN

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]

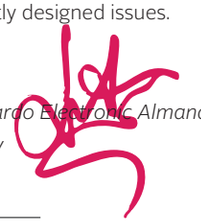
The difference between memorization and memorialization may be one of the further aspects in which the interaction evolves – beyond the artwork but still linked to it. The memory of the event with its happening and performative elements, its traces and records both official and unofficial, the re-processing 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 CADRE 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/QjEWIY (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.

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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 groundbreaking 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 complicated 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 particular 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 cultural activities surrounding each installation, fulfilling, promoting and incorporating the Cultural Olympiad themes and values 'inspiration, participation and creativity.'

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 collaborative ***Hocus Pocus*** will be a 3-screen interactive artwork 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 relations 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 globalization 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 installation. 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.

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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 series 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 Technology, 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 ensure that the next generation of practitioners test the conventions of the white cube gallery, reconsider and revaluate artistic productions, their information structure 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 mentoring 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 traditional 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 support? How are the ways of working online and off, including 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 momentary 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.

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Telematic Touch and Go

by

Ellen Pearlman, Newman Lau & Kenny Lozowski

Ellen Pearlman (Independent Artist Scholar), Newman Lau (Hong Kong Poly U) and Kenny Lozowski (Banff Center, Canada)

ABSTRACT

Visual art, gesture, and sonic representations are translated into hybridized data combinations over a high-speed telematic research network to produce new modes of physical interaction and perception in a remixed mash-up video seven thousand miles away. They used the technologies of motion capture, data mapping, and visual effects in VDMX and MAX/MSP/VIZZIE.

A 12-camera EvArt infrared motion capture technology in Hong Kong tracked two dancer's movements (X, Y and Z positions). The Y positions were sent over the network via OSC. Mapping and motion in one location (TOUCH) sent over the network produced visual effects thousands of miles away almost in real time (AND GO). This sets a paradigm for augmented forms of performative and public interactivity in newly emerging parameters both for entertainment and artistic means.

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INTRODUCTION

My work concerns itself with how altered forms of electronic art both enlighten and overwhelm traditional arts practices. In the realm of telematic art this includes issues of process and interpretation in different locations using mixed realities. Roy Ascott stated: "The ubiquitous efficacy of the telematic medium is not in doubt, but the question in human terms, from the point of view of culture and creativity, is: What is the content?" [1] Kit Galloway and Sherrie Rabinowitz's Electronic Cafe International (ECI) conducted *A Space With No Geographical Boundaries* in 1977 shows how, for the first time, "several performing artists, separated by oceans and geography, could perform together by seeing themselves occupying the same live image – 'The image as place.'" [2] Ascott subsequently introduced the term "telematic art" [3] to describe art made over these networks that is never done alone, but always in a communicative manner.

Ken Friedman (2005) argued that networks as the basis of telematic practice have become the overarching symbol of the late 20th century. Cyberspace, Friedman argues, is not just technological, but social and cultural as well. Oliver Grau writes: "Telepresence combines the contents of three archetypal areas of thought: automation, virtual illusion, and a nonphysical view of the self. These notions collide in the concept of telepresence, which enables the user to be present in three different places at the same time: a) in the spatio-temporal location determined by the user's body; b) by means of teleperception in the simulated, virtual image space .... and c) by means of teleaction in the place where for example a robot is situated, directed by one's own movement and providing orientation through its sensors." [4] This allows one to affect reality by being in a different location. Performance, spatial and social, is always engaging temporality. In a networked performance where the body is telepresent the body is part of the latency that exists in networks. In particular for performers there is a lack of compelling visual cues that lead to improvization as the dominant mode of interpretation and engagement.

The technical hurdles in creating mixed reality telematic pieces are daunting, both in conception and implementation, in order to produce a coherent work of art. On one hand there is a tendency in technology circles to be self-congratulatory for overcoming the hurdles common to implementation. On the other hand, the presented piece can become so focused on such highly referential material that it fails to convince an audience of its validity as art, and becomes instead an exercise in technical gymnastics.

I MOVE IN DECADES

In July 2011 I went from North America to Hong Kong to produce *I Move In Decades*, a seven act telematic performance with sampled and remixed video, soundscapes, music and motion. The piece was about my response as a native New Yorker who was in New York on September 11, 2001, coming to terms with the 10th anniversary of the destruction of the World Trade Center's Towers in 2012.

Alpha channel and doubling effects on image of the destruction of the World Trade Towers on 9/11.

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Using the mapping language of two dancers in a wireless motion capture suit at Hong Kong PolyU's 12 camera professional EvArt motion capture studio (TOUCH), I created a distributed multi-media telematic performance (AND GO) that was streamed to Canada, depicting both the night before, and the actual day of the event as seen through the eyes of the artist Michael Richards [5] who perished in his studio on the 92nd floor of the towers as a result of the attack. [6]

TELEMATICS, TELE-PRESENCE, DISTANCE NETWORKS AND INTERACTIVITY

The performance of *I Move In Decades* engaged aspects of live dance, theatre, video and performance with both a local and remote audience. Traditionally dancers perform in one location accompanied by an audio visual component. In this piece dancers movements in one location changed, disrupted or augmented the audio visual presentation in both a localized and a remote location. Does an audience pay more attention to the performance or the audio visual content? The answer is dependent on who the audience is, where they were located (North America or Hong Kong), and what aspect of the performance was most accessible to them (watching the dancers or watching the audio visual aspect).

The issue of interactivity grows more prevalent with sensors that can track ordinary movements, David Rokeby stated in 1996 that "[..]technology is interactive to the degree that it reflects the consequences of our actions or decisions back to us." True interactivity, he argues, is about encounter rather than control. I chose to work with both motion capture, which Sturman (1994) defines as "the recording of human body movement (or other movement) for immediate or delayed analysis and playback," and gesture mapping. Gesture mapping, as opposed to motion capture, is more intimate and constrained. In my piece it ultimately focused on just three points on the body in order not to overwhelm the dancers, the programmers, or myself. Is there an abstract choreographic mapping language that expresses the intermedial correspondence between the body and visuals combined with sonic art forms? Using the network highlighted the mediational aspects of the investigation, and brought in a time-based spatial and distance aspect.

Vivian Chan and Moi Hui each data mapping six points in the motion capture studio at Hong Kong Poly U.

A robust team of dancers, musicians and technical assistance was assembled in three countries (Hong Kong, Canada and a sonic artist in New Zealand.) The motion capture data was gathered, converted to OSC (Open Sound Control) and recorded into Super Collider, an environment and programming language that generates and dynamically changes sound. The OSC protocol communicates between computers, sound synthesizers, and multimedia, and was supposed to be sent over the network live time to a MAX/MSP/Jitter patch triggering visual effects in the seven act streamed videos in Canada. However, because of insurmountable last minute obstacles VDMX, a VJ software was substituted for MAX/MSP, and this led to live manipulation instead of triggered manipulation of visual effects. The videos were transmitted to Canada via Skype. I imported the video clips into VDMX and created custom FX effects chains for each act, manipulating the effects live time. These effects still produced a viable and coherent display that worked seamlessly with the choreographed movement and music.

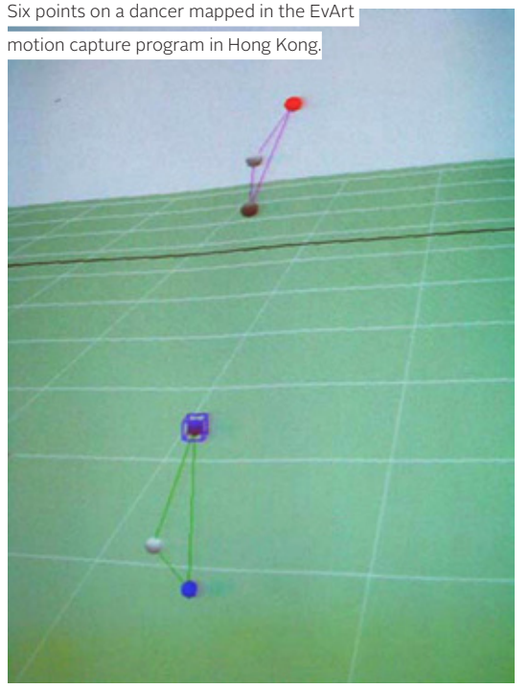
The OSC data was saved during the performance as a SuperCollider file, and a few months later I initiated it asynchronously at a Digital Media Research Residency at the Banff Center in Canada. In other words, the data could be re-run through the MAX patch as if it were live time since it contained all the necessary information to track the dancers' movements on the motion capture grid.

MAPPING

The performance investigated how the motion of a human actor in one location could trigger visual effects in another remote location. It also explored the digitization of disparate art forms as an interchangeable democratization of means; visual data morphed into haptic information, and that haptic information became visual data once again, albeit in a new configuration. Three simple points were chosen to map on the dancers: the wrist, the elbow and the ankle. Working on the choreography we had to find coherent ways of integrating these trigger points that lent relevance to the sensitive subject matter of the story, as well as choosing visual effects that integrated seamlessly with the performance. The EvArt mocap software assigns three coordinates of a body's movement in space on an animation grid; X - is horizontal, Y - is vertical Z - is depth. Mapping the whole body requires a minimum of 38 markers for a combined total of 114 data sources (3 × 38). This was honed down to just 12 markers, six for each dancer, which meant tracking just three points. In choosing specific points to map it was important they not impeded normal choreographic motion. I chose:

1. The *wrist* joint any time it dipped below the knee.
2. The *ankle* joint any time it went above the hip using either a forward or a backward kick.
3. The *elbow* joint anytime it lifted higher than the shoulder.

Six points on a dancer mapped in the EvArt motion capture program in Hong Kong.



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Dancer	Vivian Chan		Mo Hui	
Data Point at Normal Stance	**Marker ID**	**Y-coordinates (cm)**	**Marker ID**	**Y-coordinates (cm)**
Elbow	0	125	6	125
Forearm	1	-	7	-
Wrist	2	77	8	77
Knee	3	-	9	-
Mid foot	4	-	10	-
Ankle	5	16	11	16

Dancer data "Y" coordinates at rest for data mapping.

Dancer	Vivian Chan	Mo Hui
Data Point at Range	**Y-coordinates (cm)**	**Y-coordinates (cm)**
Elbow at normal stance	125	125
Elbow at mid range	150	150
Wrist at normal stance	77	77
Wrist at mid range	50	50
Wrist at lower point	10	10
Ankle at normal stance	16	16
Ankle at forward kick (raised to knee height)	55	55
Ankle at forward kick (straight out)	90	90
Ankle at backward kick (halfway)	90	90
Ankle at backward kick (toe points to sky)	140	140

Dancer data "Y" coordinates at various points in motion for data mapping.

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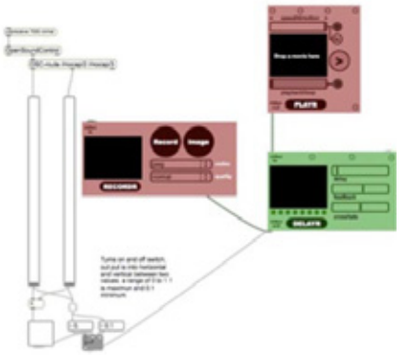
I derived a table of correspondence from mapping these coordinates displayed on a virtual grid of the EvArt Motion Capture system. The trigger points launched only on the Y coordinate in order to keep the mapping simple. The data was streamed and captured. The number range to set data coordinates was as follows: X - from 0 to 1000 Y - from 0 to 1000 Z - from 0 to 50. The mapping points were set with a range from 0 – 11 where 0 is counted for a total of 12 points.

The two dancers suited up in a spandex and Velcro motion capture suit. They moved on a grid tracked by 12 infrared cameras. Round marker dots covered with special reflective Velcro stick fabric were placed on the dancer's body. The infrared camera tracked the markers and rendered an animated skeleton of the dancer in three dimensional space on a corresponding graphic grid. Points measuring and building an image of the human skeleton were programmed into a special algorithm in the EvArt SDK, meaning a specific range and ratio covering the outline of human joints. As the data was captured, each view of the cameras was either streamed or stored in a special data station. The system linked the fluctuating position of each marker over time to form a continuous and coherent trajectory.

ASYNCHRONUS TRIGGERS

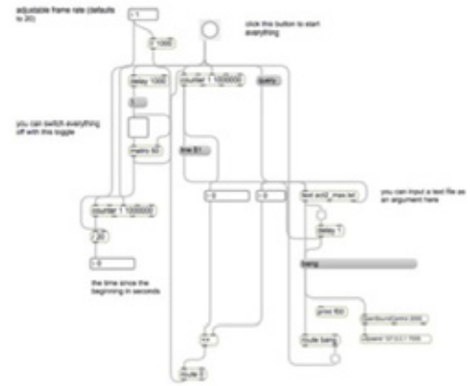
The movements of the data as OSC information was imported using SuperCollider as units of measurement were linked to each data marker using a range from 0 – 11. During my Digital Media Research residency at the Banff Center, I worked with programmer Kenny Lozowski to clean up the data, make a simplified log, and play the information back in a file that could be sent and received. The programing language PHP was used to strip out the unnecessary timestamps and unwanted strings of data from SuperCollider. UDP (User Datagram Protocol) was the transmission medium sending OSC data back and forth. The data, recorded at about 20 frames per second, allowed the information to be sent over the network, an important point because faster frame rates did not facilitate transmission. A MAX/MSP/VIZZIE patch was built to specifically send and receive the mocap X, Y, Z information and parse the Y coordinates to initiate a trigger. The patch had two parts, an OSC Route to bring in the raw converted strings of data and an OSC Receive, which took the data to trigger specific effects. The effects varied, such as a double image, pixilation, swirls and other types of distortions, and were keyed to enhance but not overwhelm the subject matter.

OSC Receive



OSC Receive in Max.

OSC Route



OSC Route in Max.

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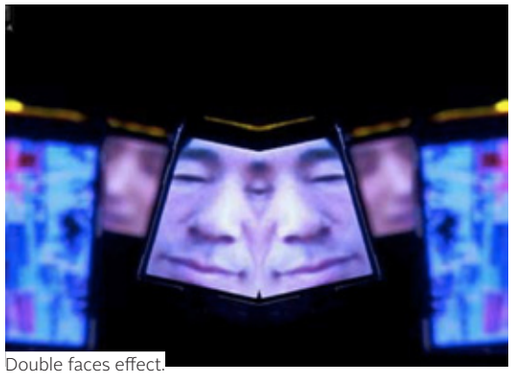
Synaesthesia is the translation of one sense quality to another, such as sound into visuals, visuals into smell, or text into sound. Hugo Heyrman wrote in "Tele-Synaesthesia: the Telematic Future of the Senses" that interactive electronic networks can help expand the "reach of our sensorial perception," and that this new relationship between "consciousness, body, and senses" can engender a new type of "tele-sense" or "tele-synaesthesia." The performances in the motion capture studio worked in mixed realities of real space, telepresence, imagined, and asynchronous space. Sounds, visualization, and motion were captured, combined and transformed into data as a series of binary 0's and 1's. This data was reprocessed through different hardware and software technologies, sent over a fiber optic high-speed network and processed yet again. With this continual transformation of information and art forms, troubling questions arose; how does one make sense of a work's artistic underpinnings? How does one construct an aesthetic framework? What does it mean when the body, in a mediated exoskeleton uses the prosthetics of digitization to emulate and augment interiority through remote somatization? How does sampling and remix work with distance and augmented realities? What is the role of meaning, or doesn't it matter anymore? Has aesthetics changed so radically in the twenty-first century that forms that were once held so dear, like dance, music, film and video, and even poetics have lost their impact and ability to frame and highlight the human condition? I grappled with these questions while also confronting daunting technological obstructions.

The motion-capture suit and corresponding six points of two elbows, two wrists, and two ankles were mapped to trigger different effects. Within the confines of the choreography event triggers were random and uncontrolled. What this means is every time the dancers did floor work, or high leg kicks the mapped triggers would fire. The dancers moved quickly, and their locations changed in terms of their position on the motion capture animation grid. Unless the dancers slowed down to an unrealistic rate, the planned triggers fired on and off. The aesthetic of random events consistently triggering is an aesthetic under the rubric of chance operations. The aesthetics of this piece hovered between intended and chance. The techniques combining mixed realities of real, telepresent, imagined and synchronous space with processed and reprocessed data was meant to convey trauma and loss. Michael Richards, an African American artist who perished in the World Trade Towers attack was the main voice narrating the story, a method of "artification" of the actual tragic events. Using remixed and appropriated videos worked as a skillful way to present visual material, and real time manipulation of VDMX effects worked as well as mapped triggers in MAX/MSP/VIZZIE. Employing the animation grid proved an intriguing contrast to the dancers in the studio. The musicians were well prepared and operated seamlessly. Body mapping engendered a language of gesture invented on the fly.



Double faces effect.

Dots and splotches effect on baby doll.

CONCLUSION

New technologies, both software and hardware are emerging at an accelerated rate. This acceleration heightens the combination of art forms in both redundant and new ways. When performance over a telematic network using mixed realities is added into this mix, the number and possibilities for new forms, as well as the possibility for debilitating delays increases. Data mapping can inhibit the overuse of mediated art forms by focusing on variables over great distances. Working with physical gesture in an experimental form allows artistic and technical innovation. When data mapping is applied to the human body and its concurrent referents of culturally determined gestures, it can create new ways of synaesthetic representation in combination with art forms such as visual images, movement and sound.

Having an understanding of the myriad of complex factors that facilitate or disable these performances in terms of their goals and creative breakthroughs is an important part of the work of the artist-as-researcher paradigm. Focusing on both intuition and methodology can engender experimentally viable multimodal arts practices, and data mapping can be incorporated into a presentation. Focusing on the aesthetics makes professional viewing of these events by interested audiences possible.

How to control the aesthetic using electronic based media is a difficult and complex process. Stuart Mealing wrote:

> *It is true that the art-generating computer has sometimes been used to do things which it is not good at or for which it lacks subtlety. Such attempts imply that global aesthetic judgements should be suspended in favour of local judgement of an immature art form. This is reminiscent of interpreting the performance of a two-year-old child playing Chopsticks on the piano as charm-*

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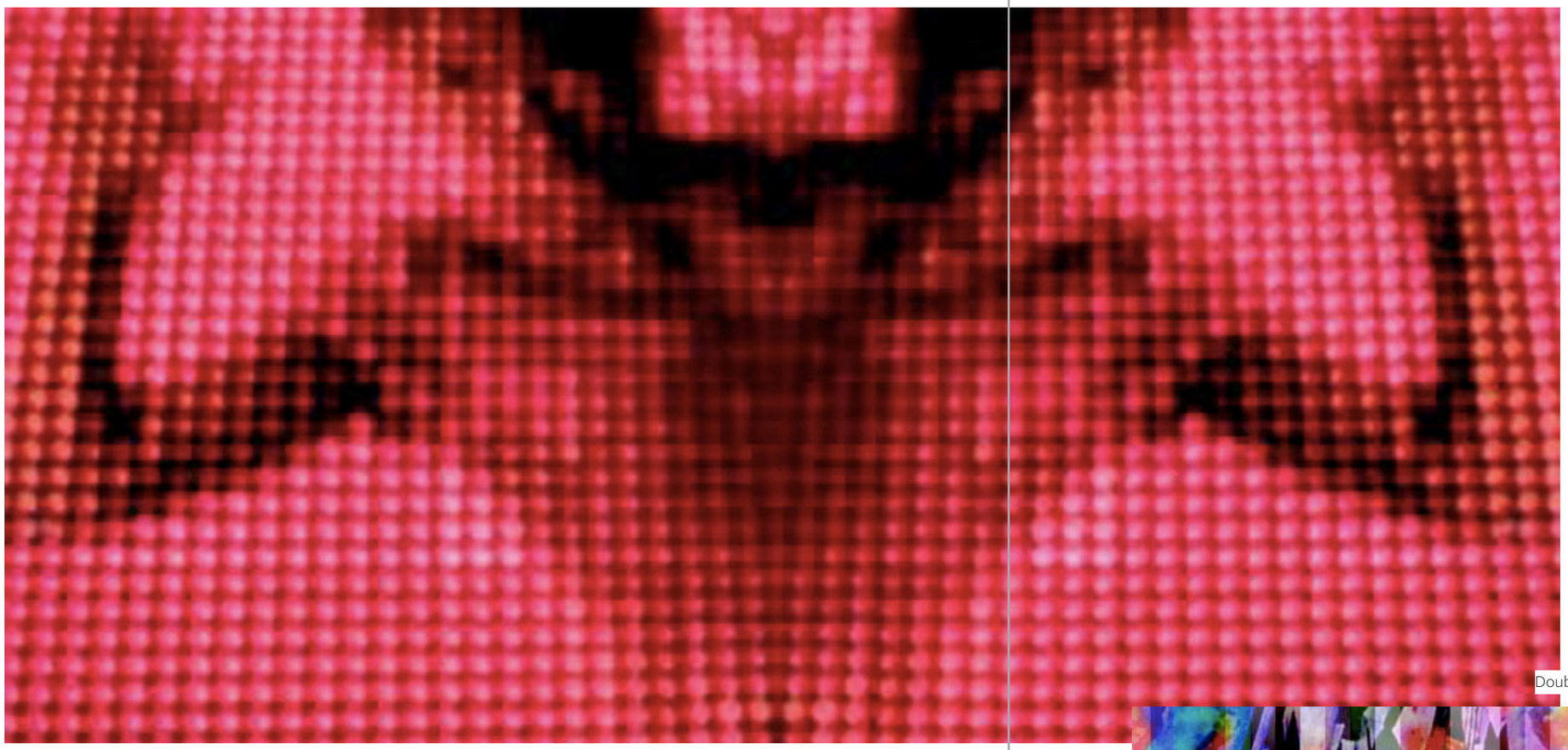
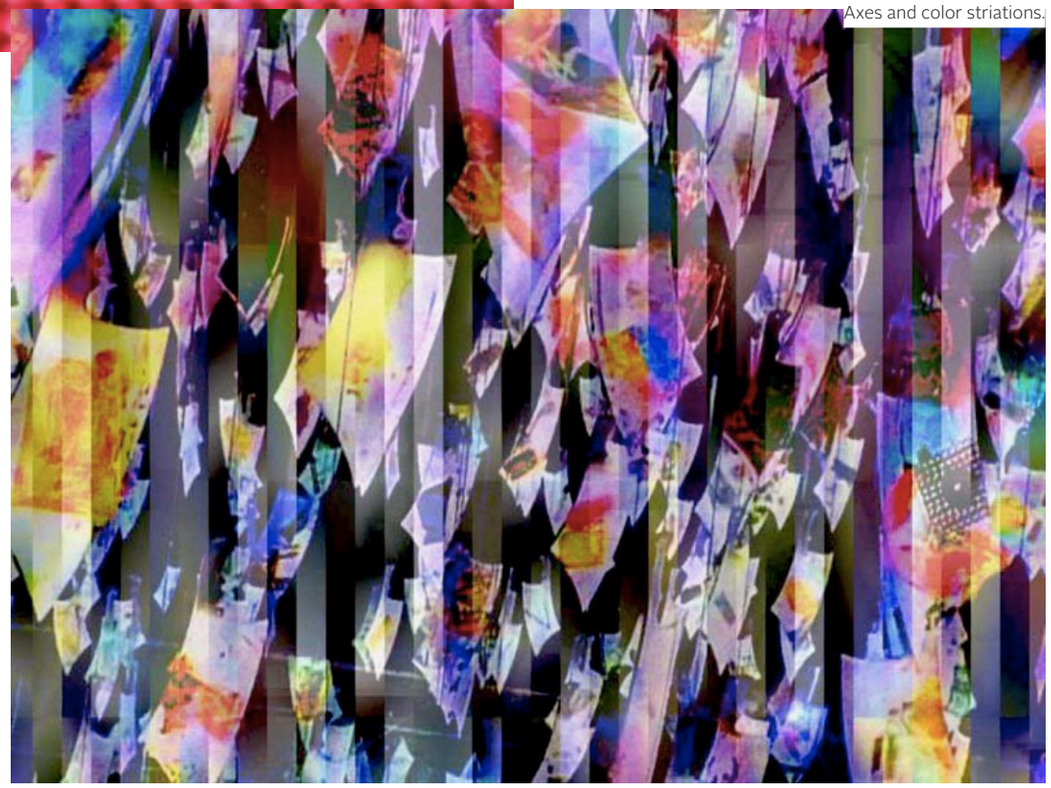
ARTICLE



Double image of red LED woman.



Axes and color striations.

Electronic art, by its very nature tends towards an over mediation of the senses.

ing and talented whilst recognizing that an adult duplicating the performance would merely prove embarrassing. [7]

Data mapping can inhibit the overuse of mediated art forms by focusing specifically on variables over great distances and honing the myriad of choices. Electronic art, by its very nature tends towards an over mediation of the senses. It rewards distraction, electric displays of light and color, loud sounds, fast and erratic movements, and heightened motion. Data mapping applied to the human body and its concurrent referents of culturally determined gestures can reinforced an overly deterministic model broken into increments of time. Time becomes a control parameter that can dampen spontaneity by forcing dancers to contort in unnatural positions, and choreographers to resort to odd juxtapositions in creative arts expression. What is gained from these investigations into telematic TOUCH and GO is an inquiry about the translation of one creative form into another. Light (infra-red) and

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reflection (data markers) surveilled human motion and this surveillance broke down into its lowest common denominator, a series of moving numerics on a mathematical grid in space (motion capture data). The mathematical grid was also represented by digital light and pixels on a screen illustrated by the movement of animated stick figures representing parts of the body. The data was streamed over distance, meaning it dealt with time, albeit in micro-increments – anywhere from a third of a second to a few seconds lag depending on different factors. It was parsed and reconfigured in a new mathematical format manifesting as a transmission into yet another software where it triggered a visual effect in a remixed video. Light and reflection looped back to end up as light and reflection, mediated by motion and numerics. The starting form (light and motion) and the ending form (light and motion triggering effects) in terms of its end presentation became radically different though they both employed essentially the same means, that of reflected light and motion. ■

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6. I used the professional motion capture studios of Hong Kong Poly U under the auspices of Dr. Gino Yu and M-Lab, part of the Hong Kong Inno Center sponsored by the government of Hong Kong. Technical assistance was given by Newman Lau the manager of the studio, as well as Archoi-Leung Wing Sang and Green-Luk Wai Tok. Videotage, the pre-eminent (1986) new media center in Hong Kong awarded me their FUSE 2011 artist-in-residence. Videotage also recruited Vivian Chan and Mo Hui, two professional dancers from The Hong Kong Academy of Performing Arts, and sonic artist Shawn Wong, a recent graduate of Hong Kong City U. Haku Wang, a programmer in Beijing, wrote C++ programing code to enable the transfer of motion capture data to OSC data. Ken Fields was in the studio in Calgary. Elizabeth de Vegt, a music composer in New Zealand supplied additional music.
7. Stuart Mealing, ed, *Computers and Art 2* (Bristol: Intellect, 2002).

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