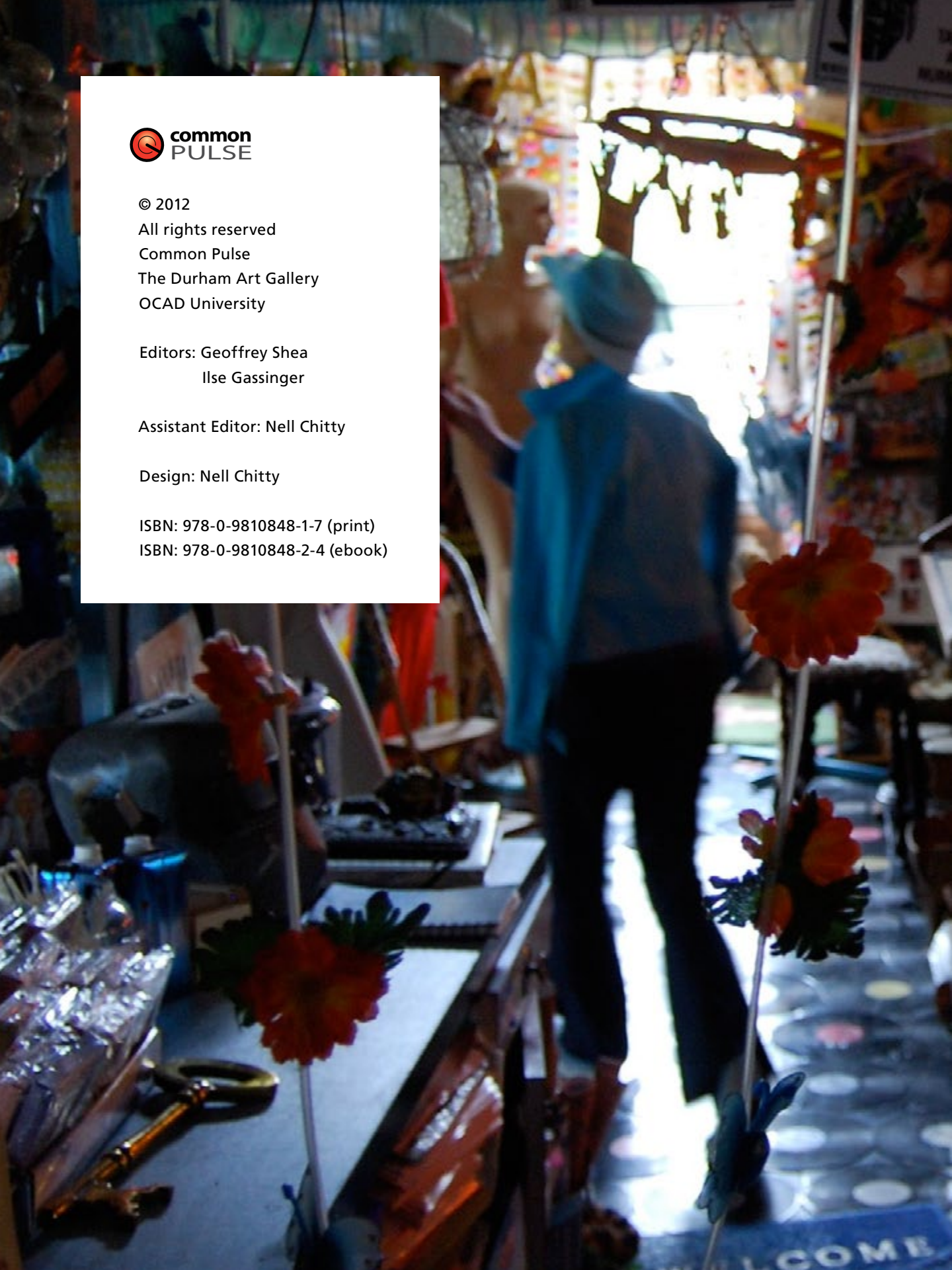
Common Pulse Transcripts

Proceedings from the Symposium, June 10 - 12 2011



Common Pulse
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OCAD University

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The Notebook Project, Isabella Stephanescu / Photo by Justine Smith

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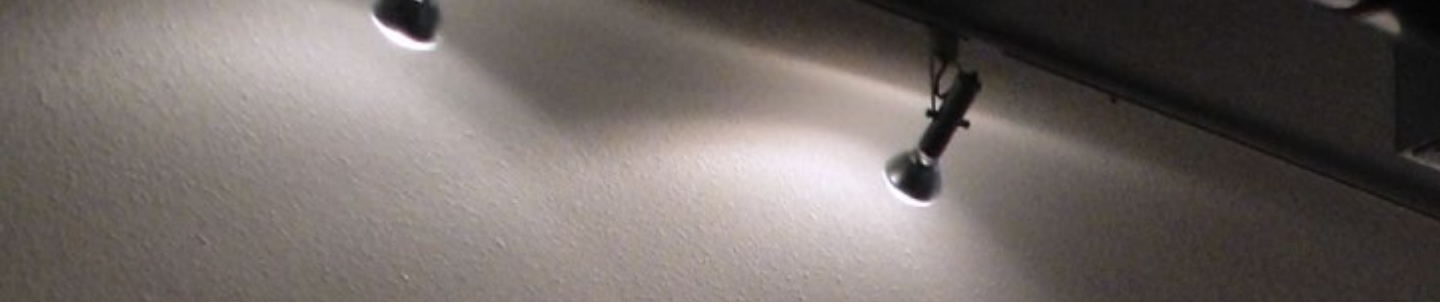

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Common Pulse:
The Symposium and its Context

One of the functions of the art of any age is to explore and expose shifting cultural or social ideas as they percolate up through our collective consciousness. And the most dominant source of change and disruption right now is media technology and the new social and personal behaviours it has unleashed. Businesses and governments are jumping in to exploit or defend against emerging potentialities. Pundits create whole cottage industries trying to explain what the future holds, based on the jumbled-up evidence at hand. And lodged precariously in the present, artists labour away creating images, situations or ideas in the mind of the viewer. Their artwork illuminates, reflects and informs the emerging processes and beliefs that flow naturally and abundantly from change.

COMMON PULSE was envisioned as a way of fuelling the work that artists are already doing in this field. Because the activity emerges from a complex web of strategies, practices and perspectives, the organizers created a series of interconnected, layered events to support the work in different ways, including production, presentation and discussion.

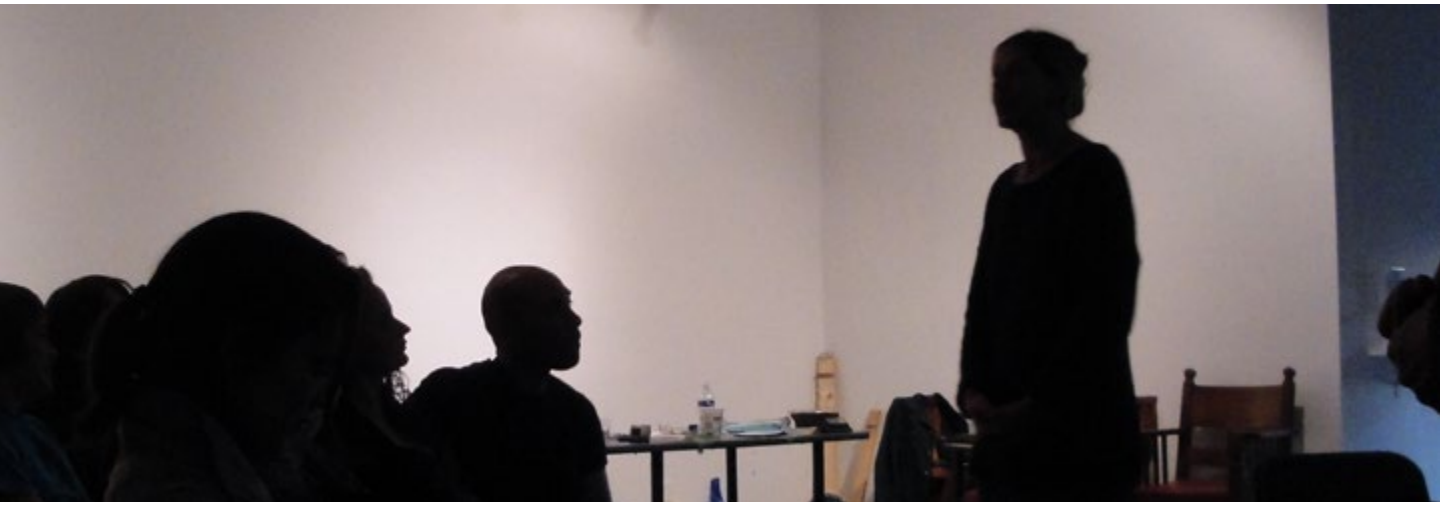
This book reflects the dialogue that was started during the COMMON PULSE Symposium, June 10 -12, 2011, in Durham, Ontario. A dozen artists who are engaged in practice/research assembled to compare approaches and results in this newly re-defined field. A snapshot of these wide-ranging activities emerges in the following pages.

The symposium took place against the backdrop of a production residency, in which five artists from diverse backgrounds came together in a shared facility to create new, interconnected work. This COMMON PULSE Residency arose from the belief that, in spite of our differences, there is an underlying commonality and social synchronicity that we share. This was the challenge that was presented to the five artists-in-residence. Although they all specialize in different aspects of media art, each was asked to incorporate a shared, synchronizing pulse signal into a new artwork. The artists included: Laura Kikauka, Jessica Field, Ken Gregory, Karo Szmit and Andrew McPherson.

The COMMON PULSE Festival included further exhibitions that underscored the role of the viewer and the landscape of the network, including work by Steve Daniels and Isabella Stephanescu, and performances by Alexis O'Hara, Parsons and Morel, and Eccodek.

COMMON PULSE was conceived by Geoffrey Shea and Ilse Gassinger as a form of practice-based inquiry. The intercontextual concerns were taken up by two important collaborators: the Durham Art Gallery, whose vision of the public functions of art is expansive, and OCAD University, which recognizes that art and culture must be studied in the making.

Social Authorship:
Where Do Ideas Come From?



Working in a Mode of Interrogation

Geoffrey Shea

Welcome to these workshops sessions, the discussion and symposium component of the Common Pulse Media Art Festival.

We are going to look at the art and research work of the twelve invited speakers and use that as a jumping off point for discussions over the next few days about the ways our culture and our views of art are evolving in response to networked phenomena.

We've broken the discussion into four broad themes. I'll take a moment to review them now and then jump into the fray with a short presentation about my own work.

First we'll consider where ideas come from. Social Authorship suggests a collective source for the impulse formerly attributed to the creative genius. Easy access to recording, production and distribution tools have launched us into a mash up and mix culture and the idea of originality, in that older romantic sense of the poet coming up with the original visions and setting them to words or in stone, is fading.

The idea of originality is not quite as pressing or as prevalent as it once was. Ideas are seen now more as communal property to be interpreted and reinterpreted and converted, sometimes with the consent of the people who had a role in the formation of the ideas, sometimes without their consent. One example of the consenting model would be something like open source. A lot of people are creating work and putting it out there as open source and saying: please take my work and interpret it. Of course, this in itself is not that original. We know that all artists and all creators build on the foundations of people who came before them. But it is becoming much more explicit, I think, and there are urgent (or at least interesting) opportunities in what we do with that.

Digital Identity forces us to understand that with our adoption of the increasing number of digital channels for communication – from email to Facebook to Twitter to whatever we use next – we are not merely consumers and users of these services, but we are actually forming ourselves into a different kind of persona. We now have a function in the world that we didn't have before. Before we had email we were never email recipients. Before Facebook we were never 'friends.' We can go further and start thinking about how, in a previous era just a few years ago, the idea of having public relations expertise was considered

Geoffrey Shea presenting / Photo by Justine Smith

something a business did. Their PR department managed the identity of the company. They covered up the toxic waste spills and convinced us that cigarettes were harmless. They did all that sort of stuff that PR firms still do today. But now we have all effectively become our own PR managers. We all have these public identities that have to be maintained and managed. Of course we can look at antecedents and say we have somehow always been conscious of our public identities. But we have never had as powerful communication tools for manufacturing or affecting that image. This seems to warrant examination.

Users and Viewers. The role of participation begins to speak of the transformation we are all very familiar with, that is: from viewers to users. Increasingly, people do not simply consume artwork, do not simply look at artwork, they now participate. They become active in the artwork so that they go from being viewers to being users of the artwork. (As such, the use value of the work suddenly becomes a factor in its functioning and assessment.) The work becomes an experience that has to be actively engaged with, it is not just something that can be consumed or held. The extension of that is that we are all, artists and non-artists, contributors to the media flow. Everyone is producing stuff. The flip is from consumer to producer. You can see this in YouTube, which is probably more significant now than most broadcasting companies who purport to be in the business of generating content. But YouTube is our content, the people's content. It is definitely become the new model.

Finally, the Artist in the Research Lab. Allow us to consider and explain why we would have an academic workshop at a media art festival and why we would invite these people to participate. There has been a movement in the past ten years or so to reframe the function of university research labs. Art colleges have been asked to convert themselves into universities. And once they become universities they have been asked to justify their experiences and processes and reasons for being in terms of research because research is the coin of the realm

in universities. We can think that we are the objects of this maneuvering or we can think that we are participants and we are being presented an opportunity to think about how we do what we do. That's the approach that we are taking with Common Pulse.

Most of the people who were invited are affiliated with institutions in one way or another and have this split role, having an institutional self and an artist self that are meshed to some degree, although not always seamlessly. We thought that would be an interesting place to explore—how the practitioners in this field see themselves and what sorts of things are examined under the rubric of research.

This was conceived as a workshop and a workshop is different from a conference. The differences are fading which a lot of people bemoan so I think it is important that the distinction be made. Conferences are a place for people to get together and talk about stuff that they have done at a point where it is nearing completion, where its ready for public presentation and can be wrapped up and summarized. Workshops are where people talk about stuff very much earlier in the process. They talk about things that are at a developmental stage. I'm hoping we will see some exploration of emerging ideas. And maybe problems that you are having with those emerging ideas that you can throw on the table and get feedback on. That's what the workshop format was initially designed for.

Now I'm going to walk through some images of my own work and talk about what sorts of things are emerging for me. I think that the arc of my world view and its evolution will start to emerge.

This work, *Pilgrim's Progress*, was from the 1990's. It explored the issues of spirituality, familial relations and deep subjectivity. It was a two channel video installation that took about 15 minutes to watch and it was a linear experience. So I'm choosing this as the beginning of an arc that traces the transformation of the role of the viewer in my work.

Next is a later piece called *Spiral Text* that used poetic language on a stripped down video monitor that has been removed from its housing. One thing that emerges here is the use of text that shows up a lot in this work, which I see as a form of writing addressing themes of feelings, physical touch and the role of the image in memory. But the other thing is the strategy of drawing attention to the act of viewing. This wasn't a television, perhaps in the sense that Magritte's pipe wasn't a pipe. It has been recontextualized within the museological setting of the wooden and glass display case. The content was no longer the image on the screen, it was also the context in which it was being presented.

This image was from a series called *Ezrom's Room.* It was an interactive work

that people would trigger with a handheld barcode scanner. Again we find the active form of writing, the barcode obviously revealing an encoded text, content that is not human-readable. We know it is saying something but we don't know what it is saying. The objects depicted were interesting tools, but tools that had a slightly ominous tone to them. The hammer and its sister the sickle being the most famous tool / weapon combo.

This is *10,000 Glances*, a video installation with an image of my friend Bettle Liota, who is reciting poetry on a tiny little monitor embedded in the wall of the gallery. Next to the monitor is this overwhelming projection of a radar tower. The tower's antenna is constantly turning and with each rotation static interference would come on the little monitor and she would be interrupted. The stream of her poetry would break and then recommence somewhere else. The viewer and she would get lost.

This next piece is where the work started to get much more interactive. This is a web piece called *Man + Sin*. I went back to the earlier piece that had religiosity as one element and started looking at the constructive considerations of 'sin.' What is the value of sin, how is sin a useful tool in helping us engineer ourselves, and creating a vision of a harmonious social order? Clearly sin had a bad name. This was a series of large drawings, each about 10,000 pixels across and 10,000 pixels high, about 100 times larger than you could see on a monitor. So users had to scroll to navigate around the space of the image. There was an audio component, spoken text again, that was poetical riffing on the theme.

Here we are moving to outdoor, non-gallery presentations. *Writing Machine* consisted of text on the screen in a shop window controlled by a keyboard installed on the street. You pressed the keys and it spoke random words or phrases, alphabetically tied to each letter.

Speech (I Want to Know) was a video installation that came out of my experience running for town council in Durham and, somewhat surprisingly, getting elected. I served as a councilor for three years. The video depicts me appearing to give a campaign speech but you can't hear me speaking. This is set against a background of bylaws that I moved or seconded: a scrolling text of about 5000 bylaws over three years. That was the only form of dialogue that was permissible in the council chambers. If you wanted to say something or to do something or to effect change, everything had to be done in the form of a bylaw. It has to be moved and seconded and it is voted on and then it happens or it doesn't happen. It was an immensely awkward and mostly frustrating form of dialogue or communication. So again this work is undermining the speech act, undermining it with the laughter and the inaudibility of his voice.

Speech (I Want to Know), Geoffrey Shea

Excerpt from soundtrack:
(With music and laugh track)

Maybe I'll stop and sing
Maybe I'll stop and pray
I want to know if that's all the stuff you were telling me when you told me those things
I want to know
Maybe hope is fleeting
Maybe it's here to stay
I want to know if you told me all the stuff you had to when you told me; I want to know
I want to know
It hurts, it doesn't hurt
You're talking, you're not talking
Look me straight in the eye when you tell me…

This piece was called *Drawing of a Man*. Here I created large drawings while recording myself doing it and then projecting the act of drawing onto the artifact itself. The function here for me was that I did not give myself permission to be 'drawer.' I had to play an amateur. Like with the previous piece, in which I never really felt completely like I was a politician. I felt like I was impersonating a politician to a certain extent. And here I felt like I was impersonating someone who draws. So when I see myself in the videos, I see it as a performance. I'm playing a role here.

This piece was presented at the Vancouver Olympics. It is another poetic piece called *Play.* The two performers tell two poetic stories. One is the story of some kids playing alleys in the schoolyard like we did when I was at school in grade one and grade two. The recess bell would ring, we would rush outside and the fastest ones would get to a spot by the back wall and spread their feet apart and stake that territory. Your foot would be butted up right against their foot and within seconds the wall was lined and these would be the vendors. They would say: 'Come hit a boulder.' Boulders were big alleys and they were more valuable so they would say: it's a boulder, so you have to stand ten feet back. If it were just a cat's eye, which was not so valuable, maybe you would have to stand five feet back. And you came with your bag of alleys and you said: Okay, I want to shoot for that boulder. But I've got a beauty, so how many shots will you give me? Ok, a beauty is six shots. You get to try six times with a beauty. If you don't get it you lose the beauty. If you get it you win the boulder. And that was the game we played when it was warm.

When it was colder – and this was Winnipeg, so when it was colder it was maybe minus 40 degrees outside – we went for recess and somebody invented this other game, maybe a teacher or some other kids. There's a mark on the wall and you have to touch the mark. And whoever gets closest to the mark is winning. So every kid at recess would be huddled against the wall struggling to get to this mark, pushing other kids aside, just pushing and pushing. And this kept us all warm all recess. Otherwise we would have frozen to death.

So for me these two games were a transformative moment in my development, and a parallel for the development of the species of humans. We went from unstructured play to structured play. In games and in our relationships, we had the joy of just being that physical, touching, that communal bond, that oneness, when we were a mass of little kids just swarming against a wall. And that was being undermined or eroded as we were learning rules. We were learning the barter system. We were learning about commerce. I don't know who taught us the rule but they now seem as sophisticated as the stock market.

It was almost a painful moment.

This was a funny piece called *Trio*. I asked people to play musical instruments while they were being suspended from ropes and then projected them onto the side of a building. There were nine, but you could only see three of them. Viewers could use their cell phone to dial a number and then got instructions that told them what buttons to press so they could swap players in and out. You could say: I want to get rid of the bass player and put in a tuba. And I don't want a banjo, I want the autoharp. So by pressing one to nine you could form your own combination of the band. If you pushed the right buttons you could have an all-girl band. There was a grunge version if you got the right combo. Or bearded old guys.

But while you're doing that there's someone over there doing it too. Different groups of players are trying achieve different ends. They are almost yelling at each other. These ones hate the banjo and they get rid of it but then it comes right back because the other group is right on it. So there is spontaneous play and competition emerging.

TRIO, Geoffrey Shea

What I just wanted to talk about before wrapping up is the current project: working with disabled artists. I want to collaborate with these artists to support a way of expressing their vision, which emerges out of a very specific, particular experience of the world. We all have different views, and very often those differences are celebrated. We make art about our specific ethnicity or our specific socio-economic situation or our heritage or our sexuality or our political alliances. The things that make us different are very often the things that get celebrated in art-making. Yet in the world of providing services to people with disabilities, the subtext is often: You're not different. You have the potential to be the same as everyone else. Difference is effaced. It is diminished or played down. Rarely would we hear: Wow, you can't walk and you've never walked in your life and you've never held anything in your hand. That's interesting. What's that like? No one is asking that.

I know from my own observation that there's a way of looking at the world that is entirely different if you've never walked and never held anything in your hand. So if you're a person who is in that situation and you're going to start making artwork, you're going to make artwork in a different way. You're going to make artwork about different things. So the project I'm now starting is about working with these artists. I believe this is research that can only be done by an artist. I don't think an assistive technology engineer could undertake a project like this or a social scientist working in the inclusive design world could undertake a project like this. I think it has to be through an artist-to-artist discussion.

That's the conclusion of that arc that started with making work in linear narrative video, through interactivity, through public engagement, through a different view of what the role of the artist could be, to this project, which is still close and hard to characterize. As different as these works are, they all emerge from the same instinct that I have to make art. This incremental advancement of a focused, but evolving inquiry is one model that exemplifies how the work that artists is doing can easily be seen as a research practice.

Crossroads of Creativity: Hypermedia and Net Art

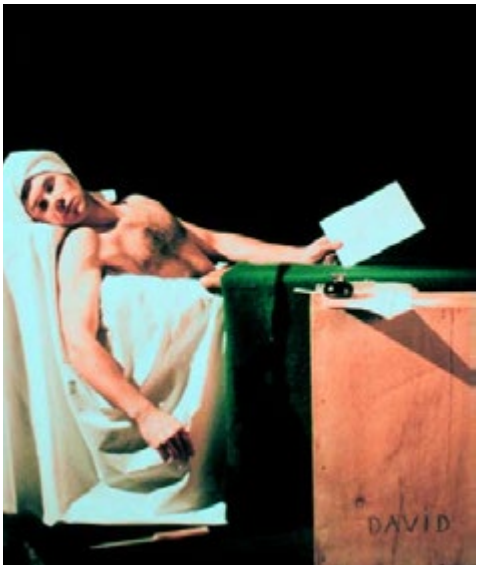
David Clark

I am a new media artist living in Halifax. I currently teach at NSCAD University, another one of those institutions that has undergone the transformation from art school to research institution and I am certainly caught up in some of those questions about what it means to transform artistic explorations into the moneyed worlds of research. I am going to try today to question where ideas come from and the idea of social authorship.

A lot of my work emerges out of either social interaction with people I want to work with or a context. I started in video art, even though I have a background in drawing and sculpture. In the 1990's I was making what I called experimental narrative works. They explored how to unfold a story, bringing a number of things together. Even though the term wasn't circulating at that point, my work was very much about mash-up. It's about taking references that are known and bringing them into dialogue with my own curiosities and obsessions.

You can probably recognize this from the *Death of Marat,* but here it is incorporated into a video called *Broken Crowns*, which had to do with the chemistry, castration anxiety, conspiracy theory and coincidence. It was based on telling narrative stories with characters and interweaving my own personal stories. For this work I stole the storyline from Goethe's *Elective Affinities*. I stole the look of Jacques Louis David's paintings, and it was based on the Jack and Jill nursery rhymes, creating layered narratives, though the linear progression was really starting to lose the density where you can connect the stories together.

I continued to work in linear film form, with a quite complex series of relationships, and I wanted to work up to the feature film, so I made *Maxwell's Demon* in 1998. *Maxwell's Demon* was a mash-up between the Oedipus Rex story and Film Noir detective stories. I like the correspondence between the detective, the uncovering, and the oedipal desire to know where the origins are. I had to throw in a time travel plot which allowed me to make all kind of references to famous films. I found myself combing through the history of cinema, trying to incorporate film quotes into the structure of *Maxwell's Demon*. Yet again, I found that I was over-loading the film with references and connection in narratives.



Broken Crowns, 1998 / Courtesy of David Clark

I was very lucky with the invention of the Internet because I was at a point where I felt that I wanted to weave together stories and images where I could relax the restraints an audience has in moving through them. Throughout the 1990's I explored interactive CD ROMS which I usually use as a kind of a supplement for installation pieces. However, it was through watching my students working that I became really interested in what kind of space the Internet could be. It was a new audience and a new way of drawing together stories.

For the piece I made in 2002, *A is for Apple*, I returned to my interest in collage. I worked on weaving together influences through visual means by cutting up and adding textures to images. I worked with my students to bring it onto the Internet and to make it semi-interactive. *A is for Apple* is a series of sixty different Flash animations. They are centred on the image of the apple and expand narratively. The animations stand out into many different kind of associational meanings that the apple has. The overall theme of the piece is about hidden meaning. Underneath an image that is so accessible to us, like an apple, we have coded it and made it into different things. Like a map, you can progress through it, beginning with the apple from Adam and Eve and religious sin, and ending up with the Beatles. We can feel a cryptography, particularly in the apple that Alan Turing killed himself with in June of 1954.

There were all kinds of evocations of the apple having a hidden meaning. I felt that one of the things that could drive the narrative was this sense that you would want to uncover things. Almost like our fascination with conspiracy theories. Almost like we are driven towards a meaning by having something hidden that we have to discover.

These rules set me up to continue to do narrative, but taking advantage of new capabilities and new kind of new forms that audiences could approach. With cinema we spend so much time trying to trap people in a room, making them look at your work. If they didn't like your work, then they hate you. However, on the Internet, they just came across your work as they are drawn into a web of associations that they are fascinated with and in turn they would love you. So it is a real win-win situation moving from cinema to working on the Internet.

A is for Apple, 2002 / Courtesy of David Clark

The piece that came after *A is for Apple* is a piece that continued in this direction. It is collage-based, there is voice-over, there are Flash animations, and it has a central figure that went off in many directions, following my fascination with the philosopher Ludwig Wittgenstein. I made *88 Constellations for Wittgenstein (To be played with the Left Hand).* To talk about where ideas come from, with A is for Apple I was looking at what possible meanings could be derived from the apple. With Wittgenstein it was a more complicated question: how could I tell a story about somebody I didn't know much about, and how could I make something as obtuse as continental logical positivism relevant for the Internet and digital culture?

In exploring this as a research process, I want to describe how the piece evolved. I was curious about Wittgenstein's life. He was considered one of the most important philosophers of the 20th century. He was an eccentric and probably the richest man in Europe at one point. He came from a very, very wealthy family. He went to high school with Adolf Hitler and there are conspiracy theories that link the writing of Hitler's *Mein Kempf* with encountering Wittgenstein at school. There are all kinds of fascinating ways in which Wittgenstein inserted himself in the history of 20th century thought.

I started naïvely to uncover what I could about Wittgenstein life. I went to Bergen, Norway were he retreated at different points in his life and where they had the library of his writings; thousands of pages of notes and annotations. I ended up in Cambridge, where he made his career in English philosophy, and found the house that he died in. I used Google maps to find his grave and went to visit it. It is in fact a kind of shrine where people go and make offerings to Wittgenstein.

I ended up in a lot of research situations doing residencies. I worked with some architects from Bauhaus University. There was a point in the middle of his life where he left philosophy and was encouraged to build a great modernist building for his sister in Vienna. So in these ways I was workshopping the piece for years.

I didn't want to leave behind what were engrained sensibilities in my own digital work. So, I developed the look of the piece over several years, doing collages. Then I moved into the digital realm and started to process things differently. I started to learn how to animate. And eventually things evolved a kind of sensibility that required a long period of time. I think that's why one of the things about where ideas come from is that, instead of a 'flash' that

happens to you instantly, a lot what I do requires a considerable investment of time in the physical look of the piece.

And because I was interested in narrative structure I also wanted to find an interface or a way that an audience could interact and navigate forms. My father is an astronomer so for years I have been wanting to deal with constellations in the night sky. They provide a fascinating sense of a world beyond our own world. There is something very profound about looking at the sky. I chose to take the eighty-eight constellations that are defined by science and use them as an interface to create a series of connections between the stories that I constructed.


David Clark presenting / Photo by Justine Smith

Gradually, I started to build a narrative from the little connections through the little stories that I learned from Wittgenstein's life. I started to describe the interconnections between how you could segue from story to story. I'm interested in how you can return to stories through other stories. This creates what I call a 'narrative vertigo,' when you move back to stories seemingly from a different perspective.

Eventually the piece had eighty-eight animated sections with many different paths through it, all dependent on the relationships each section has to the other sections of the piece. Thematically, it is a response to how *A is for Apple* is about hidden meaning. I was particularly drawn to Wittgenstein's early positive phase of philosophy where he said that nothing is hidden. He was trying to create a philosophy that dealt with the reality of the world and not the peculiarities and strangeness that are the affects of a language that is always inadequate to describe the world.

The contrast of *A is for Apple*, which is on white, and *88 Constellations*, which is on black, represents two basic approaches to meaning. One is a suspicion of the world and the meaning that is hidden from us. The other is the sense that we have to see through what is actually in front of us. This is a key concept in later Wittgenstein, which is symbolized in the "duck-rabbit" diagram which he calls 'aspects of seeing.'

The other connection I made in the piece is between the number eighty-

eight of the constellations and the piano's eighty-eight keys. Wittgenstein's brother was a very famous one-armed pianist who lost his right arm in the First World War. He continued his career by commissioning great composers like Ravel to write music for left hand. I was thinking about the way we use our hands at the computer. *88 Constellations* is developed to so that you can navigate the piece with your right hand, using the mouse, and you can play the piece with your left hand, using the keyboard.

I was trying to invent something like a feature length form for the Internet. For me, there is a kind of narrative experience of inviting people back in or trying to trap them with narrative instead of just giving them a roller-coaster ride on a narrative of form.

So, another piece I worked on in parallel and that blends my sensibilities with somebody else's, is called *Sign After the X*. This was a piece that came out of the SSHRC art creation research fund, the first round of funding where social sciences and humanities research started to give money to artists. I think the thing that was convincing for them was the piece was derived from the book *Sign After the X* by Vancouver artist Marina Roy. I discovered the book in New York. It's a deconstruction of the book form itself. It takes the letter X and extends all the possible meaning that it has as a kind of exoticizing gesture, or attachment to otherness. I became interested in how I can take this book and use the expansive collage techniques like I did in *A is for Apple*.

I contacted Marina completely out of the blue. We didn't know each other, but we developed collaboration out of our fascinations. This is one of those situations about where ideas come from and it was driven by the work itself. She had done a complete work, I had done a complete work, and there were parallels without knowing each other. Luckily we got along really well. We managed to mesh our two worlds together. Marina's work involves, beyond her obsession with X and its explicitness in the sort of ideal otherness, drawing techniques, painting techniques and appropriations of imagery from the Victorian era. She also does paintings that are hanging on a piece of glass. In front the painting looks like a big splotch, but there is a mirror behind it and if you look at the mirror there are other paintings going on behind. (*Spill Paintings*, 2005-2009)

This represents our common interest in hidden meaning. She started to expand on her book and take aspects of the letter X and map it across different spheres: language, law, the body. I expanded them as narratives through collages resulting in a piece where the key concept is the figure X, expanding into the X-rays, Malcom X, the X gene. We created different forms of navigation systems that sort of correspond with our chapters.

I am now going to touch upon some projects that have a different kind of configuration. A few years ago I went to the Canadian Film Center. The form of collaboration there is to bring people in who really want to work together and insist that they build a collaboration from the ground up. It is very much built on the social dynamics of collaboration and the possibilities in the media.

I worked with Jeff, Chris and Shelley who all found our interest revolving around narrative. We decided we wanted to do interactive narrative work but we didn't want to have to re-invent any technology. We felt that technologies were maturing in a way that there were forms of interactivity that had not been explored in terms of structure. We invented the idea of the shuffle film to create individual narrative units that you reorder. We created a screwball narrative film involving four different characters interacting in odd ways in a single day over three different times. It was similar to a French bedroom farce: when something is happening in this room and something is happening in this other room, and isn't it funny when we find out that these two things are happening at once.

We created a number of different platforms for the piece that involved different ways you would come to it depending on the platform you are seeing it on, such as through a website or on DVD. You could move backwards in time, meanwhile in time and forward in time.

The next project was a commission for the Toronto airport where we worked with touch screens in a public space. The location came with serious restrictions as we couldn't use sound or text. We also couldn't make too many demands as to what people would do in that environment.

Something that was very familiar within the airport environment was iconography. We created a series of short Charlie Chaplin-esque screwball animations. It involved various scenarios where people could go up and touch the screen and move from story to story.

The stories were quite ridiculous but were specifically carved to the people that we knew would use them. I was very pleased the couple of times I went through the Toronto airport. When people went to play with it, they did exactly what I thought they would: they played a couple, they'd giggle, and they'd move on. And that was as much as I could demand from a viewer in that scenario.

Next is a piece I did at the Olympics last year. It is interesting to describe the context around this piece and how it came together. My colleague, Kim Morgan, who is a sculpture and media artist originally from Saskatchewan, now working at NSCAD asked me to participate in a piece she was developing specifically around the Canadian Wildlife Foundation. The CWF wanted to have a presence

at the Olympics to activate public awareness of water.

The CWF asked Kim to pitch different projects that might be done. She brought David Ogborn from Hamilton and Rachelle Viader Knowles from Regina, on board and we all Skyped together for many months. It was interesting that the piece got finished before I actually met my collaborators.

Kim and I went to Vancouver to consider ways to evoke the idea of water. We had ideas of flushing the harbour with a video projection or working with water fountains. One idea that came out of our conversation with the Canadian Wildlife Foundation was vending machines as they were very interested in creating awareness about bottled water. We tracked down an old vending machine and started to work through ideas. Eventually, we decided to use video by replacing the innards of the machine with a big video screen. We took the place where the monitor was and put in other parts. When it sits there in public the machine looks like it is a real vending machine. You go up and you 'vend' video clips and gradually things fall out of the machine.

I didn't want to invent any kind of interactivity that people wouldn't feel comfortable with, knowing it in a public situation. One of the hardest things is to actually invite people to interact with the piece. Gradually, what was happening as you removed the commonly used forms of water like coffee machines, kettles, pools and urinals was that they were replaced by a giant waterfall.

It was a simple dialogue with the public, but one that was driven by a central message from the CWF. It was also a very interesting context to find your work connected to people who were not necessarily circulating in the art world. The Canadian Wildlife Foundation loved the machine.

Kim and I continue working together and we are currently doing a commission for the city of Halifax who wanted a public sculpture. We were drawn to telescopes which we discovered on the pier on the Halifax harbor. The telescope was orphaned and we wanted to reinvent it as a new media experience. We really don't know what's going to happen, but we are thinking about trying to reinvent the experience of what you expect when you put your head in a telescope. One thing is you get to look around at your urban environment. Your expectation is that you are going to expand your view of the city. We've also gotten hold of a Sketch Up model of the entire downtown Halifax. So we're thinking of reversing the function of the telescope itself. So as you look around you will be looking at where you are virtually in space and gradually you will be able to zoom in and see your own eyes looking out at the world. Almost like Jacques Lacan's sardine can; imagining the world looking back at you.

Preemptive Media

Brooke Singer

As far as presenting on where ideas came from, I actually couldn't even focus on the topic until last night. It kind of gave me writer's block or artistic freeze. So I'm left with this untitled talk.

Social authorship, the first part of the title, actually resonates a lot more and gets me much more excited. And I think that's because discussing where ideas come from denotes an old-fashioned way of thinking about art-making which Geoffrey already alluded to. This idea that it comes to you in a flash. You're alone in your studio, you're a genius and this gift is given to you that you then execute. And that's probably not the way most of us work anymore and it's definitely not the way I think about art-making and collaboration and my social practice.

I'd say about 90% of my work or maybe even 99% of my work is about problem-solving. So really the place I begin is: where do my problems come from? And it's from deciding what kind of issues to address and what my research area is going to be that my idea generation and the project take form. These are not personal problems although I guess some of you could read my personal problems into the projects, these are social and political problems. I'm very much a New Yorker so, although my work has relevance in other countries, it's very specific to what's going on in the States and usually much more locally than that, even.

My practice is research-based; it's a social practice, so the problems come from reading the newspaper, from my experiences. I'll talk a little bit about one of the first projects I did with the group Preemptive Media in 2002. Preemptive Media was started by me and some classmates in graduate school at Carnegie Mellon. This was an environment where there was a lot of DARPA money, where a lot of defence research and development in robotics and other computer sciences was going on. I was seeing firsthand this explosion of new surveillance technologies going quickly from the lab to implementation. Much faster than prior to 9/11. I became interested in working with things like maps, government databases, historical records and photos. I would often find these online or by going to exciting places like the Superfund enforcement file room in Lower Manhattan where I could physically go through boxes of public papers. How public they are when they're in a single location in a box on the 11th floor of a huge skyscraper is of course debatable.

These are places where there are a lot of other people's visuals, a lot of activists' slogans and artwork which I look at and respond to or incorporate. That triggers something in me to take something on or to join people in a process of research or creating production around certain issues. And then, too, there are just strange facts that connect the dots in the network of operations.

GE, for example, is currently dredging the Hudson River of PCBs. But what is so fascinating is not that it took them 30 years to admit that PCBs are bad for you or that they spent something like $10 million on an anti-EPA and anti-cleanup campaign when now the cleanup is something like $70 million while at the time it was probably close to $10 million. It's the fact that the PCBs they're digging up and putting on trains and shipping to landfill is going to lots of other places and they've now altered the hazardous waste landfill filter on the receiving end. These kinds of networks, that may not be common knowledge or may not get picked up by the media, really interest me as a way to figure out the larger picture of what's going on.

So returning to collaboration, a lot of times I create platforms and this is where the social authorship comes in. The work is never really finished; it's always about bringing people together and creating dialogue and a lot of times that means that a project that starts one way spins off to multiple different instances. You realize, "Oh, this is actually better now," or, "This is a better idea," or, "In this situation there should be a different way of formatting the project." So I thought I'd give three examples of projects, starting with an oldie-but-goodie, then a more recent one, and finally a work-in-progress to bring to life some of these ideas.

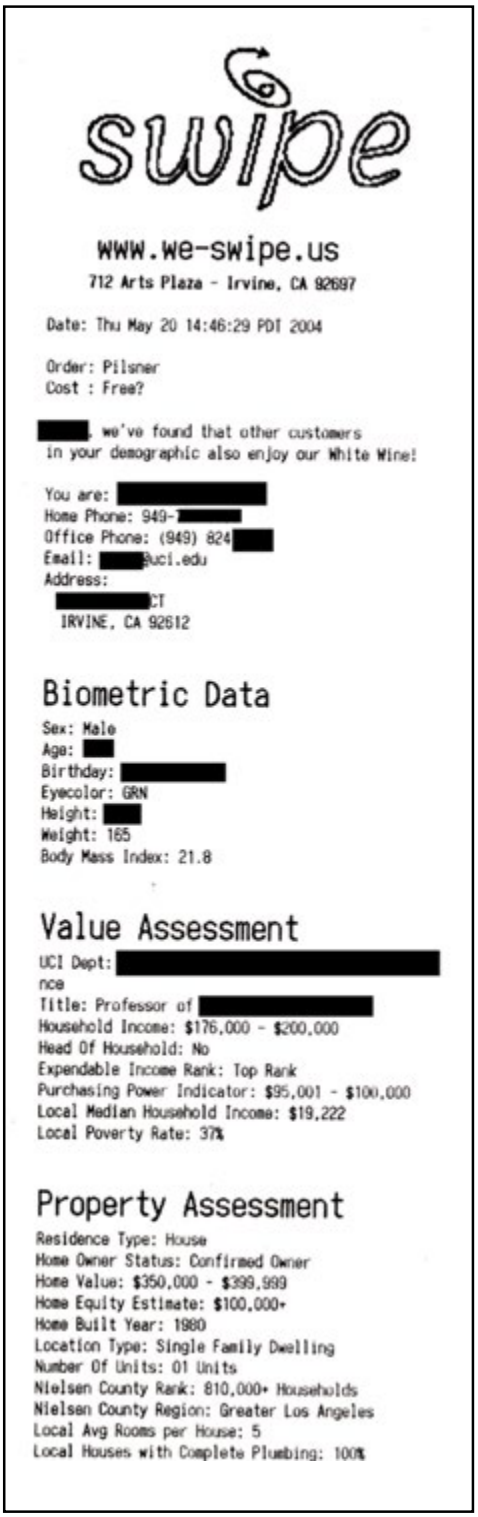
So Preemptive Media is made up of Beatriz da Costa, Jamie Schulte and myself. Our collaborations continue through the projects I was talking about and the platforms that we create. We do a lot of demonstrations, a lot of workshops where we bring people in to work with us on specific problems. More recently, I've been interested in crowdsourcing. Although it's kind of got a bad name these days, I like the idea of using the Internet to have people add their own information, tag public data and comment. Some of the comments are triggering new works so there is this layering, moving on organically, based on input and discussions. Sometimes through our projects we get gems like the Swipe project.

As a little background, there was a data warehouse company in Boston and in 2004 we created a system for people to request their data back, to actually demand that they get data from these warehouses. When we inquired about what rights people have over the information these warehouses have on them, this company replied that you have none. Literally, in black and white, you couldn't ask for any clearer statement from a company about their position on

data rights and privacy. Things like this compel us to press further ahead. So *Swipe* came from this.

Starting 2002, when the environment was very post-9/11, we were all living in Pittsburgh, studying and working at Carnegie Mellon, and I got carded at the local wine shop. I don't know if this happens in Canada, but this was the first time that instead of just looking at my ID, the person behind the counter swiped my card and figured out my age based on the magnetic strip. And I walked away and I thought, "Well that's really weird. It's pretty easy to do the math on how old I am, so why would they be doing that?" And there was no notification; there was no consent on my part. So that very simple act created this conversation among the three of us.

We did some more research and found out that in Pennsylvania, the state-run liquor stores were required to use these machines because the data could then be transmitted to Harrisburg, the state capital, where they kept a preemptive database. So if anything happened, if I was in a car accident, if I committed a felony, the police could go to that database and see if I'd bought liquor recently or what my alcohol purchase history was. This was not talked about openly. This was during a period with things like C.A.T. Eyes (Community Anti-Terrorism Training) and with the police and local governments encouraging people to spy on their neighbours. On the subway in New York, the big campaign was, "If you see something, say something." We wanted to make this a topic of conversation and thought, "There's no better way than to create a bar ourselves and actually re-enact the situation." That's really easy to do in art organizations because openings at museums and galleries always have free wine and beer. So we did this in multiple locations. We carded everyone,


swipe

WWW.we-swipe.us

712 Arts Plaza - Irvine, CA 92697

Date: Thu May 20 14:46:29 PDT 2004

Order: Pilsner
Cost : Free?

[redacted] we've found that other customers in your demographic also enjoy our White Wine!

You are: [redacted]
Home Phone: 949-[redacted]
Office Phone: (949) 824[redacted]
Email: [redacted]uci.edu
Address:
[redacted]CT
IRVINE, CA 92612

Biometric Data

Sex: Male
Age: [redacted]
Birthday: [redacted]
Eyecolor: GRN
Height: [redacted]
Weight: 165
Body Mass Index: 21.8

Value Assessment

UCI Dept: [redacted]
nce
Title: Professor of [redacted]
Household Income: $176,000 - $200,000
Head Of Household: No
Expendable Income Rank: Top Rank
Purchasing Power Indicator: $95,001 - $100,000
Local Median Household Income: $19,222
Local Poverty Rate: 37%

Property Assessment

Residence Type: House
Home Owner Status: Confirmed Owner
Home Value: $350,000 - $399,999
Home Equity Estimate: $100,000+
Home Built Year: 1980
Location Type: Single Family Dwelling
Number Of Units: 01 Units
Nielsen County Rank: 810,000+ Households
Nielsen County Region: Greater Los Angeles
Local Avg Rooms per House: 5
Local Houses with Complete Plumbing: 100%

Swipe receipt / Courtesy of Brooke Singer

Photo of office after 9/11 / Courtesy of Brooke Singer

telling them, "This is museum policy; when you come to our bar we have to card you." We had pre-data mines, we had collected information about the area and had that on hand, but we were also going on the Internet and grabbing things so in the five minutes it took us for someone to order their drink, we'd swipe the card and then with their drink they got their own personalized data receipt back. We used biometric data that was encoded on the 2D barcode or the magnetic strip, eye colour, gender, age, weight. We were trying to make it specific to the location, so in LA, we calculated their body mass index on the fly. We valued their houses using real estate records. We had also bought some data from these third-party warehouses and we were drawing maps on the fly, which was a lot harder in 2002 without Google Maps. All this information about consumer behaviour was given back to people and that created the conversation. "Where did you get this information?" "What is this about?" "What's encoded on the 2D barcode?" The conversations were sometimes funny because a lot of times there were errors, and someone would say, "I'm not a female; you can see I'm a male?" and we would reply, "Well, your card's telling us you are a female." We know that databases contain errors but once you've actually lived through it the realization becomes much more personal. This was the tip of the iceberg with respect to the data collection practices that were being massively expanded in the US, but it was the beginning of a conversation and created a lot of dialogue. We also did a Net application so you could actually scan your 2D barcode and get a readout, which was cool because then we could start collecting information. We didn't keep the personal information, but we kept information about what the differences are in the data that's collected state by state. We could not find anywhere online where this was made public, so we allowed people to see what their state was collecting, included biometric data along with social security and other data points that people were not so pleased with.

Area's Immediate Reading (AIR) was a new way for us to think. Instead of all three of us coming together and saying, "I really want to address this issue," *AIR* was a commission by the Lower Manhattan Cultural Council and Eyebeam Art and Technology Center to do a social sculpture. In 2005 in Lower Manhattan we

Device for reading air quality / Courtesy of Brooke Singer

didn't feel like we could do a public project without addressing 9/11. We didn't want to address it head-on but we were interested in air quality and the ability to comprehend the signature dust that was the environmental fallout of 9/11. The early focus was on defence and on getting bin Laden, but there was very little focus on the fact that this was an environmental disaster of catastrophic proportions. This was really downplayed by the EPA Administrator Christine Todd Whitman who, seven days after the event said, "The air is safe to breathe; the water is safe to drink; everyone go back to work." The priority was to get Wall Street back up and running and there was a lot of trust. Someone sent me this photo, and this is what offices looked like after 9/11. Generally people cleaned up their own offices. The Deutsche Bank building, which looked like this, was taken apart floor by floor by officials in hazard suits. It was a multi-year cleanup project and might still be going on. But we talked to people who lived near 9/11 and in general they were given a bucket and a mop and Visine to clean up this toxic waste in their living spaces. In doing research about air quality we found out really quickly that it would be impossible to test on the fly for dioxins and PCBs, asbestos and heavy metals but we could test pretty quickly and accurately for more common pollutants like carbon monoxide (CO), nitrogen oxides (NOx), and ozone. So we decided we were going to talk about common air pollutants.

Air quality index in New York is published on the AIRNow website, which utilizes the thirteen fixed monitoring stations throughout the city. You could look at this map to find out how your air quality is being determined from these points. If you live in King's County, which is actually in Brooklyn, it would be using a station in Staten Island and one in northern Brooklyn. What we really wanted to do was to create a handheld device that people could take anywhere they wanted: to move around, on their normal route from work and home, or keep in their house or a location of their choice, and that would give them a direct reading. The chip in this device scans very fast, every five seconds it gives you a readout, so if you walked you would actually see the levels changing as you moved. That's the prototype inside and outside. It has a monitor, sensors for CO,

NOx and ozone, an antenna, GPS, and GSM capability. That way that we could know where the user was and we could transmit information back and forth.

The user experience was one thing we talked about a lot during the design. We discussed ViewMasters or games or binoculars; we wanted that kind of feeling. We also felt it had to be portable like a purse, so it has two modes. This is the purse mode where you hold the strap and it shows the blue-to-red scale based on a homeland security type of learning. But if you lift it up and scan the horizon in the binoculars mode, the device is allowed to tap into something called the TRI database (Toxics Release Inventory database). All heavy industrial big polluters have to submit information about their levels of emission every year to the EPA, and the TRI database contains all this information. Here you can see the context of this reading: scanning the horizon, the BP Brooklyn terminal was located just 2.8 kilometers in front of me and the Volatile Organic Compounds reading (VOC) is 19 tonnes per year. This would have changed if I'd turned around. We were also going to have the devices talk to each other, so if there were another device a few blocks away you could see what their reading was. There are levels of complexity that we never got to but this is how we ended up working with the devices. There's also the GSM lab, which transmits the data back to a server where we're visualizing it on a website and tracking the different devices. It's one of those projects that needs a lot of hand holding and tweaking; we need to calibrate the sensors. It was done on the fly, built from scratch with three individuals and this support from Eyebeam. It was a lot to do in a year, with a $20,000 budget but the project really holds up in terms connecting with people and their local environments as well seeing the readings.

Brooke Singer presenting / Photo by Justine Smith

We took it to Belo Horizonte in Brazil for the Arte.Mov festival in 2007. One thing everyone wants to do when they get it is put it behind an exhaust pipe. We try to make projects that go beyond our ability to publicize them in the arts organizations. Having it visibly in the street, with people using these

weird looking devices is going to create conversation and also media attention. And in terms of social authorship, what was nice was we could sit down with a group of people and say, "Ok, where do you want to take these and why?", and have a conversation. In Belo Horizonte there was a market with a carpark above it. People were really worried about the air quality around their food. We didn't find the levels so terrible in the market itself but the conversation that came out of that led to discussion about the person who collects the tickets in the carpark for maybe 12 hours per day and inhales those fumes. So it starts a really basic conversation about air quality and the different factors that contribute to poor air quality.

The last project I wanted to touch on is this project *Superfund 365*. I worked with a research assistant and a programmer and the project came out of a conversation I had during the research for *AIR*. I was put in touch with the former ombudsman of the EPA who had done three or four hearings after 9/11 into air quality issues and how the EPA dropped the ball. In conversation with him he said that in the first few days after 9/11, before the chief administrator's announcement that everything was okay, there was lot of mobilization to collect information and designate all of Lower Manhattan a Superfund site. When I heard that, I knew it was very extreme but I really didn't understand what the Superfund law did and didn't do.

This is the first place you come to if you're researching Superfund. It's a database where you can type in a site, name, location and state, and it will give you information about different sites, their contaminants, where they are, and at what point they are in the cleanup process. I find this site very unfriendly. I find it really hard to navigate. I didn't want to browse, and I doubt that people who aren't trying to find something specific would be visiting the site and exploring the Superfund and all its aspects.

I pulled information out of the database and coupled it with demographic information from census data and third-party watchdog groups and created a one-stop shopping site. If you scroll over the colourful spoke area, it tells you what contaminants are present at the site. There's a key in which the colour represents the medium – whether it's in the water, in the soil, in the sludge. Here is a ring of grey shapes where each shape represents a responsible party. This means that there are responsible parties which could be military, business or an individual. The site-a-day structure of *Superfund 365* meant that from 1,400 Superfund sites, I listed the worst, those where there was high likelihood of human contact with the contaminants. Slowly, everyday, I worked from New York across the country and represented new sites so as you scroll between the pages of the completed project. You can flip back and forth, comparing their levels of

contaminants, the numbers of contaminants, whether there is one contaminant in many different media, or whether there are one or two responsible parties versus hundreds. And hopefully, this can be a more engaging way of interacting with the information.

There's another important part that you can't see, which is that below the timeline there's a comments section and a way for people to upload information and text. I was really interested in how local knowledge would expand upon, conflict, or co-mingle with these official data. It was really important for me to get the word out that the site was entering Connecticut, to find local organizations in Connecticut who are dealing with cleanup issues or environmental issues, and to get people in the area to contribute and join me in this information sharing.

So the last thing I will show you just briefly is a work-in-progress. *Superfund 365* for me was interesting more on a personal level and as a one-on-one exchange because I've visited many of these sites. I had so many conversations with people and I was hearing their stories and realized at the end of the year that the archive was so huge that it almost overtook the structure. Because it was this one-a-day format, finding the golden nuggets and drawing those out was difficult. I decided I would turn to photography and writing to focus on the storytelling, which was my experience, more than the concrete information in the archive. I drew some conclusions from patterns I noticed. I went to eastern Pennsylvania, for instance, and someone told me about a defunct coal mine where a company dumped hundreds of gallons of toxic sludge for ten years. I thought, "That's so weird, a defunct coal mine underground, what a great hiding place." And then I would travel to another state and these stories would replicate and I realized that these were patterns and this wasn't atypical. So that's my focus. I'm going back with a large-format camera and using very similar strategies to *Superfund 365*, trying to make use of beauty to lure people into something that's not very beautiful. I'm really interested in bringing people into the conversation who might have been turned off by scientific or technical jargon or the heaviness of it.

Alameda Island is a naval base in San Francisco. Hunter's Point is also a naval base, where they're building a new football stadium. I photographed there last summer and the rate of cleanup is actually amazing. There's a big push in the city to build. If they pave it, like a parking lot, and put a stadium on it the required cleanup is a lot less than if it became a residential area. The Navy was awesome at these sites; they gave me full access, an escort, and I had full ability to shoot whatever I wanted to. They're obviously very proud of the cleanup at these bases.

I just got back from Puerto Rico, Vieques. The navy barely returned my call.

They're detonating unexploded ordinance that was the result of sixty years of bombing on the military training ground just east of San Juan, so these interactions are really interesting to me too.

Clermont, Florida, which has been contaminated by pesticides. I actually got to travel with the biologist who's studying the alligator population, which over the last twenty years has had major reproductive deformities. He's on the cutting edge of what's called endocrine disruption theory and I was on a little airboat with him capturing 12-foot alligators for a day, which was quite something.

This is US Radium in New Jersey where there are still elevated levels of radium. This is linked to the picture of the women in the factory I showed earlier. In the twenties they would bring in uranium that would be processed on this paved-over block. The current photograph was just taken a year ago. The factory was here, and they would use the radium to make luminescent paint for dials on watches, mostly for military purposes. The women didn't know the implications and the hazards of so much of radium, so they would lick their paintbrushes to do what's called the pointing, and they had fractured jaws and tumours and severe anemia and many deaths. But for me it's amazing that this is still an abandoned lot that's paved over and still in the cleanup process. This factory was in production in the teens and twenties, cleanups take anywhere from ten to thirty years, but the toxic legacy is decades and centuries even. This is very close to my home. When I started this project in Brooklyn there were no Superfund sites; there are now two. This is Promise Mount and the second is Newtown Creek, which are both industrial waterways that have a sewage overflow issue and also lots of industry has been dumping in them for decades so it's become more of a local issue for me, and that is where I'll end.

Digital Identity:
The Public Self

Necromedia:
Death, Self and Technology

Marcel O'Gorman

Before I get started I want to finish the game I was playing when you all came in. This is a game from a group called Tale of Tales, called the Graveyard. In the game, you are an elderly women who walks from the gates of the graveyard to a bench where you sit down. There is no 'God perspective' permitted in the game or roaming: you must proceed to the bench. The game is painfully slow, so if you are used to playing World of Warcraft or Doom, you can become incredibly frustrated playing this.

During the game, a song is played in Dutch. The song is about the different people who have died and are in the graveyard, who are buried in the graveyard and how each one of them died. When the song ends in the demo version of the game, you then get up and leave the graveyard. That's it, the game is over. However, if you pay for the game, the woman actually dies on the bench. You pay in order to achieve this certain ending.

The reason I am showing it is because I am going to start with a citation very relevant to the topic I am working right now which is called necromedia, also called the collusion of death and technology.

The idea is from Sherry Turkle's book *Life on the Screen*. Turkle says that the video game is a computational object that, "holds out two promises, the first is a touch of infinity, the promise of the game that will never end." This notion of computational objects and infinity goes hand-in-hand. It's not just a notion that has to do with cybernetics, feedback, or the infinitude of the database to which we contribute. It is also a philosophical, phenomenological and existential relationship that we have with technology that we draw on the infinitude of technology as a way of escaping our own finitude. That is the philosophical basis of the project I am working right now.

The project I am going to talk about is the research obsession I've had for the past six or seven years, leading up to a book I am working on called *Necromedia*. There is a historical basis to what I am interested in. For instance, the first telephone actually invented by Watson was the Gallows phone, which was fashioned after a gallows. This phone would have worked if Watson had hooked it up properly, but it didn't. Other things to note: the first video-camera according to Virilio's work on this was the chronophotographic rifle, and the first full-body ultrasound was conducted in the turret of a B29 bomber.

These coincidences in the history of media invention and of technological innovation are more than just a coincidence of the collusion of death and technology. They point to a deeper relationship that we as finite mortal beings have to technological production, and innovation and invention.

This relationship becomes very obvious when we start to look at things like a memorial page on Myspace for a young Myspace user who passed away. Here, we have a digital memorial of this person infinitely archived on Myspace. This points in a very subtle way to the relationship that we have to technology and to our online selves. In putting ourselves in this space, essentially archiving ourselves in a space where we have the potential to exceed our own finitude, our own space and time on this planet. This relationship can sound like speculative philosophy, but I think there is a deeper underlying psychological need that media technologies have for us.

Marcel O'Gorman presenting / Photo by Justine Smith

I am very interested in theories of archive, memory, and technology. If anyone is interested, you can look into Jacques Derrida, Bernard Steigler, Martin Heidegger, and David Wills.

Essentially, this idea of the archive is not only that we archive data, but that we ourselves are technological beings. What we do as technological beings is archive: we put ourselves out in the world, we tried to leave a trace of ourselves in the world by archiving ourselves.

As artists, we recognize this. By leaving an artifact behind in the world, we are essentially creating an archive of ourselves for others. You are achieving two things when you are doing that. One is that you are resisting your own finitude, your finite time on this planet. The other thing you are doing is achieving a certain degree of recognition and this idea of overcoming mortality or grasping at infinitude and achieving recognition are two cornerstones in what I think it means to be human. They are two existential cornerstones of humanness.

A lot of theory I am working now (I just glossed over Derrida and Virilio and everyone else) is from Ernest Becker. He was a cultural anthropologist who dabbled in philosophy and aesthetic theory. He wrote a popular book called the *Denial of Death*, first published in 1973, and then *Escape From Evil* which

was published posthumously after he died from cancer. His books are incredibly accessible and gets down to the root of what he calls a universal science of "man": that the two motivation factors in human beings are the denial of death and the desire for recognition.

What I look at in my research primarily is how technology mediates these two existential needs: the denial of death and the desire for recognition. You can think about this in grandiose terms: we have cryonics freezing and the search for the immortality gene. We invest in the denial of death through medical science.

As far as technology and recognition go, I am very interested in the notion of the archive. Technology is a way of achieving recognition, disseminating yourself in order to achieve recognition from a broader audience. You can think of Facebook or blogging or any of these social media devices as recognition engines. Over lunch we were talking about texting where there are all these content free messages like "Hi honey," and "Where are you?" or "I'm thinking about you." These are existential buffering mechanisms that tell someone, "I am here and I need to be recognized. I am recognizing that you are there and I am acknowledging you as a person of value in the world of meaning." It sounds very simple, but the idea is these are recognition engines. These things say "I exist." "I Tweet therefore I exist." People are saying: "I don't care if people are reading my blog; the fact that I am going to publish my ideas and I can put them out there to potential audience of millions, that's what matters. It's not the fact that I see how many people are reading it although it does count on a secondary level, it's the fact that I gain satisfaction and a sense of personal well being just by putting myself out there in the world and having others potentially recognize me."

What I do in the Critical Media Lab is essentially applied media theory. We take media theory and we find different ways of applying it, primarily through the creation of digital art projects, but also through psychology projects. I am working on a social-psychology project right now. My research involves putting participants into a state of mortality salience and this comes out of a research method called terror management theory.

Terror management theory essentially suggests that we have mechanisms, and Ernest Becker says our mechanism is culture. Culture buffers us from death anxiety, just as it gives us the sense of belonging to something larger, something that will outlast us. At the same time culture provide us a vehicle for recognition. I am interested in "techno culture" that provides us opportunities to achieve recognition but also buffers us from death anxiety.

There are over 300 published papers on terror management theory as a methodology. You put a participant in a state of mortality salience, where you

bring death to the surface of their consciousness. You can gage that through galvanic skin response, or by looking at the heart rate, blood pressure. We put them into that state and subject them to various stimuli.

With these experiments we are looking at how rhetorics of technological progress can buffer people from death anxiety and reduce the impact of mortality salience on whatever activities they are engaged in. Rhetorics of technological progress can put someone at ease, and reduce their mortality anxiety. It can mirror the ownership of a gadget where the possession of electronic gadgetry can buffer death anxiety in individuals.

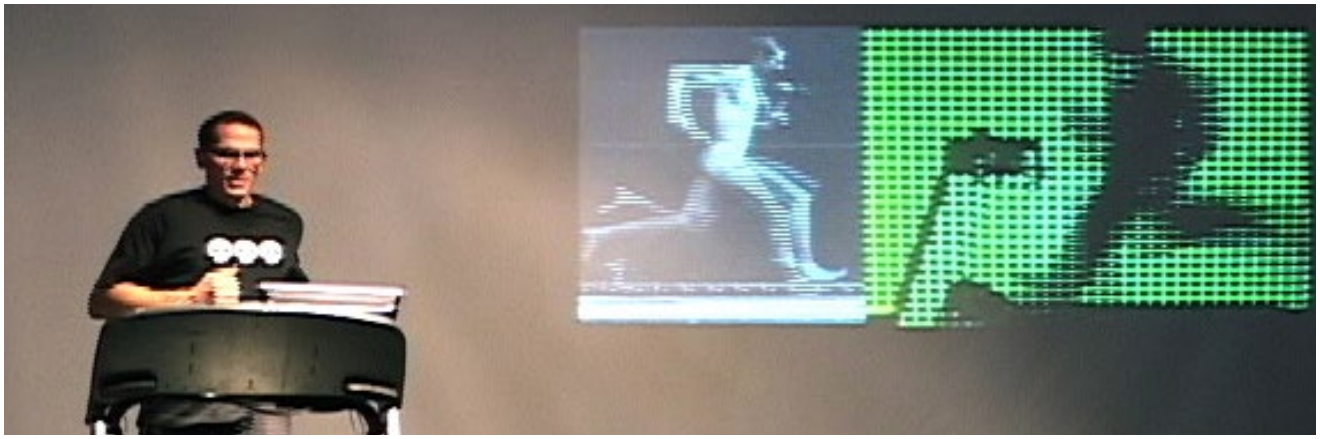
The psychologist I am working with said: "This is great for therapeutic reasons! All we have to do is tell someone that a great gadget is coming out and that cryogenic freezer is just around the corner and they won't be depressed anymore! Or all we have to do is give them some kind of Blackberry that no else has, that they are the only ones that have it, and they will be anxiety free."

It's interesting but I think that those would be temporary solutions to depression or anxiety disorders. The idea that anything on a mass scale that has the potential to buffer death anxiety like this counts as a culture. The people that we are working with are primarily students between the ages of 18 to 21 and they are part of techno-culture. This is one mode of applied media theory I am talking about.

Here is a quick quote from Becker: "What does it mean to be a self-conscious animal? The idea is ludicrous, if it is not monstrous. It means to know that one is food for worms. That is the terror: to have emerged from nothing, to have a name, consciousness of self, deep inner feelings, an excruciating inner yearning for life and self-expression--and with all this yet to die."

Becker, like many other philosophers, identifies that humans are the only animal that are consciously aware of their death, of their finitude, and because of this, it alters what we are as a being. Becker also says that humans are the only creatures that survive by striving to outstrip their creatureliness. We try to not be creatures. Now, in animal phenomenology, someone might argue that we don't know if a dog is striving to overcome its dogliness. We cannot possible get into the brain of a cockroach and know that this cockroach is not striving to overcome its cockroachiness. The point is, while we don't know that, we can have a pretty good sense that this could apply to humans.

Critical Media Lab is essentially inspired by the fact that technological production is driven by a powerful economic imperative. It is up against the critical assessment of technology which is driven by the less powerful academic imperative. If we look at the rate of production and the rate of dissemination of a product, there is no contest between technological corporate production



Dreadmill, 2005 / Courtesy of Marcel O'Gorman

versus academic production. By the time you publish a paper on the topic of Facebook, Facebook is gone, or it's gone through several iterations and it's not the Facebook it used to be. Like the slide I showed a few minutes ago from MySpace.

The goal of applied media theory is to engage technology at the R&D stage of development, and at that level it has more in common with digital art than with academic production. It presents different models for digital production and reclaims the term "innovation" in the logic of commercialization. Have you have ever filled out a Social Sciences and Humanities Research Council application for example? A few years ago SSHRC was putting a little box on the application that said: "Do you think that this project is viable for commercialization?" If you fill out that box, what do you think happens with your application? Goes right to the top, and that is innovation!

What is innovation? Innovation is not going to be to make something new that is going to make people think. Innovation is to create something I already have that's marketable and that actually can go to market. In the US in the 1990's there was the so-called "innovation crisis." The innovation crisis was overcome by loosening patent laws and by creating a facilitating link between corporations and universities in order to bring things to market more quickly. This tells you what innovation means within certain circles.

Where does this concept of applied media theory come from? It's a new way of working in humanities, beyond writing essays. New technologies required new modes of academic production. In the digital humanities for example, we are talking about digital humans and our obsession with archiving, an obsession with digitizing text and creating tools for searching through and visualizing texts. With the radical outcome of generating new journal articles and new academic monographs.

Digital humanities need to learn from digital artists and to invent new modes


Marcel O'Gorman presenting / Photo by Justine Smith

of academic production besides the journal article. In the Critical Media Lab research equals reading, plus writing, plus making.

Attention is hyper and deep, which means that students gain appreciation of the long chains of attention required in the writing process and in the reading of long, boring theoretical texts. Essentially what the students do in the lab is they study media theory, critical theory, philosophies of technology and then develop objects that embody those theories that they've been studying and researching. Then they have to write about why this object or environment embodies those theories. It is really a writerly act of working through the creation of digital projects as a writerly act, more than as an aesthetic act.

Dreadmill is one of the first projects I am going to talk about within the context of necromedia and some of the applied media theories we have done. Essentially it is a lecture of five to seven kilometres that I deliver on a treadmill hard wired to a laptop using Arduino. While I am running my speed is controlling the speed of a video display. As I lecture on the relationship of death, technology and human embodiment I slow it down or speed it up as part of my rhetorical delivery. By the end of the talk I am completely exhausted. It is a form of embodied rhetoric in which I make people palpably aware of my own embodiment while I am delivering a critical theory speech. *Dreadmill* arose out of the problem of the lack of down-to-earthiness or lack of any notion of embodiment or dealing with materiality in critical theory.

Screening Coffin, which sadly enough premiered at the University of Transylvania on Halloween in 2006, is a traditional wedged-shaped coffin that I built to stand upright. Inside, there is a bar stool where you sit and watch a video. The title of the video is Necromedia and is about sitting and interacting with screens. So while you are sitting in there interacting with a screen, you are reminded of your own death and the fact you're in a coffin, etc.

As a follow-up, I collaborated with Dane Watkins, a UK animation artist to create *Cycle of Dread*. We were going to create a multi-linear animated narrative that was controlled by speed and heart rate of a cyclist on a spinning bike you might see in a gym. The idea came out of a desire to create a game that would

actually put people into a "state of flow." My theory is that when you are immersed in a game you are not able to engage in critical thinking. There are theorists and cognitive psychologists who argue that immersion is a very good kind of existential experience that goes against the hyperactivity that people talk about with digital media all the time. The point of *Cycle of Dread* was to put people in a flow state and then jerk them out of it with these terrorizing existential moments of dread. That's what the narrative was supposed to do and that's how we got started.

The project got derailed by William Blake. At the same time Dane and I began working on this project, I was teaching a course on Blake, because I'm appointed to the English Department. I decided that Blake had to be involved in this project because of his use of copper plates and the copper we were using to create the heart rate monitor, and the anxiety that Blake was going through in the creation of his etchings for *The Grave*. This was not looked upon favourably in my department.

The English Department said it was okay to do non-linear animated narrative that reminded people of the hypertext theory stuff of the 90's - not a weird baroque Blake thing. I guess that is the entire issue of dealing with applied media theory in a traditional humanities department that is not used to the methods that might be involved in artistic creation.

The project ended up involving a penny-farthing and the ghost of Blake's *Strong And Wicked Man* who flies across a huge walkway in Kitchener as you pedal the penny-farthing. The ghost changes from Blake's watercolor to Louis Schiavonetti's 18th century line engraving, to my own digital drawing of Blake's *Strong And Wicked Man.*

I want to talk about a research project that started out as an obesity studies project. We were creating an application as a handheld video game for kids at public school. They would carry the game equipped with Bluetooth to monitor their location and heart rate at all times. The purpose of the game was to disrupt sedentary media usage habits by sending out messages with GPS coordinates, to a chestnut tree for example. The player would have to go out and find a chestnut tree at those coordinates, take a photo of it and upload it to a grid. The first student team that filled in that grid over five days won the competition.

We were studying whether or not this game could disrupt their sedentary media usage habits while we were doing this. At the same time that I was putting this together, an artist who we were working with in the lab saw the tracking device and the app that we developed for the Blackberry and said that would be a great public art project. So we took it to a public art festival where we asked people to come and draw an image on a satellite photo of Victoria

Park in Kitchener. Then we would hook up one of these geo-tracking devices so they wouldn't have to do anything but walk, trying to replicate by foot what they had drawn by hand. It turns out to be extremely difficult to do.

My colleague Colin Ellard called when he saw this. He is a psychologist and was writing a book on human wayfinding. He's studied a lot of mice in mazes and he said this is exactly the kind of visualization he was looking for his book.

Ellard wrote a published a book through Random House called *Where Am I: Why We Can Find Our Way to the Moon but Get Lost in the Mall*. We started out with a health studies project, which led to a public art project, and it led to another kind of psych cognitive studies project. We researched and created a feedback loop in the lab so people from different background could rub shoulders.

Teat Tweet is another one of those "we have all this great data but nothing to do with it" projects. We worked with a farmer in Brant County, Ontario who has a robotic milking apparatus. Every cow is RFID tagged and as they approach the milking pen, the computer knows if they are ready for milking or not. If so, the robotics arms come up, the cow goes into the pen, and the arms latch onto their teats and milk the cow. During the milking, data is collected, such as the total volume of milk, the amount of time each teat is in the cups, the amount of feed the cow eats, and the amount of time that the cow is in that pen.

We took all this great data and we turned it into AI-based Twitter feed with twelve cows selected by the farmer. Each cow had a different voice and you could follow these cows on Twitter. You can get a Tweet that say, "Hey human! I just pumped out 4.6 kilograms of milk for you. What did do you do for me today?" So that project was started by a visiting artist researcher in the lab who was interested in dairy cattle breeding and eugenics and the human/animal/technology nexus.

The last project is at the Tom Thomson Gallery right now. It is called *Myth of the Steersman* and involves resurrecting Tom Thomson's canoe. We had to first find the right canoe and repainting it according to Thomson's particular concoction. We christened it in Algonquin Park and put three touch screens monitors in the canoe and wrapped the canoe entirely in 25 lb line. As you probably know, Tom Thomson's body was found with fishing line wrapped to his ankles seventeen times, which creates the iconic mystery behind Tom Thomson's death. It is the bizarre fishing line and the fact that he died in his canoe that makes him so Canadian.

The *Myth of the Steersman* is also about the myth of cyberspace and the myth of disembodiment. When you are in the gallery, as you strum the touch screen monitors through the string you see the ribs of the canoes that are

underneath those monitors and a collection of images that I call "clues to Tom Thomson mysterious death."

The canoe can also be controlled from the web. On the *Myth of the Steersman's* website, you can drag your mouse across the screens and the canoe will light up in the gallery. The idea is to explore disembodiment through a well known Canadian myth.

The Always Known

David Jhave Johnston

I am PhD student and an artist taking refugee in academia. My talk will be about my practice of placing multimedia objects online since 1999. I am concerned with the more traditional aspects of how you express yourself through media and I am somewhat indifferent to what type of media it is.

The first thing I would like to look at is a piece from 1999 based on a book. Marcel O'Gorman came along and did this wonderful extemporaneous improvisation on theoretical issues while his computer died. I think there is another fundamental anxiety where sexuality and the recognition of being loved. My work deals with that issue. This piece is based on the concept of irreconcilable differences.

I made the mistake of falling in love with someone who was polyamorous. She took many different lovers while I was a lover with her and unfortunately I was being ripped apart by a strange jealousy. This is the piece I made to express that identity crisis that I was undergoing. It's a Flash piece called *NomadLingo* and it depicts the genetic parachute being ripped from my hands and the incandescent torture of being in love between the contempt and the comfort. You see the oscillations between our own physical and psychic armour that constitute us once we become sexual beings. This becomes a vicious cycle of: "I can't." "I wouldn't." "I shouldn't leave her." "I can't live without her." And how these conjunctional phrases flail around inside our psyche. We have contempt and veneration: we can't, we won't, we shouldn't live without her, and how death is flawed and how life is flawed and how we are living out that practice.

It is a very personal statement of my own self set in this piece. But I feel that all personal statements are actually collective statements. The things that are most intimate to us, like the idea of the common pulse, I don't think of as shameful confessional items. I think of them as very common, almost ubiquitous, features of the human anatomy. It's illogical and about how we are wounded by what we love. It comes down to this oscillatory circuit that I think is common to all of us (but perhaps may be only common to me) between the eternal and the ephemeral, between sex and soul. The "soul" being an archetype that continues to operate even after we have lost faith in it.

Then I got a commission from Turbulence in 2003. I had succeeded in leaving her, which was quite an effort. Here is our last vacation together where I

contemplated the fate that had brought us together and the hate that had developed from that love. She continued the cyclical process of being fucked and then fucking and then losing each other and this pendulum weight of the body continually turning back towards her. This is the subtext of how I was pining for her. I was in a cycle I couldn't get out of. I had low self-esteem. I was scarred. I couldn't wean myself. I related it to childhood and primal issues at the root of my existence. In this piece you don't have the words to make sense of that story, but this is how I was placing myself in a very enigmatic, ambiguous way into a very public space.

David Jhave Johnston presenting / Photo by Justine Smith

It's about loss and death and, you know, I can build a poem out of those and each of us can build a poem that is nostalgic, about losing or leaving other people. There is interactivity built into it. There is an interface I did as research in the lab, building this animation that includes Jason Lewis's software, Mr. Softie for text manipulation. It's that sense that when you scream out words you are actually flailing the words, the volume and the amplitude of your voice modifies what is seen.

Moving from a personal relationship that was toxic towards another that feels much better, in 2005 I was an artist-in-residence at La Chambre Blanche in Quebec City where I made this piece called *Sooth*. After all my scar tissue subsided and I began to develop a therapeutic relationship with my mortality salience. In **Sooth**, phrases are triggered by the user which are mapping their sounds. You are flying within the peculiar aquarium like space and as you continue to read out the structure according to what phrases you placed on it, it leads to different parts of the video.

Sooth is my personal story of this personal love affair. That's another aspect of my own personal life that I put into an art piece. That's my lover who is unfortunately having a nap. Unfortunately for her because I ended up just filming her and she becomes part of my work and she becomes part of my digital self, my identity online. This is how my work is tending to evolve in a relationship that is directly related to my lived experience.

At the same time I did a piece inside my loft. I had placed a bunch of Max/MSP patches, a bunch of computers and an array of cameras including one on the bathroom mirror which was mapped as a touch screen. You could manipulate

your face as a fluid entity. This would be automatically captured in segments for whoever was living inside my loft. For the four weeks I was away, there were four sets of artists living there. They were randomly selecting and uploading to a collective web space, the shared presence and the residual trace of their passage through my place. There was a collective self being expressed through my home and there was my private self who being expressed through **Sooth**.

Bathroom Sketches is a piece I made in my bathroom. These movies are tiny morsels of work depicting dusty shelves, bubbles inside a sink, my girlfriend in the bath tub, a poem held up and a little bit of stream, my girlfriend with a crutch. I tend to build pieces without thought and this is one of the things that lead me to feel very insecure about speaking in an academic context, but in fact it becomes a weird strength in a way. I feel there is room with digital technology to work in a very intuitive way that automatically absorbs the daily material of our lives.

While I was making all these pieces in my bathroom, which I saw as a religious exploration in a strange kind of way, I went to Rio for a conference. I made a set of videos with a story about two children who changed my relationship to the city. One of the children was a 14-year-old boy who came up to me in the rainy streets of Rio and tried to mug me with his friends laughing. I shoved him off and walked away. The second event occurred the next day when I was wandering by this abandoned section of the beach. There was a child having an epileptic seizure in a puddle. I approach him and he ran away laughing. I then realized that I was a buffoon to these children; a target for the satirical trickster impulse of the Rio kids. So it's partially a travelogue in the ancient way that people have been writing about their travels since the beginning of time. I think this is a very naïve practice but I think is a valuable one, to place the digital self in the context of being able to just write about what happen to you.

I am perpetually making somewhat naïve pieces that are about my personal struggles with depression in the middle of a Montreal winter. This is one of the problematic points of being a very privileged digital citizen. It becomes more difficult to admit that we feel claustrophobic, constrained, caged by mortality or sexuality, or limits or depression when we are so fortunate in the technology and freedom and the liberation which we each have. These pieces are about that and also are about play.

Another piece depicts my dental exam. Why? Because I think it has something to do with ourselves. If Katherine Hayles writes about the embodied self, probably our spit and our mouth, the orifice with which we absorb and engorged and inhaled the earth, is part of the intimate practice of our bodies. This is almost, to connect with Marcel again, a rare Blakean moment, when you

realize that when you look out and see things, that they come inside you. These things that we see outside of us are us. I don't think the digital medium is a constraint or a constriction on that sort of flowing inward, in that confusion of the self with the phenomenological other or object or thing. Because things, once they are inside you, they lose their knowledge of being things and become part of me so you are myself, in a way. There is a sense where the self is a selfless thing; it's a social thing. It's authored by evolution and the neurological apparatus which we are living through.

Spores is a piece I made for the Biennale of Montreal. It is based on video I shot when I was in Malaysia in 2008. It is a generative video piece focusing on a dying kitten. There is a harshness to this piece. There is no release from the harshness that is been offered to us by the virtuosic tendencies of technology and the sense of being constantly perforated by a network; of being in communication. The tsunami had struck and this kitten was obviously dying when I found it in a little parkette and no one was willing to help me save it and in fact I am sure it died. This is the state we are in, whether we're compassionate or engaged activist citizens, there is a complicity that is so complete that is built into the structure of the universe that I feel extraordinary despair.

I made this generative video work which changes from monochrome to colour. It plays each video with sound or no sound, and there is a set of six variations in total, leading up to a point where it is monochrome and silent.

In this conference we are talking a lot about the relationship between content and context. In the feedback I received about this work, no one ever spoke about the context or the structural aspect of the generative placement of the work. The fact is that it exists and its content is so strong, and I don't think it is actually my content. We place ourselves empathically through a mirror here, in relationship with that other self. My feeling is that digital technology augments or enables our capacity to move along those channels which artists have been gouging or moving along since the birth of artistic impulse. So I would be one of those figures in our community that speaks about digital technology as being not a transformative rupture in artistic practice.

Mobile Art & Design:
Responsive Environments and Social Practices

Martha Ladly

Mobile Art & Design: personal narrative within responsive environments and related social practices.

Digital identity forces us to understand that with the adoption of digital tools, we are not just the consumers of these services, but we are reforming ourselves functionally in the world. This goes much further when you think about social media such as Facebook, in which individuals function as PR managers, with public identities which we manage (or not) online. And there is an explicit engagement here that we are compelled to consider. What are the ramifications of this creation, engagement and dissemination of our digital identities?

In personal experience, the narratable self is at once the transcendent subject and the elusive object of all autobiographical exercises, particularly in exercises of memory. These narrative relations can be a form of political action, speaking to the struggle for the formation of a collective, political subjectivity. I contend that mobile technologies reproduce personal and cultural arrangements, imbued with political and social value. The cultural products of mobile communication that I am particularly interested in are grounded in place; they create responsive hybrid spaces in which the real, embodied, personal experiences and stories of the artist and the audience may create a powerful, participatory opportunity.

This tentative and exploratory paper focuses on the place of philosophy of narrative, some important formative works that have shown the potential for mobile technologies to address the creation of a narratable self. In this case this creation is enacted within a hybrid, politicized space, a space realized through the act of narration. Narrative in this sense is mobile but at the same time, tied to place, and to community. It is political because it is relational, revealing, and expositive. Mobile narrative artworks such as Teri Reub's *Trace* (1999) and *Elsewhere: Anderswo* (2009); Shawn Micallef, Gabe Sawhney and James Roussel's *[murmur]* (2003-); Alyssa Wright's *Cherry Blossoms* (2007); Blast Theory's *Rider Spoke* (2007-) and *You Get Me* (2008); and my project with Bruce Hinds and our OCADU students entitled *Park Walk* (2008), address the challenges of realization, aesthetic implementation, and artistic installation in hybrid space. The plural and interactive ephemeral space of exhibition—the scene of narration—in which we tell each other our stories, suggests an important political/relational

interaction that is attentive to who we are, and where we locate ourselves within hybrid mobile environments.

Relational Narratives within the realm of philosophy

What is the function of narrative enquiry in the construction of a narratable self, and how are we realized as unique 'Existents' through narration, telling one another our stories? Hannah Arendt states that 'Who' someone is remains inexpressible in philosophical terms, because the uniqueness of the individual is a concept that philosophy fails to express. Philosophy is primarily concerned with the 'What' and the Universals of culture and society, rather than in the stories of unique individuals and their relationships to one another. And yet 'who' someone is, although not uncovered philosophically, is not ineffable.

Martha Ladly presenting / Photo by Justine Smith

Hannah Arendt formulated the theory of an existence's narrative, which can be revealed and made manifest through the actions and speech of the flesh and blood, through "words and deeds which *ex post facto,* form the unique life-story of that person."(1) She was interested in the narration of life stories as an alternative to philosophical analysis, because the narration both deals in uniqueness and illustrates the interactions between unique individuals. Arendt insists, "every individual life can eventually be told as a story with a beginning and end. This is the pre-political and prehistorical condition of history." (2) Arendt also states that narrative reveals meaning in one's life that would otherwise be perceived as merely an intolerable sequence of events (3).

Theorist Adriana Cavarero focuses on the moments when the disjunction between discourse and life is suspended through the act of narration, and suggests that narrative relations can be a form of political action. Narrative enquiry is political because it is relational, revealing, and expositive. The "Plural and interactive space of exhibition—the scene of narration—in which we tell each other our stories, suggests a political/relational interaction that is attentive to who rather than what we are. (4) When Cavarero speaks of the narratable self she is not referring to the formation of the subject, but rather to the struggle

of a collective subjectivity, which makes clear the fragility of the unique (5). Cavarero describes the relation between one's life, and life story, in terms of the desire that one has for that narration. Lives are disjointed and fragmentary, they do not form an easily narrated story, or coalesce with an appearance of unity around events. They do not follow the three-act play in a coherent beginning, middle and end, with instructive outcomes. It is the creation of a sense of unity or form in the narration of one's life story that is desired by the narratable self. "The self desires and is open to the tale of a life story that unfolds in his or her lifetime in a way that uniquely reveals who that person is." (6)

Alasdair MacIntyre also describes the difficulties in envisaging an adequate Telos, or climactic unity, within the narrative of our individual lives. Narrating a life is important and revealing, because it offers the possibility of proprioception. All lives are more than a series of disjointed roles and episodes. John Dewey described a narrative, which allows both the narrator and the existent a quest that is always an education, both into the character of events and participants, and in self-knowledge (7). The criteria of narrative experience are continuity, and interaction. Our sense of experience as continuous is framed by tensions concerning temporality, people, action, and certainty. It is through our experiences, our narratives, telling them and hearing them told, that we author growth and transformation through means of the narrative of a life story.

Narrative and the Embodied Voice

We can agree with both Arendt and Cavarero in founding this understanding of embodiment in the fact that human beings live together and are constitutively exposed to each other through the bodily senses. Each of us is narratable by the other, and we depend upon one another for the narration of our own life story (8). Through narration, a constitutive exhibition occurs through which the self comes to desire her own life story, as told through the mouth and voice of another (9). This important constitutive function of retelling of the story back to one another is not taken up in auto-ethnography, or autobiography, but is unique to the creative Second Person and Third Person narratives. Second person narratives are the most personal, addressed to the 'You' whom 'I' address. You are the heroine of the narrative story of your life, which I relate to you. Second Person narratives are common in families, when parents tell their children the stories of their childhood times that they could not possibly recall themselves. These second person narratives bond children to their siblings and parents, and to their ancestors and family histories.

So how does this all relate to Mobile art and design? These creative practices also engage communities and audiences in social practices that are playful,

provocative, and ephemeral. Locations are often public and audiences are on the move. The participatory realm in mobile art and design creates speculative links between individuals in real and virtually augmented environments. Often artists and designers are concerned with interactions in communities of players in urban public space, and these mobile projects offer an evocative local narrative: a portrait of the past and current life of the community. These projects lay a veil of information over the public and the local, offering artists, designers and participants new opportunities and locations for creative interactions. In this way, mobile art and design can be used as a force for community building, critique, and social change.

I would like to introduce some projects that are important works of personal and community narrative, all enacted within public space. These are narratives that engage audiences and communities in the participatory creation of their own personal/public narrative.

Trace (1999), Teri Reub

In 1999 artist Teri Rueb launched *Trace*, one of the first geo-annotated mobile art projects, using GPS coordinates embedded in the landscape to access a database. Her interactive walk was a memorial environmental sound installation, created as a site-specific response to the network of hiking trails near the Burgess Shale fossil beds in Yoho National Park, British Columbia. This work was a real precursor to the phenomena of mobile public art: the participant carried a custom knapsack equipped with a portable computer, headphones, and a GPS receiver, and memorial poems, songs, and stories contributed by collaborators played in response to the participant's movements through the landscape, triggered by GPS coordinates (10).

Most mobile artists and game designers find their locations in remote but mainly in urban environments, and many of their projects are representations of how communities occupy and use urban public space. These projects offer an evocative portrait of the past and current life of the city, its residents, and visitors.

Elsewhere : Anderswo (2009), Teri Rueb

Ten years later, with *Elsewhere : Anderswo* Teri Reub seeks to engage visitors in a kind of play with urban place and space, in Oldenburg, Germany. As in childhood where we readily create a pastiche of place through make-believe, so it is in adulthood when we seek out the familiar in the new, "reading" a landscape in relation to our own prior experience and \/or-mediated knowledge

of it. Idiosyncrasy reigns in these "vernacular landscapes", patched together unconsciously as memory blurs fact and fiction, real and imaginary, actual and mediated experience.

With *Elsewhere : Anderswo*, Teri Rueb explores an alternative aesthetic where the dislocations that occur in "place making" as an outsider ("ausslander", "aussenseiter") are embraced. While the physical place itself still serves as the literal and conceptual "ground" for the work, the sounds she overlays may seem foreign and out of place, out of sync or registration, as if rendered in crude translation, interwoven are fragments of sound that evoke highly specific landscapes familiar from television, film, and radio. In these moments personal identity snaps back into hyper-sync with the site itself, in the creation of personal narratives in that otherwise unfamiliar space (11).

[murmur] (2003-2011) Murmur

Back in 2003, a mobile art project called *[murmur]* started an urban community storytelling movement, a concept that artist/designers Shawn Micallef, James Roussel, and Gabe Sawhney developed as students at the Canadian Film Centre's Media Lab. Signs depicting a large green ear with a telephone number inscribed on it started appearing on lampposts in Toronto's Kensington Market and Annex areas. Calling the number on the sign with your cell phone, you can hear a short recording from someone who has a story to tell about the house, back alley, market stall, synagogue, cinema, restaurant, club, or theatre you are standing outside. Their stories are personal, and as diverse as the neighborhood itself. Green ear signs are popping up in international locations as far away as Edinburgh and Dublin, São Paulo and San Jose; all designating local story-telling public art projects that have been co-developed with local communities and the *[murmur]* team (12).

Rider Spoke (2007) and You Get Me (2008), Blast Theory

Rider Spoke is a mobile game for urban cyclists, designed by the British mobile art collective, Blast Theory. The idea is to combine theater with cycling and mobile game play in a public urban environment. Participants bring their own bike, or borrow one from the artists. Cycling through the streets at night, equipped with a mobile attached to the handlebars, they find a hiding place to record a short message in response to a question posed, and then search for the hiding places of other participants' messages. *Rider Spoke* was created in October 2007 for the Barbican neighborhood in London, and has been shown and played in Brighton, Athens, Budapest, Sydney, and Adelaide.

In 2008 Blast Theory pervasive game participants at the Royal Opera House in London's Covent Garden log in and are greeted by one of the young protagonists of the game:

> Welcome to *You Get Me.* This is a game where you decide how far to go. At this moment a group of teenagers are waiting in Mile End Park. Each one has a question they want you to answer.

Visitors choose from one of the teenagers (known as runners) based on a picture of them and their question. Rachel Scurry asks, "What is your line between flirting and cheating?" Jack Abrahams wants to know, "Would you employ me?" You hear a story from that person (Jack describes jumping the barriers at Southend railway station, and pissing in a cup on the back of the rail replacement bus) and then you are dropped into the game.

By navigating your way through a virtual Mile End Park you can find your chosen runner. In this first stage your goal is to listen to the personal geography of your runner over the walkie-talkie stream. As you learn more about them their question begins to deepen and make more sense. You then track them down and type them an answer to their question. If they don't like it, they throw you back: you need to listen to more of their personal geography and come up with a better answer.

If they feel that your answer is intriguing the runner invites you for a private chat. They switch to the privacy of a mobile phone and call you; in turn you can send them messages. A nighttime image of the park slowly zooms to reveal the person you are talking to as a pixelated presence on a distant pathway. This one to one exchange allows them to get your direct input into their life. They have framed the most important question in their life at that moment and they want your opinion. Hussain Ali, for example, is wrestling with leaving home and asks you how you did it: does it get easier over time? Are all parents so obstructive and uncomprehending? Once you have finished your conversation they take a picture for you. The last thing you hear might be "This is Hussain. It's 3.45 in the afternoon on Friday 12th September. I'm near the canal with the Pallant Estate behind me and I'm taking a photo for you. You get me." As you leave the Royal Opera House the photo arrives on your phone (13).

CherryBlossoms (2008) Alyssa Wright

Cherry Blossoms is a GPS-activated mobile art project, developed by Alyssa Wright at the MIT Media Lab, in Boston in 2007. Her project aims to build a more visceral sense of empathy for the victims of war. The project takes data from the locations of bombings in Baghdad and maps them with GPS hotspots

to the streets of Boston, Massachusetts. Participants don a backpack outfitted with a small microcontroller and a GPS unit. Recent news of bombings in Iraq is downloaded to the unit every night, and the locations relative to the center of the city are superimposed via GPS coordination on the streets of Boston. If the wearer walks through a space in Boston that correlates to a site of violence in Baghdad, the backpack automatically detonates and releases a compressed air cloud of confetti. Each piece of confetti is inscribed with the name of a civilian who died in the war, and the circumstances of their death. Looking like a mixture of smoke, shrapnel, and the white blossoms of a cherry tree, the explosion completely engulfs the participant. With *Cherry Blossoms*, a mobile media project about human loss, the effect resonates far beyond the boundary of the original conflict (14).

Park Walk (2007) Martha Ladly and Bruce Hinds

Mobile art and games can be used as a force for community building, critique, and change. *Park Walk* is a mobile public art project that I developed with my collaborator Bruce Hinds in 2006. *Park Walk* is a social and environmental mapping project that delivered historical, cultural, and user-generated stories contributed by the local community near OCAD in Toronto. The project engages aspects of urban orientation and nature identification, local cultural activities, historical insight, and bioregional mapping. Over time, with the addition of community members and visitors' own experiences of the sites, and in conjunction with a website holding uploads and downloads of user-generated narrative layers, the project builds on the community association of meaning with place. The *Park Walk* project is part of the Mobile Digital Commons Network, and was developed for Toronto's Grange Park, Spring Creek Trail in High Park, and the Hoodoos Trail in Banff National Park. The *Park Walk* project lays a veil of artist and user-created information over the parks, creating a shared geography of public space (15).

Re-Tweet Driller (2011), Martha Ladly, Genèvieve Maltais, Britt Wray

A recent project undertaken through the GRAND research network includes the *Re-Tweet Driller* mobile application, designed with my graduate students, which visualizes the impacts of mobile journalism, using reporting on the events of the Arab uprising in Egypt as a basis to analyse the sources of news. The application is deployed on a mobile platform that allows readers to access a snapshot of news stories that are currently being disseminated by mobile 'citizen' journalists, and then compares them with similar stories in syndicated news outlets, that have often been adapted from the tweets and posts of the people who are

live and ‘on the ground’ in the thick of the current events. The project presents an interactive aesthetic visualization of Twitter feed data, and correlated ‘professional’ syndicated news stories, as well as local press stories, in order to give readers a chance to make their own comparative analysis. Using twitter feeds and news stories from the final day of the Spring 2011 uprising in Tahrir Square in Cairo, a capture of the live Twitter feed can be navigated interactively or printed out, as a digital ‘news clipping’ that captures a day in the life of a world changing event (16).

In conclusion, mobile frameworks, which encourage personal and community narrative making in public space through collaborative artistic and player-participant interchange, are positive and unstoppable. These practices offer mobile artists, designers, audiences, and players fresh opportunities to develop exciting conversations and play out new and innovative experiences in responsive mobile public space.

End Notes

1. Arendt, Hannah. "Isak Dinesen (1885-1962)" in Julia Kristeva and Frank Collins, Hannah Arendt: Life is a Narrative. Toronto: University of Toronto Press, 2001, p. viii
2. Arendt, Hannah. The Human Condition. Chicago: University of Chicago Press, 2nd ed. 1998 p. 184
3. Arendt, Hannah. "Isak Dinesen (1885-1962)" in Julia Kristeva and Frank Collins, Hannah Arendt: Life is a Narrative. Toronto: University of Toronto Press, 2001, p. xx
4. Cavarero, Adriana. For More than One Voice: Toward a Philosophy of Vocal Expression. Trans. Paul A. Kottman. Stanford: Stanford University Press, 2005, p. xxiii
5. McIntyre, Alasdair. "The Virtues, the Unity of Human Life and the Concept of a Tradition" in After Virtue. Notre Dame: University of Notre Dame Press, 1981. p. 204, p. 219
6. Kottman, Paul. Translator's Introduction in Adriana Cavarero, Relating Narratives: Storytelling and Selfhood, London: Routledge, 2000, xxii
7. Dewey, John. Experience and Education. New York: Collier Books, 1938.
9. Kottman, Paul. Translator's Introduction in Adriana Cavarero, Relating Narratives: Storytelling and Selfhood, London: Routledge, 2000, p. ix
10. Kottman, Paul. Translator's Introduction in Adriana Cavarero, Relating Narratives: Storytelling and Selfhood, London: Routledge, 2000, p. x
11. Teri Reub, Trace: http://www.terirueb.net/trace/index.html
12. Teri Reub, Elsewhere : Anderswo: http://www.terirueb.net/
13. The [murmur] project: http://murmurtoronto.ca/
14. Blast Theory: http://www.blasttheory.co.uk/bt/index.php
15. Alyssa Wright, CherryBlossoms: http://alumni.media.mit.edu/~alyssa/about.html
16. The Park Walk Project: http://mobilelab.ca/parkwalk/ GRAND NEWS project, the ReTweet Driller: http://blog.ocad.ca/wordpress/grandresearchproject/grand-news/
All websites accessed and verified 25.11.11

Users and Viewers:
The Role of Participation

Participatory Culture in Canada and Europe

Michelle Kasprzak

I will introduce myself as a Canadian who lives in Amsterdam, the Netherlands. I started off in my career as an artist and made the switch to a curator. I am a curator at V2_ Institute for the Unstable Media in Rotterdam, as well as doing a lot of independent alternative projects and writing.

I want to discuss with you today this idea of curating and the public, and how public is involved, if the public gets involved how do we do or we do not include them in curatorial practice.

I thought it would be nice to start with one of Herbert Marshall McLuhan's prose, especially as it is the 100 anniversary of his birth. I also feel it is an accurate presentation of my career: "Life at these speeds obliges everyone to discover a new career for himself. Every ten years, a new job and even a totally new personality." This definitely happened to me, as I made the switch from artist to curator. However, my years at art school were not wasted. They enabled me to have an empathy and understanding of the art and curator relationship to a high degree.

First I am going to show you images of what curators are stereotypically supposed to be doing. These are images from the IKT congress in Luxembourg. It is a group of curators that meet, travel the globe, look at work and get backstage use of things. Next is the Deutsche Bank Collection in Luxemburg showing curators on a Sunday tour, studying work intently and closely networking. Lastly, here is an image of curators getting a behind the scenes look at the Daniel Buren installation at the Pompidou Metz.

These images do not show you the most important thing about curating. It is easy to pick curators doing the stereotypical action of looking at work, networking, hanging out, dressed in black and etcetera. However, the real meaty and important work of being a curator is working directly with artists. You follow their careers, their trajectories, and not only maintaining single pieces of work but also bodies of work and the relationships between bodies of work in artist's careers! Curators are a walking database in that way. It is one of the more important functions; a kind of mentorship, a developing, symbiotic relationship with artists. That is not as easy to get in a snapshot.

Now I want to take you to Venice for a moment. I just came from the Venice Biennale, which is an orgy of visual art. It is an incredible experience. One of

the pavilions this year really illuminated how twisted the definition of the term 'curator' has become. I'm sure we've all heard the term used when we 'curate' a playlist on iTunes, curate Twitter, or to curate just about anything, by relying on this idea of merely looking at stuff and selecting, instead of looking at the nurturing aspects or the organizational aspects.

The Lithuanian Pavilion won a honorable mention this year. The artists there had decided to create an installation called *Behind the White Curtain*. They set up a white curtain with artwork behind it, just filled with artworks that were made by Lithuanian artists who were state-approved. These were the artists that received money to create artworks.


Michelle Kasprzak presenting / Photo by Justine Smith

Darius Mikšys created the selection of works so you could flip through and ask him to bring out an artwork for display. Essentially working with him, but there was a meta-curation going on. There was the State, who ultimately was choosing and selecting who was 'worthy' of receiving money (a process we are all familiar with in this room) and the artists filtering this into a catalogue, and then finally the public filtering out what was going to be put out on display. It showed the performative action of gallery work nicely.

Moving along to my own practice, there are several myths of what I am going to talk about this morning. These myths include that curators are these difficult characters that are very closed, play their cards very close to their chest, don't feel or discuss anything, and that it is difficult to know what their job really is.

In 2006 when I moved to Scotland from Montreal, I realize I was compiling all this research about curating, through books, websites, and all kinds of different sources. I thought it was a real shame to be sitting on this gold mine of information. So I decided to build a website and put it online!

The website has become more successful than I had imagined in my wildest dreams and is becoming a really genuine resource to fill a need that I didn't really know existed. This sharing of information can be a bit congested and it is probably not seen as the type of thing to do. It has grown from its initial stage of a website to share my research, to an operation where I have four interns working to maintain the site. So, now I just can be here sitting in Durham and

not have to worry about it. We have also other exciting projects that are going to happen in the real world with real money.

I wanted to bring this up just because the website is something for me that illustrates the change in the shift in the world of working in the digital edge of things. Sometimes the contemporary art world is not as aware that the increasing openness and transparency is not a trend. It is more or less here to stay.

Next is one of my recent projects where I completed In-Site Toronto. It was a series of six commissions for the Portable Pages Artists Wireless Toronto Community Network by Toronto-based artists. With this project, I am going to discuss the myth, the illusion, the compulsion to live up to that curators are pretty nailed down. They create a framework, they create an environment, they invite persons to come in and listen to briefings.

Portable Pages looks like a regular website and it is in many ways. It is a simple page that every user has to use when they want to log into this free wireless network to check their email or whatever. This was an incredible piece of online real estate: everyone has to look at it there, there's no way to get around it, which makes it a great opportunity for inserting a little artwork into a person's day!

Another thing that interested me about it was this notion of the public. I am not really sure who the public is in this case. We can track and monitor who comes into white cube spaces in a museum but this was open to anyone who had a laptop in Toronto. I can make some socioeconomics assumptions based on that, but because Wireless Toronto Group doesn't collect any personal information beyond tracking users or tracking the number of people using the network. I really don't know who the public is. It is much wider and more diverse public that we see in the white cube at a museum.

As the hotspots were scattered across the city in different locations, we thought the public would choose a hotspot that they were interested in because of the neighbourhood or a building it was in, or the people that went there. My original curatorial conceit was that the work would be inspired by a specific site of a hotspot.

This is indeed what the pilot project in Montreal was about with the Île sans fil Network which spun off of the Digital Commons Network with Jason Lewis. As we were commissioning the work, the artists have to come with something new. In this case, with the Toronto project, the idea of creating a site was there but also to create an object. One piece was of a pill that was being dispensed near a hotspot which had a dual component in it by living in the physical and virtual space.

David Diamond did a found-text piece on celebrities to create Twitter-sized chunks of text. Together he and I thought about the most interesting way to present it. We both agreed that the Teriyaki Experience chain of restaurants would be best as the fast food mirrors the rot-your-brains celebrity culture. It made a nice context for it.

I didn't expect the next piece, by Jeremy Bailey, to resonate the same with the space. It was based on images, words, and designs that would pop up when you forgot your password. So it became this nice artwork that you wouldn't find unless you make a mistake. It was really quite funny as even I caught myself just refreshing the page as I found them so amusing!

This is another piece by Swintak that had a physical component. She posted wanted posters in the St Lawrence Market, the location she had chosen to work with. She created these wanted posters for wild projects. They were so fanciful and impossible that you couldn't imagine someone responding! One asked for a person to move a one ton cube of concrete and another one read:

> Wanted Persons: rich people, poor people, and a registered massage therapist. Purpose: for a unique art project involving the use of massage as a method of non-verbal communication between people of disparate socioeconomic status.

Throughout all these different projects we were working together to feel out how this networks can be used in a limited and site specific medium. With the freedom of having an artist pick a hotspot and what they wanted with it, people were doing many things. There were people like Swintak who were making physical objects to create a resonance between physical and online space. There was another artist, Brian Joseph Davis, who scattered radio play tape recordings throughout the hotspots, treating it like a broadcasting network, which in a way it is.

Next, we shall move onto something that is happening on V2_ right now that asks a lot of questions who the art is for. To give you some background, V2_ is a 30-year-old arts organization in Rotterdam that is a lab, a publishing house, an events organizer, and hosts the Drudge Hill Arts Festival. We do numerous things, too numerous to go into detail on, but I will mention one of them.

Protei is a series of autonomous oil spill clean up robots. It is a project being developed by the V2_ lab this summer. I will show you a picture of the robot that does everything you want a clean-up drone to do. It is a vehicle, autonomous, unsinkable, cheap to make, will ride itself and collect oil.

The reason I am bringing this project up is because a) it is fascinating project, and b) it is interesting that artists are proposing the solution to a problem

that governments and oil companies should be spending time resolving. We are planning to exhibit the object itself at V2_ as part of a small festival in September, but this is really about showing the structure not necessarily for the public to see it in action. Again, I find this interesting in the context of the public. It is really the most unpublic thing that I can think of to present. It's purpose is to complete an act in the middle of the ocean were no one will see what it actually does.

Curators work with artists to try and help them realize their vision in the face of public funding, and the instability that sometimes comes from public funding. In this case, we worked with them to create a Kickstarter campaign online, which was an interesting platform. It was hugely successful and we exceeded the goal. I am not suggesting that it is in any means a replacement for public funding or that it is even possible, but it is something to consider. As everyone feels the squeeze, we need to how we can subsidize projects. Kickstarter worked very well for this project as it is an easy one to explain, has a clear goal, and is something that people can really get behind.

The curator doesn't have much of a role in this piece. It is a background facilitation role. Very often curation is more about problem solving, and in this case finding a way to raise a lot of money in a short time for a single project.

I want to end on that note and throw it open to you by thinking about where the curator's place is in mediating between the artist and the public. Some of the projects that I showed to you provide and potential conversation pieces. There are inside projects with the public that I never got to know and cannot quantify, and this common perception that curators are about editing and selecting. That is where I want to leave you.

Like Pulling Teeth:
User-Generated Text and Its Discontents

Jason Edward Lewis

When I went home last night and I snuggled up in bed with my iPad and my Instapaper reader, I was reading Jonathan Franzen, a graduation speech he gave this summer. The title of this speech is "Liking Is for Cowards. Go for What Hurts," and I pulled one quote:

> To speak more generally, the ultimate goal of technology, the telos of techne, is to replace a natural world that's indifferent to our wishes with a world so responsive to our wishes as to be, effectively, a mere extension of the self. Let me suggest, finally, that the world of techno-consumerism is therefore troubled by real love, and that it has no choice but to trouble love in turn.

I think that was one of the more interesting things that came out of the conversation yesterday: the thinking about the relationship between a community technology, intimacy and death. What I am going to show will touch on some of those things but not all of them.

My topic is: *Whose idea was this?* About eighty percent of the way through most projects that I do, where things are not going the way they should and the deadline is looming and technology is not working, people are not cooperating, I think, "Whose idea was this? Who got me into this?" Of course the answer is me. These are my projects, projects that I initiated. And that point usually precedes some kind of breakthrough. At that moment I think about why I am doing this and what the ultimate goal is. That usually means that at the 80 percent point we end up taking a slightly different tact in the project.

The subtitle is "Four questions that have plagued me." I will frame the projects I will be speaking about in terms of higher level questions that either were reasons that I got into doing the project or questions that arose and kept me awake at night.

I am American living in Montreal. I work at Concordia University where I teach in the Department of Design and Computational Arts. I run a lab called the Obx Lab which is part of the Hexagram Research Institute. It is an institute with 40 different members based in the fine arts faculty at Concordia that is dedicated to research/creation in new media arts and technology. It is a rich place for developing new media technology and new ways of thinking about media technology.

Jason Edward Lewis presenting / Photo by Justine Smith

Question One: What is the point of supporting and encouraging user contributed media in artwork?

The series of projects that led me to that question was called Public Lettering that I did from 2004-2009, though Cityspeak still gets shown somewhere in the world once or twice a year. This was part of the Mobile Digital Commons Network (MDCN). *Cityspeak* was followed by a second project was called *Citywide* and the third project was *Passage Oublié*.

Back in 2004, one of the big questions was: what sort of interesting things can we get people to do with mobile devices other than send text messages and talk to other people? Many projects within MDCN were focused on the device and making interesting things for use on a mobile device. We took a slightly different tact by thinking of the device as an input vector. If people have these devices on them how can we use them to get text from them, into our system?

Much of the work on my lab is text-centric. The work is about poetry, writing digital textuality, typography and computational text. My default way of looking at the world is how to interact the world in an interesting text experience.

We began noticing large scale video displays popping up in various urban centers. We were a little depressed by them because these huge beautiful screens with beautiful imagery were just being used for advertising. So we developed *Cityspeak* to open up those screens to the person on the street. Instead of the screen being a broadcast medium, it created a dialogue between people in the space and the space itself, as well as between individuals in the space.

The idea is very simple: you have your SMS enabled device and we have a local phone number. You send text messages to the local phone number and we displayed them on a large video screen.

There is an undercurrent with public places. They are becoming less and less the type of places where you can speak publicly because either the government or a corporation controls what you can put up. We also did *Cityspeak* in clubs

where we set it up as part of the evening, and in contexts like this one, where people can post their thoughts to a screen running in the background.

In the age of Twitter, this is straightforward, but back then Twitter hadn't started. Originally, I thought of it as an art project and as a way for me to project my writing into a public space where people could interact with it. But as we went along, we found out that people didn't have very interesting things to say. The interesting thing was looking at the social interactions that happened around this thing and looking at how people reacted to it, rather than the actual context of the text itself. Things start to look more interesting when you gave people a context to crystallize around.

One of the most interesting examples of this happened during a talk I gave at the MAC in Montreal where we asked people to discuss urban space. As a very utilitarian tool, it became useful to shape things, but ultimately as a site for creative acts it was a bit of a bust and caused me to rethink what I was trying to do with this sort of work.

Two years after that we developed *Cityspeak*, we developed *Citywide*. The idea behind this was "situated wireless." Instead of using telecommunication tools to help us communicate at a distance, we wanted to intensify communication at the local level, like for people who go to the same bar or cafe or library every day. We worked with the Île Sans Fil network in Montreal to develop a hyper local chat system where only the people connected to a particular hotspot could partake in the conversation.

When you logged in to the Île Sans Fil network in Montreal you would see a shout box that would take you to the chat space. It got a low level of use through the use of the first year. Many people ignored it or they didn't see did it. They wanted to log into Île Sans Fil to go to their mail or go on Google, not chat with people.

We had put in a system that was easily accessible, but not many people used it. We seldom got more than 10 users a day. We were frustrated and decided we needed to get way more focused.

We had an opportunity through Year Zero One to do a project at the Pearson Airport. This is the same project that David Clark was part of. In Pearson Airport there was an installation of five touch screens and they curated proposals for displays on those screens, just outside of the international section at Pearson. This seemed like a fantastic opportunity. There were literally millions of people walking by that space over the year long installation and many actually didn't have a lot to do: they are waiting.

At that time we had been doing a lot of traveling for *Cityspeak*. My crew at that time was Yannick who is from Kenya, Maroussia who is half Quebecoise and

half Lebanese, Raed who is Egyptian, and Lysanne who is Quebecoise. After a while, we noticed some differential treatment as we were moving across borders. Lysanne never ever had trouble at all, but the rest of us brown people were often questioned and pulled aside.

Maroussia was doing research as well into the War on Terror and extraordinary renditions. The Bush government found they can't interrogate people the way they want to because of pesky laws, so they render people to some country where they don't have those laws. People are shipped off so that they can do horrible things in the name of the US people, the Western people, or whatever it might be.

There is a whole network set-up by the CIA to move these people around. They don't use military jets because they are very easily identifiable, so they use charter jets and the public transportation system in a very clandestine way.

We put together a proposal to create a piece to address extraordinary rendition, to illustrate it and to solicit people's opinion on the topic.

We submitted to Year Zero One and then they thought it was a great project. However, they didn't think the airport would go for it. So, Michael Alstad came and sat with us in Montreal, and said he would be happy to push it forward, but he wanted to offer us the chance to modify it. But we decided to leave it as is. This was fortunate because Michael and his crew were able to convince the airport to do it!

Our piece was a touch screen installation including a map of the rendition network and the different airports that are close to rendition sites. When you click on places on the map, you are shown the story of someone who had been rendered there and what happen to them both in the process of being rendered and what happened once they arrived at their destination.

We had people comment on the piece by sending a text message to a local number. We asked them their opinion on the War on Terror, on renditions, and what they thought of the story. They could then submit their opinions into the space so that other people could see what they left behind.

This was much more successful in that we got a huge number of contributions. Most of the contributions were quite thoughtful. We set up a web interface to allow people to send contributions over the web. There was some kind of perturbance; people were thoughtful, but also contesting, saying things like: "We are in the middle of war and we have to get the information however we get it," and "This is not something I want to read about when I am about to embark on an international flight."

In the end, we had a methodology to justify the work that we did in terms of eliciting submissions of user generated contributions. Ultimately, I feel

ambivalent about it and have moved away from this methodology. I am done with soliciting input of content from users. Participation and reactions, yes, but not content for a while.

Rafael Lozano Hemmer came to talk at Concordia University a couple years back. He was talking about his public art practice and why he does things in public and I thought this is a really nice quote, "Anything in public space that is not shopping I considered to be radical."

He makes an argument that the default use of public space is so commercialized that anything that is not about that is going to perturb what is going on and is probably worth considering and doing as an artist.

Question Two: How do we create research relationships with the community that is not parasitic?

In the Aboriginal Territories in Cyberspace project we work with native communities. I'm Cherokee and Skawennati Fragnito, my partner in this project, is Mohawk. We tried to think how to interact with native communities in a way that is mutually beneficial. It's not about me extracting some interesting data or an anecdote, but actually having something move back and forth between us.

One major work we have done in this area is *TimeTraveller,* which is a machinima project. It is a series of five to seven minute episodes about Hunter, a young disgruntled Mohawk man in the year 2112 who is trying to figure out his place in life and his place as a Mohawk. He revisits historical events that are important to native people using this technology called TimeTraveller which is essentially a holodeck you use by putting on these glasses.

Skawennati used critical history from the last 500 years to provide different stories from the native side as opposed to from the settler side. She also created a critical futurity at the same time. He is from the year 2112 and there is all the history from now to 2112 that hasn't happened yet but Skawennati has envisioned.

One of the things that we have been trying to address in this project is that in the native community we spend a lot of time talking about the past, which is appropriate and necessary. One of the things that we have been working on is to imagine a future. We wanted to think of a science fiction future and ask ourselves what native people will be like then and how we will operate in that space.

Another project we did is called *Skins* which is an aboriginal storytelling video game design workshop. We work on videogames, design, 3D modeling, programming and texturing, but in the context of aboriginal storytelling. We had elders come tell stories and speak of the importance of telling stories in the community.

The kids designed a game called *Otsi:!* which is based on stories from the community. In Otsi:!, a warrior has to go on an epic journey to save his village from the Flying Head, which is a character that appears in a number of stories from Kahnawake. When we started it in 2008, it was a year-long workshop, but now we're compressing it down to 14 days.

This was very successful. We produced a prototype game out of it which went on to win Best New Media Award at the imagineNATIVE festival last year. Several students that worked on that project are still working as research assistants in my lab on furthering the game. We are doing the workshop again this summer and have been funded for another three years to do the workshops. It is a great way of getting kids excited about learning these technical skills and as well as storytelling in their community.

Question Three: Should artist create tools other than themselves?

We've been working on a number of tools. We have a software library called NextText because I couldn't find the tools I needed to do what I wanted with text. We created Mr. Softie, which is a tool that combines features of Word, After Effects and a programming environment like Action Script to work with text.

The tool does what I want and Jhave is using it quite extensively, but not many people are using it. The question for me now is whether we continue to put money and time and resources into making it a tool for general use? Or do I just use it and tweak it any way I want it? Without worrying about whether other people are going to be using it or not.

This goes to the basic question of the balance between my artwork and research. I am a researcher in an academic environment and an artist within an academic environment. This balance is what a public university is about and what a lot of the grants are about.

Question Four: What is the grain of digital media?

With this question, I am asking what the digital media do well. What should I think about doing in a digital environment and what should I think about doing in an analog environment?

My primary art form is poetry and writing. I spend a lot of time thinking about and seeing a lot of digital poetry and electronic literature where I wonder why do I have to look at this on the screen. This would actually be a more enjoyable experience on the printed page. Instead, I have to click through a bunch of things, look at a low resolution display with crappy typography and crappy design in order to experience this text. It's not clear to me why I need to do that.

I've done a series of experiments about interactivity, computation, network connectivity, and how all those things can be used as part of the meaning making components of writing poetic texts in a digital environment. This can be seen in *Poems for Excitable [Mobile] Media* which is a series of touch screen pieces. I'm writing the poems to be interacted with through touch. This made me consider how I had to change my writing, to think about meaning, and how I can take advantage of that.

We experimented with different ways of presenting the work through iPod and iPhone apps. We are in the process of making a large scale touch interaction and rewriting it for the iPad. We need to write and design differently, both the visual and the interactivity. There are many differences to consider when moving through different surfaces and environments, such as from a gallery space to a cell phone. We also invited five poets to write text for that environment to get feedback on the experience of writing poems for these environments.

We've started working in print, which I've never done before. I've been always kind of digital screen guy. Now, we are trying to think about how the poetry changes from the screen to print or vice versa. My writing changes depending on which of these contexts I am targeting. I try to tie the print work with the screen based work. By putting large scale prints, touch interactive experiences and mobile experience together, we are able to see how people interact and react to those things differently.

Those are the questions for me and for you all too.

From Prints to Interactive Installations

Jean Bridge

Even a sheet of paper is three-dimensional. And it's plenty easy to interact with. Yet, despite decades of cultural production that has eschewed the object, the hold that the image-suffused surface has on our imagination is profound. The entropy of remaining fixed; of staring into the two dimensional abyss stands in stark contrast to the potential chaos of active engagement in a site, a situation, a relationship with an artwork.

My own art practice and process of thinking are infused with the desire to extend, even transform the surface. Perhaps this can be seen in my alignment with the Visual Art Department and the Center for Digital Humanities at Brock University. I teach primarily in areas that support the pursuit of cross, hybrid or intermedia creative options. I am responsible for creating the new Interactive Arts and Science program at Brock which my colleagues and I initially envisioned as a broad-based set of learning options meant to engage narrative, performance, interaction, visualization, simulation, and play. It has evolved into a locus for the study and creation of computer games. I would say that the unlikely trajectory of my creative work - from painting and prints on paper to interactive installation - speaks not only to my wandering nature but to the restlessness of my audience. Few of us settle for the static position; a fixed set of options.

A constant in my work has been the tension inherent in the translation between two and three-dimensional space and what this demands of viewer/participant. I was initially trained as a painter and, for me, the production of illusionistic space was a primary goal. Through the course of a career, I have moved from that imagined space of desire through to the actual space of shared experience. A great deal of my work has played with and exploited the many ambiguities of the process of figuring space. Early on, I produced work such as *Occupation*, 1986 that mapped two-dimensional images on to three-dimensional objects. These paintings spilled over into a three dimensional space where everything is in play. Such work that elided illusionistic and actual space led me to consider more deeply how the viewer is or can be implicated in an artwork. And, in all of this work, I am using references to landscapes and nature.

I began working with the idea of endlessness in a series of digitally generated prints entitled *Bower* 1999-2001 (left). Perhaps as an extension of my preoccupation with space, I found the notion of beginning, middle, or an end

Jean Bridge presenting / Photo by Justine Smith

to be confining. I created digitally montaged images that, like a Mobius strip, could be linked end to end to form a continuous loop. These images juxtaposed Calvert Vaux's stone bas relief carvings in Central Park of stylized vegetation and birds with urban debris and contemporary flora and fauna. *Bower* presented a congested and impenetrable pictorial space that when sliced into prints provides conventional objects of contemplation. Alternatively, it is capable of wrapping the room to create an environment that surrounds and even oppresses the viewer.

A subsequent work, *Situ: Performing Narrative* Images 2002 created with Marlene Moser, relied upon a group of actors who rendered with their bodies a series of tableau vivant that responded to a well-known narrative photograph or painting. The resulting images documenting their efforts enabled me to construct image montages that relate gesture, expression, movement and repetition. With the inclusion of texts drawn from the dialogue between participants, the isolated compositions became part of a long-form linear flow, which I presented as prints in a serial format and also as large-scale image loops where figures and text evoke stories that coalesce and morph in the space surrounding the viewer.

The use of montage and narrative strategies in my work evolved further with the emergence of the *Livelihood* series or prints that eventually became an interactive image sound environment. *Livelihood* was prompted by my move from Toronto to St. Catharines, Ontario. Over an extended period of time, I conducted a kind of photographic mapping of the Niagara region as a way to process what this particular place was in general and how it signified for me. I quickly gravitated away from the representation of the scenic qualities that distinguish this or any other region to representation of the more ordinary, common, and indistinguishable characteristics of "place". I captured literally hundreds of images that encapsulated both the quotidian and quirky; details of

commercial strips, highways and subdivisions that were ubiquitous rather than unique. I was interested in sameness and interchangeability – something that is not particularly visually alluring and which presented significant aesthetic challenges. As I pursued this work, I imagined myself falling asleep in a car and waking up not knowing if I was in Mitchell, South Dakota or Niagara Falls, Ontario. My initial expressions were oriented to print-based presentation that took various forms from conventional prints to billboards and vinyl decal murals such as *Livelihood Sign Lite* 2005.

My representations and distillations of the ambient edge-city environment eventually extended to a series of elaborate montaged panoramic images and to audio collages that form the core of *Livelihood*. Thus, I developed long swaths of seemingly everyday street scenes designed to be presented through an expanded interactive system. These scenes were populated with quirky and interesting details.

I brought my early work with the panorama format into the web viewing context with QuickTime VR as a way to enable viewers to control their navigation through the visual and narrative particularities of such images. This led me to imagine how I might use such functionality to make the work more fully experiential and even immersive. While a video rendering of such sequences would support a grander scale, it would not shift the viewer into a more participatory relationship to the work. With QuickTime VR as a model, I started to think about translating that screen-based interaction to a more physicalized spatial interaction that might be enacted in a gallery.

As a research and teaching project, I worked with collaborators to create an interactive system that was initially a presentation tool for stage and theatre. Written in C++ our system - then called *Gowhere* - allowed the spectator to control the display of images (and sounds) with their body in space. Hence, standing and moving in front of a projection caused the image loop to scroll left and right so that the viewer could scrub back and forth through the content by moving about in the viewing space. They could also view the images in greater detail (zoom) by moving close or gain a broader view by moving away from the screen. It was a great way to interact with information and to playfully relate to content in way that is intuitive and embodied. We found that such a human computer interaction needed no instruction and presented little friction for users in a variety of settings. If they stood still, nothing much happened; if they moved, they received sufficient immediate feedback to stimulate them to begin manipulating their view.

The work on this interactive system and my application of it to *Livelihood*, increased my awareness of the links between walking, agency and the power

of active spectatorship. As an interactive and immersive projection, *Livelihood's* relation to the viewer; it's pace and point of view contrast with that of the driver or car passenger. In the automobile we are fundamentally passive viewers of all that glides past us - we have no real link to the passing scene. *Livelihood* puts the spectator in an active role, virtually on the street. It provides constant reward for the gallery goer to behave like a pedestrian who is closer, and imaginative engaged in the action. My evolution of the *Gowhere* system then ran along with an expansion of *Livelihood*, which was exhibited in Toronto in 2010.

The continued use of image montage as a method for the creating visual content for *Livelihood* again enabled me to present my accumulation of general and specific visual information in a way that opens up narrative possibilities while using linear and non-linear structures. In *Livelihood*, this method was central to the work's aim to present the ordinary as extraordinary. I did not use and VR photographic methods or stitching software for the collection and assembly of the image panoramas. My images - typically 35,000 to 40,000 pixels by 900 pixels - are built from many fragments. They integrate thousands of bits and pieces that I've collected; that other people shared with me; as well as images that I have harvested from various sites and connections on the web. As a result, *Livelihood* grew beyond documentation of a specific geographic region. Through this hybrid and time-consuming process I believe I have constructed a believable spatial representation that is, at the same time, a distillation of a lot of spaces (and places); a kind of a 'everyplace' (at least in the context of the so-called developed world). It's safe to say that the panoramic scenes of *Livelihood* have an idiosyncratic structural and narrative logic that doesn't really map to the typical documentation of space through panorama.

To enable me to build narrative and imaginative depth to the work I devised a method of using what I call pop-up images and pop-up sounds that map to and enrich otherwise curious but dull views participants encounter as they traverse the work. When a participant – whose own movement is driving the progression of the scene before them - pauses and/or moves in to examine the projected scene more closely new visual and aural information emerges for brief or prolonged periods. This function means that content only appears when the user or participant shows interest in a particular view by way of pausing and/or looking closely. While there is ambient sound accompanying the projection that represents street activities, cars going by, and voices in the distance in every scene, the user can similarly trigger more rich and specific sounds. All this content, emerging in specific response to the user, is meant to expand narrative possibilities in the work that will inevitably be different for each viewer. Thus, the work does not itself create a story, but instead gives rise to the possibility

of a story. I was interested by how people tend to play, replay, and work with *Livelihood* in an intuitive way to find storylines that they can draw upon.

The completed interactive system for *Livelihood*, which we called *Zoo*, is a Max patch that was created by Jeff Man in 2006 and upgraded by Andrew Roth in 2009. The basic patch uses video-sensing enabled by SoftVNS, the parameters of which supports a wide range of variables. I use an iSight camera mounted overhead to capture the spectator's position on an 'x' and 'y' axis for input to drive the display of a background image as well as a series of images and sounds that pop-up in the foreground in response to the spectator's position and timing. *Zoo* also allows for links between scenes, triggered by the spectator lingering at specific points in the "action". The version of *Livelihood* I exhibited has three scenes – each of which feature a background image panoramas accompanied by an ambient background sound loop as well as multiple pop-up images and sounds that are mapped precisely to emerge at specific places in the background so that elements of the scene fade in and out as the spectator traverses the sensing zone and controls the display. Through their action then, the spectator causes the image to scroll left and right; to zoom in and out and to stop; start and pause; generate "new" content and link to other scenes. The system enables me then to set the parameters for all display components with respect to location, timing, duration, and fade in and out. It enables me, as I'm testing the work or evaluating an installation, to constantly recalibrate the system based on what I learn from how users experience it.

Several issues came up with the interactive components of *Livelihood* installation. I was not surprised to find that multiple spectators caused the system to behave in unpredictable ways. I made a choice not to mark out the space covered by the video-sensor. Instead, I loosely "gated" the spectator with the placement of objects and positioning of the projection display. I did this to keep the interaction as intuitive as possible and to let the system "train" the spectator in as unobtrusive a manner as possible. I remained in the gallery for most of the exhibition in order to watch how spectators responded to the work. I set the system so that the image would very slowly be scrolling at all times. People entering the gallery at first surveyed the work by hanging back outside the sensor zone. Once they moved forward into the unmarked active area they would immediately understand their active, as opposed to passive, relation to the work largely as a result of the more rapid scroll of the projection display. Most people were curious and began experimenting freely with the their range of agency. Children and teens were the most receptive to the system and needed no encouragement to begin manipulating what they were seeing. Some (mostly older adults) needed a more overt invitation – even an explanation of the work

- to participate. These observations enabled me to tweak the system in response to the behavior of participants. For instance, the display scrolled more slowly at the centre of the sensing zone and more quickly at the outer edges of the zone. I modified this as time went on in order to create a balance between the users tendency to "walk" the scene and their desire to modulate the pace at which the display scrolled. I could also troubleshoot a few glitches that I had not caught before installation. On some level all exhibition is essentially testing that is extremely useful for fine-tuning interactive system in response to unforeseen circumstances for planning future situations.

I was interested to hear Jason Lewis's comments regarding the differences between creation a tool for the artist's own use and making a tool for more generalized or adaptive users. I am very willing and eager to see other creators use this patch. I don't envisage any commercial application, but I can see it being useful in the theatre and to deliver other types of creative content. The patch is constructed to be highly customizable and could easily accommodate many uses without it having to be modified. I have thoughts, myself, about using the system in other ways; for instance to deliver interactive content in public venues and to act as a means to visualize community.

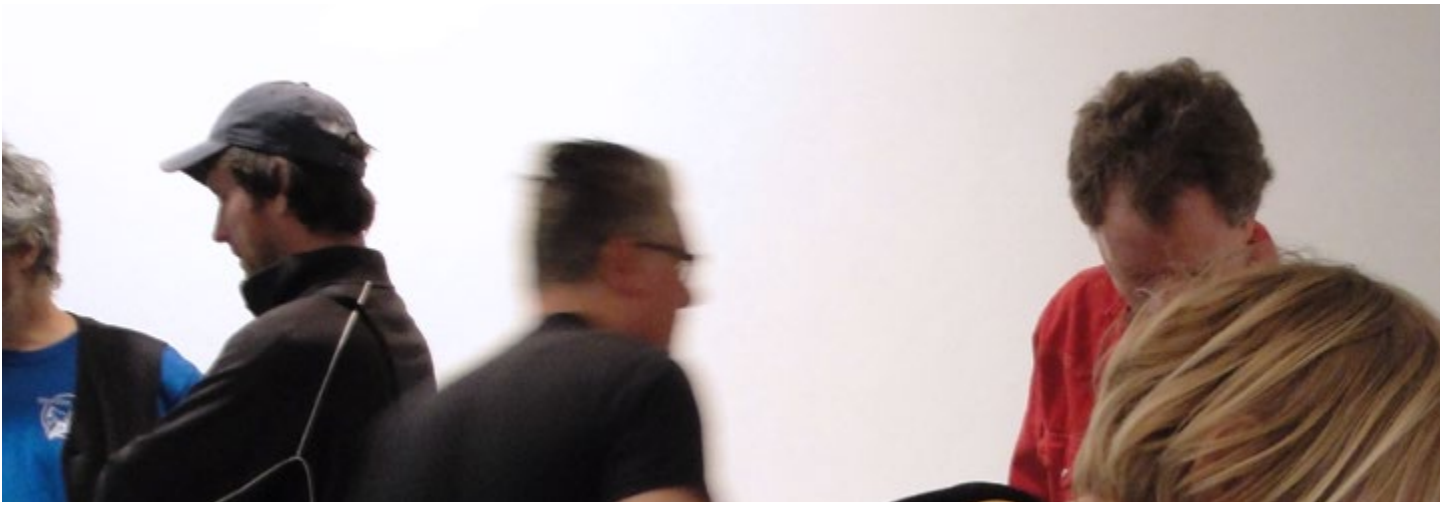
As for the future of my projects in interactive media, I am eager to continue *Livelihood* and related work by expanding its content and perhaps be exploring its installation in more public places such as storefronts where it can be more embedded in the situation it is depicting. I might also chose to explore the public/private axis of this work by taking *Livelihood* inside. As with other of my work, *Livelihood* lends itself to what Tom Sherman calls the aesthetics of the unfinished. I see no need to end it, but rather to follow it to its own natural conclusion.

With respect to the interactive system, I would like to explore mechanisms to more quickly enable the participant to modulate the pace and flow of the content in an embodied way that opens them to the potential of the world of everyday events. I'd like to go further in exploring the intuitive qualities interface, perhaps making it more immediate and intimate. This may require use of alternative technology for more precise sensing that could facilitate a more effective use by multiple participants.

Finally, I've been doing other research work in the area of preservation of performative and interactive new media art and events and especially in the area of documentation. I am very aware of the tremendous efforts over the past decade to figure out new methods for preserving unstable work like this. How do we keep the work alive and available as long as possible? When and by what methods do we save, store, emulate or migrate to new platforms?

The evolution of new concepts for documentation of such work has been of particular interest to me, especially recognizing that, despite our efforts to preserve them, much new media work won't persist in the long term. The problem is that documentation is hard to maintain as well. I raise this issue because it's the elephant in the room of all discussion around new media. A great deal of work has already been done in this area, yet there is still a huge amount of work that remains. As technology shifts and changes, so do the challenges around saving work. In my own experience in teaching I have found that archives are really wanting. Images and video capture of installed work is readily available in many online archives. However, records that provide us, after the fact, with a user experience that can give future researchers, curators, and students the opportunity to experience the work are not available. This is an area I would like to devote time to. Such efforts will have impact not only on how my own work is remembered, but on the legacy of new media in general. New methods of documentation are necessary if we really believe that the capacity of an artwork to function through interaction with a participant is worth preserving for future generations.

The Artist in the Research Lab



Boundary Layers

Steve Daniels

Before I get into my presentation (1) I want to hand out a sheet of paper for everybody and on your paper, I want you to draw a big plus symbol. Now, I want to describe one possible conception of the "artist in the lab" by placing this idea in the context of the Gold Matrix (2) This is a model proposed by Rich Gold who was a researcher at PARC Labs working with very early computer interface design and questions of human-computer interaction. Basically, the model reflects on how to get artists and engineers to talk to each other in the context of developing these new technologies.

The matrix proposes a relationship between the worlds of art, science, design, and engineering. On the vertical axis of the model, we have the trajectory with explorers at the top and implementers at the bottom. Travelling horizontally, we have a predominant concern with aesthetics in the world of art and design, and the concern with analysis in the world of engineering and science.

Now, take a moment and plot yourself on your graph. You can write anything you want on that piece of paper. Some of you are probably are saying to yourselves that: "I am not on my piece of paper." "My category isn't there." or "I don't see myself in this space." Some of you might want to describe a hybrid relationship and draw on the lines, and some of you may be outside the lines.

I want you to keep this model in the back of your mind during the rest of my talk. I want you to think of your practice in the context of the model; even though models are quite problematic. Models are very interesting conceptual tools that scientists and engineers often use to create an 'other' against which they can construct dialogical languages to make comparisons and explore different spaces.

Now, I want to take you on a journey to Southern Manitoba: we are traveling in summer and we are going to land on a tiny little island in a lake. As it is the summer, I want you to notice that there is a snow bank in this image. In Manitoba, the summer gets pretty hot, so why is there a snow bank on this island in the middle of this lake during the summer?

Actually, it is not a snow bank, but rather a colony of American white pelicans. American white pelicans are the starting point of my conversation today because this tiny little island was my home for three summers. I conducted research there as an evolutionary biologist interested in non-human communication systems

Steve Daniels presenting / Photo by Justine Smith

in American pelicans. I was trying to determine evolutionary trajectories using mathematical equations and models to explain why baby pelicans should talk to their parents.

Baby pelicans use interesting vocalizations to communicate their needs to their parents, who then respond to those communications in contextually appropriate ways. The babies asked for food, changes in temperature, to be moved around in the nest and the parents provide modes of care based on a complex communication and feedback loop between parent and offspring.

Much of the communication theory that framed and contextualized this work was informed by two gentlemen: Norbert Wiener, the father of cybernetics and Claude Shannon, the father of information theory. Both of these gentlemen were researchers who to varying degrees explored the way we could take ecological modes of thinking, employ them in a digital computer context and apply them back to different systems. Shannon worked at the Bell Labs and wanted to move information from one place to another in an electrically noisy environment. Norbert Wiener was very interested in shooting down airplanes, at least for one part of his career during WWII.

Structures of Participation

My creative practice clearly begins firmly rooted in that world of science. At the end of that work, I was pretty sick of science. I started casting around for other possibilities and ended up in art school. When I arrived at art school, something really intriguing happen to me. I was sitting in one of the classes taught by Doug Back and Norm White and they started to talk about Norbert Wiener and Claude Shannon! In seven years of education in the sciences I didn't hear one artist's name, and as a second year undergraduate at art school I was listening to an art professor talk about theories that for me, were very intimate, very well known, and the experience was really quite unexpected.

Though I was fully intending to leave these models behind, it became clear in that class that the communication models with which I was already familiar could start to inform my art practice. What I realized, was that I could transform my relationship with science and to start thinking critically about what it meant to

create in the context of a scientific background. So, I began building works that started out as systems, structures of participation, and interactive works of various kinds. A brief description of several of these works will help frame my practice (3).

I am going to start by looking back at a couple of pieces I did as a student at OCAD. The first piece is *MRI Barbie*. In 2003, the province of Alberta decided to open private, pay-per-use MRI clinics. One spin off of this was that people would actually go and buy, as a mode of family portraiture (if you were affluent enough), full body MRI scans for Christmas. The labs actually advertised this as something you could do! You could get your loved one an MRI scan of yourself as a Christmas gift for a couple of thousand dollars.

It seemed ridiculous to me that you might want to give someone a portrait of your organs and I thought; "Who of all people would need this more than Barbie?" So, I set up an appropriately scaled MRI machine for a Barbie doll. The piece itself is an electrical-mechanical apparatus that controls the position of Barbie inside the MRI machine. Synchronized graphics are appropriated from the Barbie toy website (in 2003) and the internal images of a female body were collected from the Visible Human Project (4).

I was particularly interested in the notion of using medical technology for portraiture because 100 years before the MRI, we were doing a similar thing with X-ray machines. In the late 1800's, people were using X-rays as a form of entertainment. For example, in its simplest form you could go to the shoe store and get an X-Ray of your shoe to see your toes inside and know if your shoe was fitting right. Eventually people figured out that this was causing cancer and that this was a downside to the entertainment.

One of the consequences of these MRI scans in the United States (where commercial scans are also available), but not so much in Canada, is that doctors are medically obliged to respond in anything they find. So, there was this amazing spike in unnecessary elective surgeries post MRI portraitures because doctors had to do physical exploratory work to see if you actually had a medical condition that could be a concern. It became a really intriguing mix of consequences of playing in these technological spaces!

I followed *MRI Barbie*, with a work entitled *Complementary Opposites*. My concern here was grounded in the proliferation of genetically modified organisms (GMO). GMO's are usually agricultural products that have had their genome transformed to the benefit of industrial agriculture. We buy these GMOs in the grocery store. Corn is a really big product in this context and something from 80% to 90% of the corn produced in North America has been genetically modified. Inside every kernel of corn, carried in its genotype, Monsanto or some

Steve Daniels exhibiting *sessile* / Photo by Justine Smith

another company has stamped their logo.

The government of Canada decided that a modified organism could be put on the shelves for consumption, provided it was deemed to be 'substantially equivalent' to an unmodified organism. What that means (roughly), is that GMOs have to look the same and taste the same as conventionally produced food. A genetically modified strawberry that looks like a strawberry is not modified because you can't tell! This was the legal justification for putting modified organisms into the food chain without any kind of government oversight or testing.

Complementary Opposites plays with these two worlds and where we stand in relationship to knowledge. I tried to explore questions of where do we stand, how do we know, what world view are we going to engage or embrace in a particular moment and how this is going to inform behaviour?

To experience the work you come to a microscope sitting on a round metal plinth in the middle of a darkened room. The plinth itself is designed to imitate an Edison kinetoscope(6) and held within is a film reel. When you look into the microscope, you watch a black and white film; it is as if you are looking at the image from a one-person film projector.

The images on this film loop (super 8mm, black and white) are of corn production: its growth and its harvesting in the field, its delivery, all played in a continuous loop. While you look inside the microscope and watch your corn being grown, projected from above and onto your body is a collection of videos and digital images of the process of genetic modification. You are not aware of the images of modification being projected onto your body. You only become aware that there is this modification aspect, a kind of revealing of the process, when you watch someone else participating and engaging with the system.

Another thread of my work, is a collection of *network object* events that explicitly confront questions of communication and networked culture. These shows present collections of network objects and events created by students in similar courses from different universities who were challenged to create

objects that can speak over the Internet and engage in dialogues that objects otherwise might not engage. These shows explore the consequences to physical computer interaction and what happens to space when you weave together objects that are connected through dialogue. The events pay attention to early works like Norm White and Doug Back's *telephonic arm wrestling*, early work by Eduardo Kac, and Vera Frenkel's *String Games*, each of which were experiments in networked art. Students create ecologies of objects with multiple connections to each other that are distributed in space and time. This allows opportunities to explore communication, dialogue, and novel ways that spaces operate, and to explore how people might work together in distributed contexts.

We've done seven or eight of these events. Each one represents new opportunities and community challenges. I think that some of the themes and threads of this type of work picks up on ideas that people have been talking about here at the Common Pulse Symposium. There are sound works, robotic works, physical interface works, interfaces where inputs exist in one building and outputs exist in another, and myriad ways to reflect upon this form of communication.

Flocks, swarms and particles: Agency as a path out of interactivity.

After a few years of doing these sorts of works where the user comes to the system and engages in an explicit physical interface, and starts to explore the modalities that I am offering through a specific interface, I began to wonder whether I was really creating structures of participation or was I disguising systems of control? Were these people really coming and participating freely as participants, or was I controlling them, not really creating an experience much different from the standard way you might be taught to view a painting? You view at a particular distance, stand in the middle of the painting, notice what is in the frame, reflect on what is outside the frame… embrace the discourse on how we might engage such work. I began to wonder if some collective expectation and pattern around interface and interactivity had begun to solidify. I really wanted to shift away from the discourse of assigning agency to the participant and started moving agency into the objects themselves. At this point, I wanted to develop works that might allow users to engage with the work but not provide them explicit control. I was seeking something subtle.

This started me in the direction of working with robotic pieces and robotic technologies, flocks and particles. One of the pieces I am going to talk about in a moment is *sessile*, the work I am showing here at the festival. However, there are a couple of other elements to consider just before we get there.

While at OCAD, I was also introduced to Valentino Braitenberg, a

cyberneticist and psychologist. He spent his life trying to understand how hard wiring of the brain and the sensory apparatus leads to behaviors. Braitenberg went through life peering through microscopes and dissecting brains and eyeballs and he was very curious of what systems of behavior arose within these biological sites.

Braitenberg wrote a book called *Vehicles: Experiments in Synthetic Psychology.* In this book he asks the reader to come on a journey into his world of thought experiments. He proposes a collection of vehicles with very simple wiring between their sensory apparatus and some sort of physical output device -- let's call them motors. He wanted to explore variations in the wiring of motors and sensory apparatus and describe the result in terms of behavioral phenomena.

Braitenberg initially explored very simple possibilities of sensors and motors being connected only on one side of the imagined body and then crossing these connections over the body and all sorts of fascinating things started to happen. He describes these differences and variations as vehicles that are in love with the stimulus in the environment to which each sensor is tuned and vehicles that were repelled from or *hated* the stimulus in the environment(7) .

In addition to the simplicity of the systems he described what I found really powerful in his work was his absolutely unabashed use of terms like 'love' and 'hate' in the context of extremely simple machines. Typically in a scientific context, to apply these motivated words is to perforate the veneer of objectivity and you find yourself stepping across the line in scientific space that typically isn't crossed. For him to engage in this kind of language, felt like I'd been granted permission to adopt a similar kind of language in the context of some of my own work (a strategy that, curiously, often meets strong resistance in the art world).

I set up a robotic system for exploration, not really as art but more so as a tool to see what could be done. I built a bunch of Braitenberg vehicles in the spirit of the thought experiments he was proposing, to explore what it might mean to have a single sensor and a single motor creating really complex behaviors and spaces.

Eventually, I took what I learned from these experiments and brought that experience into *sessile. sessile* became a work where I stepped away from narrow user interface into the world of diffused interface. I explored a language that was more motivated than I usually allow myself, while attempting to attach some of the knowledge that I bring to my practice from my experience of working with pelican communication.

I started out with several simple ideas. I wanted to create a collection (colony) of pods that would be social, enabling me to explore communication as a mode of expression. I wanted the pods to open and close. I wanted the pods to have

a simple awareness of their environment and I wanted the pods to be fixed in place. This last requirement actually changes things quite dramatically. If you take a responsive object and fix it in place or make it sessile, which is the biological term of being fixed in place, you create a whole arena of constraints and opportunities.

Imagine yourself being unable to move your feet. Once you are fixed in place, the world has to come to you. You can no longer move out into your world. You cannot run away in the context of something potentially aggressive or threatening comes towards you. You have to stand there and deal with it.

In terms of morphology, one of the other things that can happen is that you can become radially symmetrical. As you are fixed in place, you are not open to the means of moving around your environment, there is no need for a left and right, front and back -- so it's okay to be a spiral. If you look at flowers or colonies of barnacles for example, spiral symmetries and arrangements are really common. There are whole collections of organisms that have adopted this non-bilateral symmetry because of their relationship to their world.

It occurred to me, that being fixed in place and aware of your surroundings might be a stressful way to exist. There is probably a lot of anxiety associated being attached to your substrate. With this realization, the entire piece became motivated by the internal anxieties of each individual pod.

When the pods stand in a brightly lit environment, they are calm. When a shadow is cast on their body, depending on the duration of that shadow or how deep the shadow is, the pod's stress level fluctuates. As the pod's anxiety levels climb to a particular point, they begin to respond very aggressively toward you. They push up their arms and try to get you to move away, they shut down and potentially go temporarily dormant in hopes you'll pick on their neighbour instead of them.

When stressed, the pods also start to talk to each other. They are all networked together wirelessly and speak to each other with infrared light. They begin to share their anxiety levels across the colony. You might notice this when you are engaging with one pod, all of its nearest neighbours start to close their arms, wave them aggressively or shut down.

It was really intriguing to me to watch new phenomena coming out of the colony of pods as I watched them in the networked context. At the first two exhibitions they were not networked and they didn't talked to each other. However, ever since they started to speak to each other a few things have become clear.

The pod's layout is very important to how they communicate. The way that they are patterned on the wall actually impacts the effectiveness of their

network and how well they can talk to each other. This is an interesting echo of lessons learned from the networked events I discussed earlier. In those, arguably more sophisticated networks, we see time and again the topology of the network impacts dramatically the effectiveness of the experience. There is a similar effect within this work. I have also noticed that pods positioned on the edges of the colony start to behave differently than more internally located ones. Ecologically, this is very intriguing as edge effects are very well known phenomena, but I wasn't expecting to see them manifest within this context as the pods are so simple.

It is fascinating that an edge effect should present itself because all of the objects in the space are identical, both physically and in terms of code. There is nothing within the system that says "You are on the edge." and "You are in the middle." They simply get plugged on the wall and some of them are on the edge and some of them are not. It is intriguing as an ecologist to watch the system manifest behaviours in this way.

Crossing Boundaries: An artist in a lab?

I really thought that when I left science I had left it for good. But when I committed myself to art I discovered that it cut across a lot of boundaries, in really particular ways.

I still find myself constantly wondering how or whether I should distinguish between these ways of knowing. As much as I feel strongly drawn to the middle of the Gold Matrix, I constantly wonder, "Should I put these apart?" Are they simply bodies of knowledge that I can mine for possible outcomes or are they distinct trajectories with novel histories? As methodologies I think they stand in opposition to each other. Though it is hard to pin down practices right now as whole new methodologies are being invented around practices that cross boundaries.

Let me give you a linguistic sense of one of the differences that cause me trouble: artists traditionally practice in studios not labs. If we look at the Latin root of the word 'studio', it means to study and an eagerness to be diligent to the sorts of activities that take place in the studio. However, if you look at the root of 'laboratory', it is tied to labour not study. If we, as artists, are to adopt a language in which the studio becomes a place for building scientific experiments or the lab becomes a place for our work, we may end up positioning ourselves in places that we might not have intended to.

As much as I change hats between being a scientist and an artist, I am uncomfortable saying that I work in a lab. In fact, it is a term that I refused to say. I think the potentials in the studio are different than the potentials of the

lab. I think this is true historically, institutionally, and in terms of my work. I carry a particular bias of what a lab is because of my training as a Western scientist. I acknowledge that there are many ways that a place can be a lab or studio just as there are many ways to be an artist. I don't want to suggest that can't work for anyone; but for me it is deeply problematic.

The adoption of language is always political. To work as an artist in a context where I am adopting a language of science is an act that cannot be done lightly. You can't cross these boundaries without thinking about the implications. There is nothing wrong with crossing boundaries and breaking the rules, but you have to know when you are transgressing. I think we are at a moment in which one really needs to reflect on what we are trying to achieve and why. 'Artists in labs' has a lot of currency, especially in the contemporary Canadian university context. But I have to constantly be asking what does it mean to be positioning *MRI Barbie* as research? Why would I want to participate in and adopt such discourse? What does it mean for the artist to leave the studio and practice in a lab? Do I, as an artist working with technology, build a lab or do I build a studio? If it is your creative desire to create a lab then go for it. But when it is institutionally imposed and you are forced into one of these linguistic spaces, I think you have to step back and be careful.

I will continue to practice in my studio.

End Notes

1. The Common Pulse symposium provided an opportunity for artists, researchers and makers to engage in important dialogs regarding art and technology. In the spirit of that dialog, I have left my contribution to this publication in the first person. This document is based on a transcript from the conference.
2. The Gold matrix has been presented in many forms. It may have begun as a self-assessment by Rich Gold (An original account of the model can be found in "The Plenitude: Creativity, Innovation, and Making Stuff (Simplicity: Design, Technology, Business, Life)", MIT Press. 2007, Rich Gold (posthumously). I first learned of this model during a talk given by artist / engineer Ken Perlin at the Banff Centre. The version I offered the audience is based on Perlin's interpretation.
3. These works and others I have produced can be found online at www.spinningtheweb.org
4. http://www.nlm.nih.gov/research/visible/getting_data.html . Site originally accessed in 2003. Last accessed May 2012. Licensing and some image access has changed since this work was produced.
5. http://publications.gc.ca/Collection-R/LoPBdP/BP/prb9912-e.htm . Last accessed May, 2012. This document summarized a portion of the regulatory position of Canada with respect to GMOs. The section "HOW GENETICALLY MODIFIED FOODS ARE ASSESSED AND LABELLED IN CANADA" is most relevant to the work in question.
6. http://en.wikipedia.org/wiki/Kinetoscope . Last accessed May 2012.
7. Valentino Braitenberg 1981. Vehicles. Experiments in Synthetic Psychology. 1981. MIT Press. 152p.

Subtle Technologies

Jim Ruxton

My work often comes from a sense of wonder. Going back to my 1980's life, when I was an undergraduate in engineering, I was exposed to an amazing radio telescope in Algonquin Park. I was working there as a student and I became totally fascinated by how these things operated, how sensitive they could be, and what we could do with them. I was told that the telescope was so sensitive that it could pick up the same type of energy a fly produces if it was beating its wings on the moon!

Inside the telescope, there is an amazing device called the receiver. It is embedded in liquid helium that is so cold that hardly any electrons are moving in it. Inside, there is a crystal pumped with radiation that amplifies the energy that is coming to the telescope and this kind of thing really wowed me.

I did a Master's degree in high frequency engineering and satellite communication, then I started a company, and I got involved building crazy circuits that went into black boxes. It was all very tame, but when the military started contacting us, asking us to build more of these black boxes that did evil things, I started to question the work I was doing. And I could say that this was lonely work; you're building circuits and you're not working much with other people.

At the same time, the other half of my life was doing other things. I started a dance company around this time, doing all these crazy performance projects and that meant my brain wasn't coming together during the day. So I thought, "I am going to figure out how I can merge these worlds of mine." And I did that by shifting directions.

I gave the dance company to my partner. I left Ottawa, moved to Toronto and I went to OCAD. Geoffrey Shea was one of my instructors, and Norm White and Doug Back. Many people there helped me to start thinking in a different way, about how to start applying the skills that I had as an engineer to being an artist.

When I got out of school, I had to figure out ways to pay the bills. I'm going to talk about Subtle Technologies, but I did some things that weren't so subtle. I did crazy things and I think a really important part of an education as an artist is to have other people giving you projects that you wouldn't do otherwise, like pyrotechnics. I worked with Kiss to design robotic flame throwers that would allow them to steer flames all over the stage. Britney Spears also used them, but

to steer smoke as she was afraid of the flames. I did a lot of work in the film industry as well, which is a great way for an artist to work when they are out of school. I got involved in a lot of science fiction films and working with electronics. So, I started doing engineering to pay the bills to try to get into the art world.

Later, I got involved in performance in Toronto. I worked in theater, dance, and opera. I got involved with hum dansoundart and twitchLIMBic to do a piece called *Feel HeaR SEEcret*. We wanted to explore the theme of intimacy of the body in all its subtle forms, through a dialogue involving movement, sound, and interactive technology. I got to work with amazing artists; Susanna Hood, a dancer and choreographer, Nilan Perera, an avant-garde musician, and Katherine Duncanson, a performance artist.

For the piece, I built some EMG systems to work with the subtle forms of electricity that the body produces when you flex your muscles. I built sensors that go on different parts of the body. This allowed the dancers to interact and control various aspects of the lighting and motors. It almost acts like an X-ray machine because by watching how the light changes and shifts, I would know what is going on inside the body. It is really very intimate. The audience has a sense of that but probably not as much as I did.

We did a lot of work with all kinds of senses. In 2002 we did *The Girl With No Door On Her Mouth* at the Theatre Center at the Free Fall Art Festival. The vocalist, Fides Krucker, had a breath sensor that is controlling a fan at the base of her skirt. She was an amazing singer to work with for this.

Fides is an opera singer who trained with Richard Armstrong. I don't know if you know the story of Richard Armstrong, but he goes back to a linage of performers that learn how to vocalize within the body. The original person who started the linage was a stretcher bearer during the war. He heard all the sounds people made when they are dying and realized that we use such a small part of our voice when we sing normally. Fides is one of those people who follow this.

Most of my projects are collaborative and I worked with many people on *The Girl With No Door On Her Mouth*. With Fides, I was also collaborating with two architects, Philip Beesley and Dereck Revington, and Darren Copeland who is an amazing sound designer.

I came up with all kind of interesting lighting techniques for the show. One of the main pieces was about *Twenty Thousands Leagues Under the Sea.* We created a laser-cut screen at the back of the stage to give very delicate lighting showing milky creatures that live in the water. Everything is blurred together and I received an award for both lighting and set design for this piece. Everything blurs together.

Another collaboration I've been involved in is *The Container Project* with Mervin Thomas-Jarman. Mervin is a UK based artist who grew up in a small town in Jamaica called Palmers Cross. He migrated to London where he did well as an artist and co-founded the Mongrel Collective. Wanting to bring something back to the community in Jamaica, he got a shipping container donated, filled it with the computers, and brought it back to Palmers Cross.

Mervin taught the youth how to do digital story-telling and use interesting artist's tools, that he developed on his own or with the collective. The Container Project was a project where you had to come in from the inside; be trusted and accepted in the community. You couldn't just jump in as a foreigner, so I was really lucky to have known Mervin.

I did a workshop with electronics and taught some of the youth basic skills. I worked with dancers to do a performance as a big part of Jamaican culture is music and dance. I used a wireless accelerometer system which was strapped on to do a performance which was really interesting.

I went back a second time, three years ago, and did a workshop on Second Life where we rebuilt the container inside Second Life. We had the support of OCAD's Hybrid Media Lab and Ian Murray. We did this because the one problem we encountered is that the youth get to know all our media, all our stories, all our songs, but we don't get to know their media, stories, music or songs. I think it is really important to give tools back to people so they can start doing their own stories and create their own virtual scenes in Second Life. This project is ongoing.

Sync : the Emerging Science of Spontaneous Order is a very interesting book by Steven Strogatz. It inspired me to do collaborative piece with Camille Turner, called SYNC. Now, the book is by mathematician and is about all the kind of systems in nature that self-synchronize. For example fireflies, seizures, fads, menstrual cycles all have similar mathematics. So, this book describes how that math works.

For the piece, Camille did the fabric design while I did the electronics and the programming. We designed a 6 x 6 x 6 cube controlled by electronics above. It is representing the model that is inside a computer. This computer model of particles is separated by springs and here is fluid running in between the particles that creates a force. This computer model has these forces constantly changing in terms of position, direction and force. There are 20 different random variables that are in this computer model and I wanted to represent this in a 3 dimensional space, see how it could look like in 3D in the real world.

By taking the force and representing it through the intensity of light, we get a feel of what that particle is feeling in the light form. These patterns of light

never repeat themselves. The force is always changing in intensity and direction. It is hard to represent light, but it can be very effective. People spend a lot of time feeling the piece as it has a sense of nature and synchronization within the world.

One of the interesting things about this piece is something that I realize a lot of artists do: we are creating instruments. For instance, I programmed this computer to do a certain thing, but you can take it and do something entirely different with it. The next piece I'll show it is similar in that way. It is an instrument you can use in different forms.

Originally, ANI_MATE was going to be an interactive piece, but we made the decision not to make it interactive. It had camera and sensors, but we felt that would take away the natural life-like quality of it. It reminds me of when you are watching fireflies. You are watching something that has a life force behind it.

ANI_MATE is a collaboration between myself and Marion Tränkle, an architect in Amsterdam, and Leon Spek who worked with sound. The piece started off with us doing research in Germany. We were trying to create the illusion of movement on static screens. The piece came together as a nomadically controlled screen.

The screen was programmed to have projected images on it depicting a story about being pulled in different directions. Again, this became an instrument that can be programmed in different ways. The audio was synchronized with the nomadic cylinders and everything was all tied together through Pure Data. It became very much a sound piece, using MIDI software to program it as a musical instrument.

Back again in the early 90's, I was very interested in the sounds of the magnetosphere. I was really interested in the energy field coming from outer space. So, I built a system that will allow you to hear the sounds of the energy field. The sounds are electromagnetic sounds, not acoustic sounds. If you take a long antenna and stick it into a special amplifier, you can record the sounds it hears. You don't hear that sound with your ear. It has to be translated into electricity.

Pamela Brown, a friend of mine, had recently traveled to the UK. She was investigating sand stones in Europe as she is really interested in ancient technology. So, we created an artist collective together as we wanted to create an installation in downtown Toronto. We wanted to take the energy that we were feeling from the magnetosphere and create a space for artists and scientists to share ideas. We called it Subtle Technologies and held it in a small room at InterAccess in Toronto.

Subtle Technologies was born out of the desire to bring people together, to

promote wonder, incite creativity and spark innovation across disciplines. It is the place where art and science meet, as a laboratory of interdisciplinary exchange. We are very practice-based. We really want practicing scientists and artists who are working with tools and techniques to come together to share ideas. We bring in a lot of theory and really promote the idea of teaching people different techniques.

It was also a place of controversial ideas. We would have scientists come and not talk about the work they will be doing in scientific conferences. In Subtle Technologies they feel free to talk about some of the work that they are interested in doing that would not go over so well at a scientific conference. It is interesting that we provide that as a venue; intimate, interactive, accessible.

We really wanted to introduce both artists and scientists to new ideas and techniques. I think the scientists are often surprised by how much they can learn in terms of techniques from artists as they are working in different areas. Also, it gives artists a window into what scientists are experimenting with as scientists are often just in these little labs without a window. The festival can introduce ideas within the culture of their time. All these are reasons why Subtle Technologies exists.

One idea that is really important to us is workshops. We don't want to just talk about somebody's ideas; we want to move into it. One workshop we did was an introductiion to Pattern Physics and the systems of patterns in nature and how they formed. We found all artists have worked with patterns for some reason, so we brought artists into the lab to spend two days investigating pattern formations in nature.

We also did a workshop on tissue culture engineering with Symbiotica from Australia. We had 15 artists who come to the Tissue Culture Lab at the University of Toronto where they spent three days growing tissue culture. They learnt the techniques and the language behind the tissue culture engineering. Definitely, in our lifetime, this work is really impacting us. It is important for artists to be familiar with these tools.

An interesting story from this lab is that the lab technician was a tuba player. We were trying to find a way to liberate cells as they can get stuck easily. So, we had him bring in his tuba and used it to vibrate the cells. It was good for him because he never thought outside the box in terms of working in the lab. Now he is a big fan of Subtle Technologies!

We don't give workshops only in science also the latest in media art. This year, we had a workshop by Julian Oliver who just won the Golden Nica at Arts Electronica. His workshop was on hacking, networks and how to use network data to create artwork. We also had a great workshop this year on DIY bio-

plastics with Stephanie Phillips. It was interesting seeing the participants' experimentation with materials.

In the fall we are going to be at the Perimeter Institute of Astrophysics in Waterloo. We received a grant to take artists there for a couple of days to work with theoretical physicists to try to get an insight into the latest of quantum physics and reality. We are going also to the Neuroimaging Lab at the University of Western Ontario to teach artists the latest software in neuroimaging and to work with the MRI machines.

One of the things that we do sometimes is to take a curator and pair them with a scientist. The scientist's work is then represented as an artwork by working with the artists. We had an exhibition curated by Camille Turner working with a molecular nanotechnology scientist John Storrs Hall. Dr. Hall works with utility fog which is not yet 'real' but something he is working towards, where nano particles come together to make any kind of shape. It was a very speculative work and it made a very interesting installation.

Camille Turner and Michael Alstad curated another work made with a medical anthropologist, Monir Moniruzzaman. He created an installation looking at the illegal kidney trade in India and Pakistan. The video installation tells the story of people who sell kidneys to survive. This is an important part of Subtle Technologies: bringing in scientists and finding new ways to work together and to expose their work to a wider audience.

This year we had over 30 symposium presenters covering everything from quantum physics to magnetic textile, holography, neuroscience and how neuroscience relates to architecture. Opposed to most years, this year we had no theme which was similar to the early days of Subtle Technologies. In the last few years we had themes like physics, lights, body, art and medicine. This year we broke those boundaries and said no theme this year. I think it was really successful!

There was an interesting film screening this year from a curator from Italy, Marco Mancuso, who runs Digicult. He showed screenings of experimental film work of artists looking at phenomena. There were other screening, one of which was curated by Claudia D'Alonzo of people using the flickering technique. Some people walked out of this as it was very intense, experimental work. She curated a very interesting session based on that.

One of the things that we do that is unique as it happens mostly at science fairs, science festivals, and conferences are poster sessions. We can bring more people into Subtle Technologies by having poster sessions and demos.

Micah Donovan is someone who started out last year at Subtle Technologies. He did a demo on how to grow food in tubes as a vertical farming system. His

Grow Tubes project has been very successful and he is now working with OCAD. We had him back this year to talk about how far he's come with the project.

Lines of Sight is a performance where various artists performed around the city. It took place partly on the street and on the roof of Beaver Hall, an artists co-op in downtown Toronto. You could go down to see them on the street or see them on the roof. By using high power video cameras, we were able to show them simultaneously through monitors on the roof. It was based on the many worlds theory of quantum physics where there are multiple universes in one universe.

A new initiative this year was Speed Networking for artists. We gave artists and scientists five minutes each to talk to one another. They would then rotate around which we thought was unique and fun. It was a really good way to mix everybody up who might not have had the chance to meet otherwise. We will find out how successful this will be down the road.

This year we had a program called ArtSci Camp which was outside of the festival. It is like an 'unconference' at Hart House at the University of Toronto. The Subtle Technologies Festival is typically curated or people send a call for submissions. In ArtSci Camp, anyone who wanted to work within the field of art or science and could talk about their work were welcome to come. We put up boards where people would write what they wanted, and by using Dotmocracy people could vote on the talks they wanted to go to. It was a success as we had about 150 people attend.

We are doing something unique in November this year. The Canadian Science Policy is an organization that looks at science policy in terms of governmental organization. They contracted us to introduce media art to their audience at a conference. We are going to have performances and possibly installations at the Canadian Science Policy Conference in November in Ottawa.

I think it is an interesting way to get people to see media artwork who have probably never seen it. We are hoping that actually is a form of lobbying. We get funding from the arts, the sciences, and sometimes its hard to get funding from either because you are always 'too science' or 'too art'. I am hoping that this will be good lobbying event for us.

Some of the challenge is following-up and finding out what happens after the festival. We recently were able to hire an administrative person full time with a grant we received. Hopefully now, we will be able to do a greater follow-up with the people coming to our festival so that we can see what network has been created.

We are trying to be more diverse and build our audience. Working to deal with science in general can create problems with diversity. Another big challenge

is also to reach scientists. Artists are always easy to reach because Akimbo and certain lists most artists read, but scientists are in narrow boxes. One of my biggest jobs is actually to call up scientists and tell them “We really would like to have you at this festival.” and try to convince them to attend. It is a big part of what I do.

The Roach Lab: Biomedia and Technoculture

Jessica Antonio Lomanowska

The Roach Lab project was exhibited in May, 2012.
See www.theroachlab.com for more information.

Thank you for the opportunity to speak today. I am a Ph.D. student in the Department of English at the University of Waterloo where I am working on a dissertation on animals, technology, and media, focusing on the connections between biopower, bioengineering, animal studies, post-humanist philosophy, and new media studies. Exploring and researching this topic led to an interest in animal art—animals as subjects, and as Matthew Fuller terms it, "art for animals"—which understands the communicative capacities of animal life in terms of potentialities, metamorphoses, and difference. These potentialities become a crucial method for exploring various social and cultural practices, from biotechnology to new media technologies. My talk today will largely focus on the use of art, bioart, and biomedia art to address the question of the animal within the context of post-humanist philosophy. I will conclude with a discussion of my research project, *The Roach Lab*, which explores how animal studies and new media theory converge in a way that Jussi Parikka describes as "cross[ing] the boundary of digitality and the fleshy bodies of animality" [1]. This project functions as a generative object, a way to think through theory and practice, and, as I will demonstrate, offers the possibility of opening anew interspecies relations by facilitating new modes of communication.

To begin, I would like to show a video clip from photographer and artist Catherine Chalmers' *Burning at the Stake* for several reasons. Firstly, the clip identifies how the violent effects of speciesism fall overwhelmingly on *some* nonhuman animals more than others, showing that when it is not actively the object of extermination, the cockroach generally incites a "natural" feeling of disgust in us. Secondly, Chalmers stages the death of the animal—in this case, an insect—in order to show, as she explains, "what other species have endured at the hands of humans" [2], a point that Chalmers doubly articulates by emphasizing not only human interference, but also technological mediation in the life of the animal. Finally, for most spectators, the reaction to witnessing the mock burning comes unnaturally close to empathy. From this perspective, experiencing the uncanny and unreal life and death of the cockroach gestures

towards and contains within itself the trace of something transformative in the viewer: an interruptive encounter with the nonhuman animal subject that provokes thought. Chalmers' *Burned at the Stake*, cultivates, through the staged death of the cockroach, an unexpected experience of empathy and identification, an emotive output that is contingent upon the ability of the viewer to both understand and to "[look] out across the animal barrier" [3] to feel these emotions. The spectator's compassion for the insect's suffering, as demonstrative by the audible gasp of this audience upon witnessing the "death scene" suggests an interconnectedness that crosses the species boundary. Yet despite the visceral response to bioart registered by spectators and academic commentaries alike, Robert Mitchell, author of *Bioart and the Vitality of Media*, suggests that when it comes to explaining the "captivation, fascination, or disturbance that vitalist bioart enables, the complex nature of this experience—the sense of being both agent and medium—is invariably lost" [4]. Perhaps in response to Mitchell, Cary Wolfe argues in *What is Posthumanism?*, that there has been in contemporary art an explosion of interest in what Jacques Derrida calls "the question of the animal" as both theme and subject matter, and these are precisely the sorts of questions that practicing artists who take up the animal as subject address in their art. What is different about this object of study in our time is that in the last two centuries there has been an unprecedented and exponential increase in what Matthew Calarco calls a "massive, industrialized, and intensive modes of violence" [5] toward animals, on the one hand, and a "counterforce of animal protection on the other" [6]. Jacques Derrida argues that this contradictory attitude to animals aims "to awaken us to our responsibilities and our obligations with respect to the *living in general*" [7] (italics mine). The struggle between the force of violence and the counterforce of the animal protection movement is described by Derrida as "uncircumventable for thought" [8] precisely because the question of the animal is "embedded within the larger context of posthumanist theory generally, in which the ethical and theoretical problems of nonhuman subjectivities need not be limited to the form of the animal alone" [9]. As we enter an age where social, technological, and cultural networks intertwine, inextricably, in our daily lives, the question of the animal intersects with our very notions of subjectivity. As Cary Wolfe makes clear, "the discourse of speciesism, once anchored in this material, institutional base, can be used to mark *any* social other" [10], thus the question of violence and compassion toward animals, then, has become one of the leading and important questions of our age, where the ethical standing of at least *some* animals is increasingly taken for granted. The veritable war between violence and compassion,

"Alba," from Eduardo Kac's GFP Bunny

then, according to Derrida is:

> "[p]assing through a critical phase... To think the war we find ourselves waging is not only a duty, a responsibility, and obligation, it is also a necessity, a constraint that, like it or not, directly or indirectly, everyone is held to. And I say 'to think' this war, because it concerns what we call 'thinking.'" [11]

Derrida's reference to "thinking" here indicates that the question of the animal is squarely situated at the limits of philosophy, and as Matthew Calarco notes, the "resources to think through this question are not likely to be found wholly within that tradition" [12]. In other words, we need new paradigms of thought to address the changing relation of human to animal. If Jacques Derrida and Gilles Deleuze are right, and "we are at the beginning of something," how and where do we "look for new weapons[?]"to initiate this discussion? [13]. *How* and *why* does "art for animals" [14] take up what Donna Haraway has called "an argument for pleasure in the confusion of boundaries and for *responsibility* in their construction [?]" [15].

"Art that Looks You in the Eye" The Question of Bioethics in Bioart

Before I discuss examples of animal death in bioart, it is integral to locate bioartworks within the problematic of biotechnology and "the living" in general. Bioartist Eduardo Kac's work seeks to address what he sees as the shortcomings of philosophy's engagement with the animal. As Kac puts it, "I do not think that artists are above any sense of morality or ethics… The question is more complex. When we speak of ethics, what are we speaking of? Ethics and aesthetics are branches of philosophy" [16]. As a result, his ongoing concern is how to address people's perceptions of the status of humans, animals, organisms, and technology, and to try to alert them through his art "to the consequences that might flow from these perceptions and the fragility of the identifications on which they depend" [17]. By collapsing the boundaries between humanity, animality, and digitality, the social and cultural ramifications of his bioartworks, Kac strives to meet the conditions of possibility for permeating ways of "thinking" interspecies identification.

"Alba" from Eduardo Kac's GFP Bunny

If transgenic art "looks you in the eye," in "You Kill Things to Look at Them," Steve Baker attempts to answer whether contemporary animal art can productively address biotechnological practice, and whether we, as spectators, can return the animal gaze. As he puts it, "the killing of animals is a structural feature of all human-animal relations. It reflects human power over animals at its most extreme and yet also at its most commonplace" [18]. Art that features animal death is often both ethically and aesthetically disturbing, and as Steve Baker makes clear, "it is hard to disentangle ethical and aesthetic questions in these circumstances: the desire of some artists to address a subject such as the killing of animals may well be driven by ethical concerns, but the manner in which they try to do so will almost inevitably bring aesthetic considerations into play" [19]. In contemporary art practice, there are two kinds of animal death that take place. The first involves the presence of an already dead animal (as in Catherine Chalmers' art; we are forewarned that "no animals were harmed in the making of the videos, or in any of the work"—which is not entirely true as per Chalmers' caveat that indeed, some animals do die during the artistic process). The second involves the simultaneous presence/absence of live animals, where their presence is used to signal the contingency of death. How can we simultaneously account for the various methods by which animals are killed via artistic practice and the efficacy in using these mediums to explore political and ethical considerations of animal being? Perhaps it would be helpful to turn to Mitchell's distinctions between what he identifies as two forms of biaort: *prophylactic* and *vitalist* tactics in order to draw out the impact of medium in bioart. Prophylactic art, he suggests, "seeks to produce a protective membrane for the spectator," whereas vitalist art "seeks to actively forge new connections within this problematic" of animals, science, and technology [20]. The work of Eduardo Kac falls under the category of vitalist art primarily because his work facilitates a new mode of experience for the spectator, whereas Chalmers' *American Cockroach* project straddles the boundaries of both vitalist and prophylactic tactics in that it promotes an embodied practice of identification between subject and object, where biology and technology convene, but "protect" the witness from the full extent of animal violence. For my purposes here, I am categorizing all the works I am discussing today as forms of bioart, even though the artists do not necessarily employ what Kac considers to be the tools of the bioart trade, namely live tissues, bacteria, and other life processes. While I agree with Mitchell that vitalist bioart produces the most productive means of interrogating the species barrier, bioart in general, I would argue, depends on our individual identification with living organisms, animals, and

insects, and offers a medium through which to "widen the possibilities to think media and technological culture" [21] inherent within biotechnological processes, as well as different models of communication which reinforce and construct these mediations. Following Baker and Mitchell, I would like to examine the re-generative possibilities of three works: Cornelia Hesse-Honegger's "morphologically disturbed insects," Catherine Chalmers' *American Cockroach*, and my own piece, entitled The Roach Lab. All of these projects explore what it means to address technology and animals, specifically insect life and death, in art. Insects, according to Eugene Thacker, are "the privileged case study" here because they are the "furthest things from the image of domesticated animals that have been contained and rationalized as part of the pet culture of modern society" [22]. They remain radically nonhuman, alien, and other. As Jussi Parikka notes in Insect Media, "[insects] present a curious threat but perhaps also a possibility of a future nonhuman life" [23], a point that bioartist Adam Zaretsky echoes when he discusses the efficacy of what he terms bio-interface, or, the collaboration between biotechnology and the arts:

> For artists (and the public in general), laboratories are the most intimidating and foreign sites of bio-interface. We are also in the center of a wave of biological fetishism, which is likely to unfold into spurts of unbelievable difference in the coming years. Assuming we have not annihilated ourselves in aggressive tech-war maneuvers, there is a good chance that our kindred ten to twenty generations from now will be appear to be of non-human origin. For this reason, these places and the headspaces of their inhabitants need to be anthropologically explored before intelligent commentary can be made. [24]

What Zaretsky makes clear is that bioartworks address the animal question in a way that links to "future nonhuman life" constituted by the proliferation of biotechnology. Our future is intricately bound with material, technological and informational networks—all of which require us to look to new ways to embrace a posthuman existence that moves beyond the limitations of humanity, animality, and digitality. What follows is an assessment of bioartworks that "think" the "future of nonhuman life" alongside genetic

Scorpion Fly.

science and (bio)technological innovation in order to facilitate new modes of interspecies communication. By focusing on insects, a species that is emblematic of institutions of speciesism and the human-animal relationship in general, these works question how witnessing insect death and disfigurement can generate possibilities for interspecies communion based upon shared vulnerability and finitude.

Cornelia Hesse-Honegger's "Morphologically Disturbed Insects"

> I never thought really about myself as being an artist. I just made what I thought was necessary. I thought that these…flies are the prototypes of our understanding of nature, in the sense that we can do anything to nature—we the humans dictate in the end how nature should look like. It was for me the prototype of a future nature, man-made. [25]

Her images thus reflect, as Robert Mitchell would contend, an "embodied immobility" of the spectator and insect, both on the verge of "molecular metamorphosis" [26]. The animal gaze, as depicted in the housefly image, and perhaps more resolutely in this image *Soft Bug*, effects a "kind of reflection," a direct communication" that reminds us of our own embodied vulnerability. Here, *the* insect gaze is locked on the spectator, who, within that suspended moment, as Jacques Lacan maintains, "is looked at" [27]. Lacan describes this as "the moment the subject stops, [and] suspending his gesture, he is mortified" [28]. The term "mortify" takes on new meaning in this context: the spectator becomes shamed, discomposed, and unsettled by the look of the disfigured insect. This fear also works to collapse the boundaries between human and animal, forging a mode of identification between them. For Silvan Tompkins, these conditions of possibility emerge where shame and by extension, fear, "evokes feelings of empathy and compassion" [29], particularly when we connect the embodied vulnerability of animals to our own status as mortal creatures. In these images, the insect becomes a barometer for "atmospheric change" because "[i]ts deformity is a symbol of the war we are waging against nature and against ourselves" [30].

Catherine Chalmers' American Cockroach: "The Cockroach is Us is Not Us"

Where Hesse-Honegger's work explicitly enacts a "woundedness in seeing," Catherine Chalmers' work facilitates identification with the insect precisely by pressing against the threshold of subjectivity. In an interview with *Antennae* magazine, when asked whether the cockroaches featured in her *American Cockroach* series were meant to function as "invaders swarming an [American]

ideal?" Catherine Chalmers responded, "There is nothing inherently American about the American cockroach. *Periplaneta americana* was misnamed by Linnaeus and is believed to have come from Africa like us. As we colonized the globe, the American cockroach has followed in our wake. Maybe the question is – who is swarming what ideal?" [31]. Her attention to "swarming" recalls, on the one hand, the shape of imperialist practices, (one echoed in her own series *Residents* and in the video *Crawl Space*) and on the other, from an ethological perspective, the ways that living organisms interact in terms of multiplicities. It is the second aspect that I would like to draw attention to here. A swarm, as Eugene Thacker notes,

> ...is an organization of multiple, individuated units with some relation to one another. That is, a swarm is a particular kind of collectivity or group phenomenon that may be dependent upon a condition of connectivity. A swarm is a collectivity that is defined by relationality. This pertains as much to the level of the individual unit as it does to the overall organization of the swarm. Relation is the rule in swarms. [32]

Hives and swarms are "exemplary of the figure forms of… control in bioinformatic networks" [33], and represent for Thacker a way to rethink the operatives of biopolitics and biopower precisely because the concept of the swarm "reveals the potentiality, the virtuality, in such animal bodies or, more widely, bodies defined by [interaction]" [34]. Because animals have for a long time served as key modes for thinking about the intensities and possibilities of bodies [35], the swarm becomes a "crucial motor" for thinking through various practices, from biotechnology to new media technologies [36]. Biomedia art that deals with "the powers of insects as media in themselves, capable of weird affect worlds, strange sensations, and uncanny potentials that cannot, immediately, be pinpointed in terms of a register of known possibilities" has succeeded in demonstrating how "basically anything can become a medium—a realization that easily shakes our understanding of contemporary but also past media" [37]. In Catherine Chalmer's insect art, the metamorphic capacity of "swarm intelligence" connects to the potentiality of moderating "life itself."

In her short film *Squish*, for example, a cluster of cockroaches scuttle past the camera, accompanied by a drumbeat soundtrack, which is itself punctuated by insect sounds normally too quiet for the human ear to hear. This amplification taps into "the too-silent-to-hear worlds of animals vibrating in their environments" [38]. in order to facilitate, even temporarily, an acoustic experience of animal worlds. The swarm itself in the film functions as its

own shapelessness and formlessness, "teeming with a multitude of lines and pulsations that draw it in so many directions" [39], while individuals occasionally emerge from the collective. The focalization is from the cockroaches' perspective, itself drawing attention to the earlier call for "art for animals." Here, Chalmers approaches "insect media" from the viewpoint of the cockroaches themselves. However, like *Burned at the Stake*, this video culminates in the death of a lone insect from the many. The cockroach death itself, the cringe-worthy crunch of the insect body against human foot happens off-camera, points towards, as Norman Bryson would contend, "an excess lying beyond the scope of representation, as a reserve which the production of truth draws upon, but cannot exhaust or contain" [40], a truth that she is at great pains to bear in her *Executions* series, namely the print entitled, *Hanging*. What about the death of the animal "*in vivo*" has to be withheld from us after seeing her art? Why do we care about the death of a cockroach? Catherine Chalmers suggests that through her work, she challenges what she perceives to be the "aesthetics of human empathy toward animals," (Chalmers) particularly, I would suggest, by exposing the spectator to the nature of insect being. Because the films use living beings to create living works of art, the living cockroaches serve as a reminder that "future of the human in the posthuman world is intimately and creatively bound up with that of the animal" [41]. It is the experience between the cockroach subjects and the spectators that conceive of interdependence between humans and nonhuman animals. It is through these experiences where real work emerges. Bodies such as swarms are radically inhuman, but through our encounter with animal perception and "being-with," the metamorphosis of the human being takes place. In short, digital technologies and art are used to expose the animal in the human.

The Roach Lab

The last component of my discussion today builds upon the work of Kac's project and by extension, *Mutant Insects* and *American Cockroach*. If the visual rhetorical impact of insect art demonstrates a need to intervene in the human/animal relationship, these pieces also magnify how technobiologies such as genetic engineering gesture to the potentialities of posthuman embodiment, and the complications of interspecies consciousness. As Kac writes, "more than making visible the invisible, art needs to raise our awareness of what firmly remains beyond our visual reach but, nonetheless affects us directly" [42]. By forcing an identification (but not quite) with the animal, these art pieces, I suggest, demonstrate a "becoming-animal" that affects all species equally. With this mandate in mind, I am working on an installation that links

mutation, embodiment, and shared vulnerability to the posthumanist study of the insect that I have been tracing in this paper. This installation involves the construction of an object through which to re-think our relationship with animals in a tangible, visceral, and unfamiliar way. In *Evocative Objects*, Sherry Turkle argues that objects embody emotion because they are companions to our emotional lives. It is precisely due to an object's proximity to us that we can think *through* them" [43]. Some objects, more than others, Turkle suggests, function in the Freudian sense of the "uncanny." These are objects that are particularly evocative in that they distort the familiar; in so doing, they both repel and draw in the subject in a way that is "rich with possibility." Marcel O'Gorman echoes Turkle's sentiment in his articulation of a theoretical methodology that uses the construction of new media objects to generate new critical discourse and technologies. This approach, entitled Applied Media Theory (AMT), combines art and scholarly research methods in order to create a new discursive language to speak to the proliferation of technoculture. Following both Turkle and O'Gorman, my project will explore how the technesis of the animal body, in this case an insect body, questions "what technology does for us, and what it does to us a people." [44], while at the same time signals the interconnection between species by placing the nonhuman animal in the realm of the Freudian "uncanny."

The Roach Lab categorizes the experience of Deleuze and Guattari's concept "becoming-animal" that they outline in a reading of Kafka's *Metamorphosis*. Samsa's transition into the "monstrous insect" signifies how becoming-animal and becoming-human can become synonymous. The performative cross-embodiment signals how, according to Deleuze and Guattari, "becomings" can "articulate a movement' from the individuated animal to the pack or to a collective multiplicity…*collective assemblages*." What is most effective in Deleuze and Guattari's model is that defamiliarization entails a "distribution of states," where "*individual identity may be undone*, with both human and animal subjects giving way to 'a circuit of states'"[45], asking us to reconsider, as Thacker would say, other forms of life. Where I have been taking for granted the species divide between human and animal, Deleuze and Guattari's suggestion that all subjectivity gives way to a "circuit of states" illustrates how metamorphosis conflates or "deterritorializes" organic species, while calling into question our relations with mechanic and inhuman circuitry. In a different context, Anna Munster interrogates issues of embodiment in technology in her book, *Materializing New Media*, specifically the concern that "digital spaces were subtended by a strong desire for control over the messiness of bodies and the unruliness of the physical world" [46]. The turn to digital embodiment in the form of new media technologies merges our bodies with digital machines

in a way that entails transformation, replication, and mutation, the effects of which, according to Marcel O'Gorman, serve to mitigate death anxiety [47]. We escape the material conditions of corporeality by immersing our consciousness with other forms of media. But as Anna Munster suggests, "immersion fantasies," where "becoming-human" and "becoming-machine" constitute the "conditions of virtuality," to use Katherine Hayles' phrase, do not entail a seamless transition where technological embodiment entirely forgoes the material body; rather, "digital embodiment" is open to "technically symbiotic formations" where the gaps between organic and mechanic produce a "mark of connection and difference" [48]. It is the exploration of these "indelible marks" left behind in the process of "becoming" that informs my project.

The Roach Lab, at its core, explores and experiments with the "distribution [and] circuit of [subjective] states" [49]. The focal point of the project is a small biodome that would house a small cluster of live and mechanic cockroaches. Participants will have the opportunity to interact with the cockroaches in their "natural": a simulation of a human living space. The floor of the biodome is endowed with the capacity to record and project both insect "noise" into the gallery space, while our own "noise" is translated back into the biodome. Participants can control the responsive mobility of the cockroaches by adjusting a wind circuit attached to the biodome. By turning the fan on, the wind will "encourage" the cockroaches to move about the biodome. In addition, other sensors will allow the participants to manipulate sonic noise levels and visual components in the dome itself—which will be a projection of a cockroach dissection onto the glass dome. The purpose of this component is to use the cockroach "lab" as a generative model for opening anew the possibility of "deterritorializing" identity, particularly because, as Deleuze and Guattari would contend, the positioning of cockroaches as "demonic animals" provides the means of inducing openness and multiplicity where other nonhuman animals, such as farm animals, family pets, and the like, are "too perceptible, too visible, too individuated" [50]. As I previously mentioned, much of animal rights discourse falls short of including insects, fish, and other non-vertebrate species as objects and subjects worthy of advocacy and protection. Perhaps it is because these non-humans, as opposed to mammals, signify an otherness which "does not *dissolve* bodily identity," [where] separate bodies enter into alliances *in order to do things*, but are not undone by it" [51]. To test the possibility of cross-species identification vis-à-vis the processes of "insection," the second component of this project includes a replication of the Roach Lab that operates at various institutions. This Roach Lab typically involves dissecting an American cockroach in order to elicit an "escape response" by way of exposing the ventral

and cercal nerve system. The goal of this laboratory is to determine whether the neuronal structure of the cockroach reacts to stimulus once its head is removed, and what can be learned about cockroach survival methods. Because insects fall outside of the ethics requirements for lab animals, apparently on the basis that they do not have "feelings," the recorded dissection will broadcast on a constant loop in the form on a DVD projection in front of the biodome. A second DVD screen will project the dissection on a constant loop into the gallery space, and reflect back into the biodome. The purpose of this installation is to question our response to the individual cockroaches who reside in the biodome once we have had the opportunity to interact. In other words, does the corporeality of the cockroach automatically link it to machines, and therefore close the sites of negotiation between species? As I have been illustrating throughout the project, these sites of negotiation are directly linked to an "absolute deterritorialization of the man," [52] where linking the nonhuman animal with the human offers a "creative line of escape that says nothing other than what it is" [53]. It is not identification per se, that assists in the becoming-animal, but rather, it is a state that "produces nothing other than itself"[54]. It is precisely the possibilities involved with becoming-animal, I argue, that facilitate a "becoming-with," to use the words of Donna Haraway, that will mark us as co-species. The written portion of this installation will take into account that the cockroach neural responses are facilitated by an "escape behavior," where the cockroach relies on wind stimuli in order to detect danger. In keeping with the possibility of "becoming," which entails, according to Deleuze and Guattari, a "creative line of escape" for both human and nonhuman animal, I will trace the effects of embodied escapes via technological platforms, nonhuman animal bodies, and modes of "becoming" in posthuman conditions. Following the mandate of Applied Media Theory, the proposed construction of a new media art object will be used as a generative model for thinking through "the question of the animal" in a way that signals how the application of media theory to an "evocative object," traverses the species boundary. Moreover, it is the focus on the application of the object to personal experience that offers the most productive engagement with "pluralism's call for attention to embodiment" [55], where the stripping away of identity markers guides us into uncharted spaces.

What the effects of biopolitical production subtends, then, is that a complex relationship between life and death has emerged in the technologically mediated world, and the boundaries that mark human from nonhuman, humanity from animality are as fraught as those constructed to distinguish between flesh and machine. To use the words of Foucault, the "entry of life into history, that is, the entry of phenomena peculiar to the life

of the human species" [56] is challenged by biotechnologies that necessarily place the human at the "internal limit at the species line" [57]. That limit, many posthumanist scholars would contend, has been radically crossed with the proliferation of biotechnological reproduction. As these bioartworks demonstrate, our relationship to animals is anything but self-evident, particularly in a culture that does not attempt to conceal its rhetorical penchant for the preservation of species, on the one hand, and its intention to acquire and exploit those species on the other.

End Notes

[1] Parikka, Jussi. *Insect Media: An Archaeology of Animals and Technology.* Minneapolis, MN: U of Minnesota P, 2010. p. xix.
[2] Chalmers, Catherine. *Burning at the Stake.* catherinechalmers.com. Web. 20 May 2011.
[3] Ibid.
[4] Mitchell, Robert. *Bioart and the Vitality of Media.* Seattle, WA: U of Washington P, 2010. p. 73.
[5] Calarco, Matthew. *Zoographies*. New York: Columbia UP, 2008. p. 113
[6] Ibid.
[7] Derrida, Jacques. "The Animal that Therefore I Am (More to Follow)." Trans. David Wills. Critical Inquiry 28 (Winter 2002): 369-418. Page cited: 395.
[8] Calarco, Matthew. *Zoographies*. New York: Columbia UP, 2008. Print. p. 113.
[9] Wolfe, Cary. *What is Posthumanism?* Minnesota, MN: U of Minnesota P, 2010. Print. p. 7.
[10] Ibid.
[11] ibid., p. 397.
[12] Calarco, Matthew. *Zoographies*. New York: Columbia UP, 2008. Print. p. 113.
[13] Baker, Steve. *The Postmodern Animal*. London: Reaktion Books Ltd., 2000. Print. p. 8.
[14] Parikka, Jussi. *Insect Media: An Archaeology of Animals and Technology.* Minneapolis, MN: U of Minnesota P, 2010. Print. p. xix.
[15] Haraway, Donna. "A Cyborg Manifesto Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs and Women: The Reinvention of Nature*. New York: Routledge, 1991. 149-18. Print. p. 151.
[16] Baker, Steve. "Philosophy in the Wild." The Eighth Day: The Transgenic Art of Eduardo Kac. Ed. Sheilah Britton. Tempe, AZ: Institute for Studies in the Arts, Arizona State University, 2003. p. 27.
[17] Ibid., p. 30.
[18] Baker, Steve. "You Kill Things to Look at Them." Killing Animals. Ed. Animal Studies Group. Urbana: U of Illinois P, 2006. p. 4.
[19] Mitchell, Robert. *Bioart and the Vitality of Media.* Seattle, WA: U of Washington P, 2010. Print. p. 30.
[20] Baker, Steve. "You Kill Things to Look at Them." Killing Animals. Ed. Animal Studies Group. Urbana: U of Illinois P, 2006. p. 70.
[21] Parikka, Jussi. *Insect Media: An Archaeology of Animals and Technology.* Minneapolis, MN: U of Minnesota P, 2010. Print. p. xiv.
[22] Ibid. p. xxxiv.
[23] Ibid.
[24] Zaretsky, Adam. "Vivo Arts: Art and Biology Studio." Emutagen. com. n.d, n.p. Web. 25 May 2011.
[25] Baldwin, Rosecrans. "Fallout Alarms: Interview with Cornelia Hesse-Honegger." The Morning News. *The Morning News*, LLC., 20 Oct. 2008. Web. 25 May 2011.
[26] Parikka, Jussi. *Insect Media: An Archaeology of Animals and Technology.* Minneapolis, MN: U of Minnesota P, 2010. Print. p. xxxv.
[27] Lippit, Akira Mizuta. *Electric Animal Toward a Rhetoric of Wildlife*. Minneapolis, MN: U of Minnesota P, 2000. Print. p.174.
[28] Ibid.

[29] Kuzniar, Alice. *Melancholia's Dog: Reflections on Our Animal Kinship.* Chicago: U of Chicago P, 2006. Print. Page 71.
[30] Hesse-Honegger, Cornelia. *Heteroptera: The Beautiful and the Other; or, Images of a Mutating World.* New York: Scalo, 2001. Print. p. 290.
[31] Hunter, Chris and Giovanni Aloi. "Interview with Catherine Chalmers." *Antennae 2* (2007): 27-30. Web. 25 May 2011.
[32] Thacker, Eugene. "Networks, Swarms, Multitudes." CTHEORY. May 13 2004. Web. 4 June 2011.
[33] Parikka, Jussi. *Insect Media: An Archaeology of Animals and Technology.* Minneapolis, MN: U of Minnesota P, 2010. Print. p. 203.
[34] Ibid., p. 202.
[35] Ibid., p. 203.
[36] Ibid., p. 205.
[37] Ibid., p. xviii.
[38] Ibid., p. 196.
[39] Ibid.
[40] Baker, Steve. *The Postmodern Animal.* London: Reaktion Books Ltd., 2000. Print. p.16.
[41] Ibid., p. 17.
[42] Kac, Eduardo. *Telepresence and Bio Art: Networking Humans, Rabbits, and Robots.* Ann Arbor, MI: U of Michigan P, 2008. Print. p. 236.
[43] Turkle, Sherry. Ed. *Evocative Objects: Things We Think With*. Cambridge, MA: MIT Press, 2007. Print. p. 5.
[44] Idib., p. 34.
[45] Baker, Steve. *The Postmodern Animal*. London: Reaktion Books Ltd., 2000. Print. p. 118.
[46] Munster, Anna. *Materializing New Media: Embodiment in Information Aesthetics*. Lebanon, NH: UP of New England, 2006. Print. p. 2.
[47] O'Gorman, Marcel. "What is Necromedia?" *Intermédialités, International Journal of New Media.* (Summer 2003): 155-164. Web. 10 Feb 2010.
[48] Munster, Anna. *Materializing New Media: Embodiment in Information Aesthetics.* Lebanon, NH: UP of New England, 2006. Print. p. 20.
[49] Baker, Steve. *The Postmodern Animal.* London: Reaktion Books Ltd., 2000. Print. p. 118.
[50] Ibid., p. 125.
[51] Ibid., p. 133.
[52] Ibid,. p. 121.
[53] Ibid.
[54] Ibid.
[55] Wolfe, Cary. *What is Posthumanism?* Minnesota, MN: U of Minnesota P, 2010. Print. p. xiii.
[56] Wolfe, Cary. *Animal Rites: American Culture, the Discourse of Species and Posthumanism.* Chicago: U of Chicago P, 2003. Print. Page 9.
[57] Shukin, Nicole. *Animal Capital: Rendering Life in Biopolitical Times.* Minneapolis: U of Minnesota P, 2009. Print. Page 11.

Works Consulted

Aloi, Giovanni. "The Death of the Animal." *Antennae 5* (Spring 2008): 43-53. Web. 20 May 2011.

Annas, George J. "Bioterror and 'Bioart'—A Plague o' Both Your Houses." *New England Journal of Medicine* 354.25 (2006): 2715-2720. Web. 20 May 2011.

Baker, Steve. *The Postmodern Animal.* London: Reaktion Books Ltd., 2000. Print.

Baldwin, Rosecrans. "Fallout Alarms: Interview with Cornelia Hesse-Honegger." *The Morning News.* The Morning News, LLC., 20 Oct. 2008. Web. 25 May 2011.

Biba, Erin. "Cornelia Hesse-Honegger's Mutant Bug Art." *Wired.* CondeNetUK Limited., 20 May 2010. Web. 25 May 2011.

Britton, Sheilah and Dan Collins. *The Eighth Day: The Transgenic Art of Eduardo Kac.* Tempe, AZ: Arizona State University, 2003. Print.

Calarco, Matthew. *Zoographies.* New York: Columbia UP, 2008. Print.

Chalmers, Catherine. *American Cockroach*. Aperture, 2004. Print.

---. Catherine. *Burning at the Stake.* catherinechalmers.com. Web. 20 May 2011.

---. *Squish.* catherinechalmers.com. Web. 20 May 2011.

Dixon, Deborah P. "Creating the Semi-Living: On Politics, Aesthetics and the More-than-Human." *Transactions of the Institute of British Geographers* 34 (2009): 411 -425 .

Fuller, Matthew. "Art for Animals." *Deleuze/ Guattari and Ecology.* Ed. Berndt Herzogenrath. Basingstoke, England: Palgrave, 2008.

Gessert, George. *Green Light: Toward an Art of Evolution.* Cambridge, MA: The MIT Press, 2010. Print.

Gigliotti, Carol. "Leonardo's Choice: The Ethics of Artists Working with Genetic Technologies." *AI & Society* 20.1 (2005): 22-34.

Grosz, Elizabeth. *Chaos, Territory, Art: Deleuze and the Framing of the Earth.* New York: Columbia UP, 2008. Print.

Haraway, Donna. "A Cyborg Manifesto Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs and Women: The Reinvention of Nature.* New York: Routledge, 1991. 149-18. Print.

Hansen, Mark B.N. *Bodies in Code: Interfaces with Digital Media.* New York: Routledge, 2006. Print.

---.*New Philosophy for New Media.* Cambridge, MA: The

Hardt, Michael and Antonio Negri. *Empire.* USA: Harvard UP, 2000. Print.

Hauser, Jens, Ed. *Sk-Interfaces: Exploding Borders—Creating Membranes in Art, Technology and Society.* Liverpool, UK: Liverpool UP, 2008. Print.

Hesse-Honegger, Cornelia. Heteroptera: *The Beautiful and the Other; or, Images of a Mutating World.* New York: Scalo, 2001. Print.

Hunter, Chris and Giovanni Aloi. "Interview with Catherine Chalmers." *Antennae 2* (2007): 27-30. Web. 25 May 2011.

Kac, Eduardo. *Telepresence and Bio Art: Networking Humans, Rabbits, and Robots.* Ann Arbor, MI: U of Michigan P, 2008. Print.

Kac, Eduardo, Ed. *Signs of Life: Bio Art and Beyond.* Cambridge, MA: The MIT Press , 2007. Print.

Kroker, Arthur and Marilouise Kroker, Eds. *Critical Digital Studies: A Reader.* Toronto, ON: U of Toronto P, 2008. Print.

Latour, Bruno. *We Have Never Been Modern.* Trans. Catherine Porter. Cambridge, Mass: Harvard UP, 1993. Print.

Lippit, Akira Mizuta. *Electric Animal Toward a Rhetoric of Wildlife.* Minneapolis, MN: U of Minnesota P, 2000. Print.

Mitchell, Robert. *Bioart and the Vitality of Media*. Seattle, WA: U of Washington P, 2010. Print.

Mitchell, W.J.T. *What Do Pictures Want?: The Lives and Loves of Images.* Chicago: The U of Chicago P, 2005. Print.

Munster, Anna. *Materializing New Media: Embodiment in Information Aesthetics.* Lebanon, NH: UP of New England, 2006. Print.

O'Gorman, Marcel. "What is Necromedia?" *Intermédialités, International Journal of New Media.* (Summer 2003):

155-164. Web. 10 Feb 2010.

Parikka, Jussi. *Insect Media: An Archaeology of Animals and Technology.* Minneapolis, MN: U of Minnesota P, 2010. Print.

Rice, Jeff and Marcel O'Gorman. *New Media/New Methods The Academic Turn from Literacy to Electracy.* West Lafayette, IN: Parlor Press, 2008. Print.

Serres, Michel. *The Parasite. Trans. Lawrence R. Schehr.* Minneapolis, MN: University of Minnesota P, 2007. Print.

Thacker, Eugene. "Aesthetic Biology, Biological Art. *Contextin' Art*. Artoffical Construct Media, 2002. Web. 4 June 2011.

---. "Biophilosophy for the 21st Century." *Critical Digital Studies: A Reader.* Eds. Arthur Kroker and Marilouise Kroker. Toronto: U of Toronto P, 2008. 132-142.

---. "Networks, Swarms, Multitudes." CTHEORY. May 13 2004. Web. 4 June 2011.

---. "What is Biomedia?" *Configurations* 11.1 (2003): 47-79. Web. 4 June 2011.

Turkle, Sherry. Ed. *Evocative Objects: Things We Think With.* Cambridge, MA: MIT Press, 2007. Print.

Wieczorek, Marek. "Playing With Life." Art Journal 59.3 (Fall 2000): 59-60. Web. 20 May 2011.

Wilson, Stephen. *Art and Science Now*. New York: Thames and Hudson Inc., 2010. Print.

Wolfe, Cary. *What is Posthumanism?* Minnesota, MN: U of Minnesota P, 2010. Print.

Van Tuinen, Sjoerd and Niamh McDonnell, Eds. *Deleuze and The Fold: A Critical Reader.* London: Palgrave Macmillan, 2010. Print.

Zaretsky, Adam. "Vivo Arts: Art and Biology Studio." Emutagen.com. n.d, n.p. Web. 25 May 2011.