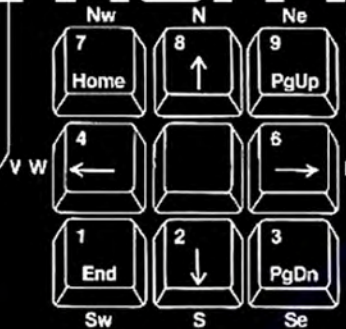


**centre[3]**  
for print and media arts

# FUNCTION KEYS

CONFERENCE OF  
NEW TECHNOLOGY  
& DIGITAL CULTURE



**2012**  
**CATALOGUE**

[www.functionkeys.ca](http://www.functionkeys.ca)



# Welcome

The "Function Keys" was a four-day conference organized by Centre3 for Print and Media Arts that aimed to explore contemporary ideas and issues in new technologies and digital culture.

The conference happened November 1st to 4th 2012 in downtown Hamilton, Ontario and included a series of lecture style presentations, demos and workshops. "Function Keys" goal was to provide a space for artists, hackers, computer programmers, and interested community individuals to come together in discussion and share in learning about emerging trends in new technology.

The conference consisted of a top roster of renowned speakers and specialists who are visionaries in their fields. Topics for the 2012 conference included:

- Art/Science Collaborations as an Interdisciplinary Practice
- My Experience as a G20 Hacker
- Laser-Based Collaborative Space
- INCUBATOR LAB: Reproductive Technologies from Print Media to BioART
- Beyond the Uncanny Valley
- Intro to Quadcopters
- Public Participation in Visualization
- Mediated Reality: Past, Present and Future
- Plasticity of Flesh: Breeding and BioArt
- Augmented Reality and Grand Island's Jewish Ghosts

The speakers were representative of diverse communities and backgrounds. Coming from a variety of different institutions, all were either academics, hackers, DIY makers and/or practicing artists whose perspectives are informed by interdisciplinary approaches that investigate the intersections of art, technology and culture.

**2012**  
**CATALOGUE**  
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## Introduction

Welcome to the Function Keys Conference catalog. The Function Keys Conference was an event I took great pride in coordinating. Too often as artists, makers, programmers and academics we work in isolation and are constantly under pressure by timelines and the goal of completing our next project. It's rare for people to get a chance to see the work of their peers, let alone get exposure to issues from other disciplines.

Having the opportunity to talk face to face with people working in fields outside of one's own place of specialization cannot be overstated. For me the core purpose of the conference was to open up a space to help facilitate and spread the awareness of new ideas and share in discussion while building community.

I believe great things can happen when you start mixing people from different areas of expertise. I'm clearly not alone in this thinking, as Jim Ruxton, Alex Leitch, Dan Zen, Byron Sonne, Jennifer Willet and many of the other lecturers point out in their talks and are living examples of how this cross pollination of interdisciplinary practice can play such an important role in the work that they do.

With each rotation the world is becoming more and more complicated. It's now impossible for any single individual to know and be a master of all things. In order to stay relevant it is my belief cultural producers, scientists and academics need to start listening and learning from each other. By working collectively and sharing our skill sets it allows for a stronger dynamic range of projects to be created and offers a greater scope of envisioning and problem solving.

I was personally inspired by the people in the audience of the conference as much as I was by the people who were on the stage. No matter who you are or where you are coming from, conversations around technology and culture need to be happening. It's affecting every aspect of our lives. Inside this catalog you will find a collection of essays examining and reflecting on the core themes and ideas of the 4-day event. If you haven't seen all of the talks or were unable to make the conference then I'd strongly encourage you to visit the conference website where you can view online videos of all the lectures.

It's my sincerest hope we can continue to keep the relationships, conversations and community from this event alive and happening into the future.

Till we meet again,

Ian Jarvis  
2012 Function Keys Conference  
Project Coordinator



# Lecture 1

## Jim Ruxton: Science, Art and Interdisciplinary Practice Essay by Kelly Hilton

If you happen to be wondering who invented the flamethrowers used by the rock band Kiss, a radio device capable of picking up electronic fluctuations as subtle as a fly beating its wings on the moon, and what is the Millennium Microwave Corporation? The answer is electronic engineer and media artist Jim Ruxton. He is the co-creator of these and a great number of other cutting-edge projects that combine two usually disparate disciplines: art and science.

In 1993, after already completing a Master's degree in electrical engineering, Jim Ruxton emerged from the Ontario College of Art and Design with what would be the central theme for his life's work: to blur, blend and merge the lines between art and science. "Artists and scientists are the ultimate explorers," notes Ruxton, a sentiment evident in the daring vigor of such works as Sync - a computer model of 216 nodes of light which demonstrate the patterned movement of particles in space, or in Twitch Limbic, where a dance troop member's skirt is wired to a breath sensor, allowing it to billow and fall in evocative synchronization with the dancer's breath.

In 1998, at a trans disciplinary symposium at the InterAccess Media Arts Centre in Toronto, Ruxton founded Subtle Technologies an open networking collective that would be the new fertile ground for experimental works. Their mission statement is inspirational: to bring people together to promote wonder, incite creativity and spark innovations across disciplines. The annual Subtle Technologies conference has become a laboratory for interdisciplinary exchange, a forum for practice-based re

*"Artists and scientists  
are the ultimate explorers..."*

search presentations and a place to discuss controversial ideas. Subtle Technologies projects include Victimless Coat, in which a tiny garment was grown in a laboratory bell jar from tissue culture, and Guiltless Dining in which frog steaks were grown from cell start-ups, and Magnetosphere, a project which took a long, wand-like amplifier to record the unworldly sounds of the upper regions of our atmosphere.

One may ask if these projects have any benefit for society at large. The answer may be found in a powerful feeling that those who view Ruxton's work often experience: awe. Psychological scientists Melanie Rudd and Jennifer Aaker of Stanford University are interested in the effects that the feeling of awe leaves on people. Their studies have shown that those who experience awe felt they had more time available and were less impatient, were more willing to volunteer their time to help others, strongly preferred experiences over material products and experienced a greater boost in life's satisfaction. In this sense, the projects of Jim Ruxton are not only intellectually stimulating, but likely spiritually uplifting as well.

When asked what's up and coming for Subtle Technologies, Ruxton describes an intriguing vision of a project in Montreal involving five composers, five artists and five scientists. The outcome is yet to be known! Perhaps it is this openness that is the most salient offering of learning we can take from Ruxton's work: An openness to new ideas, approaches and paradigms.



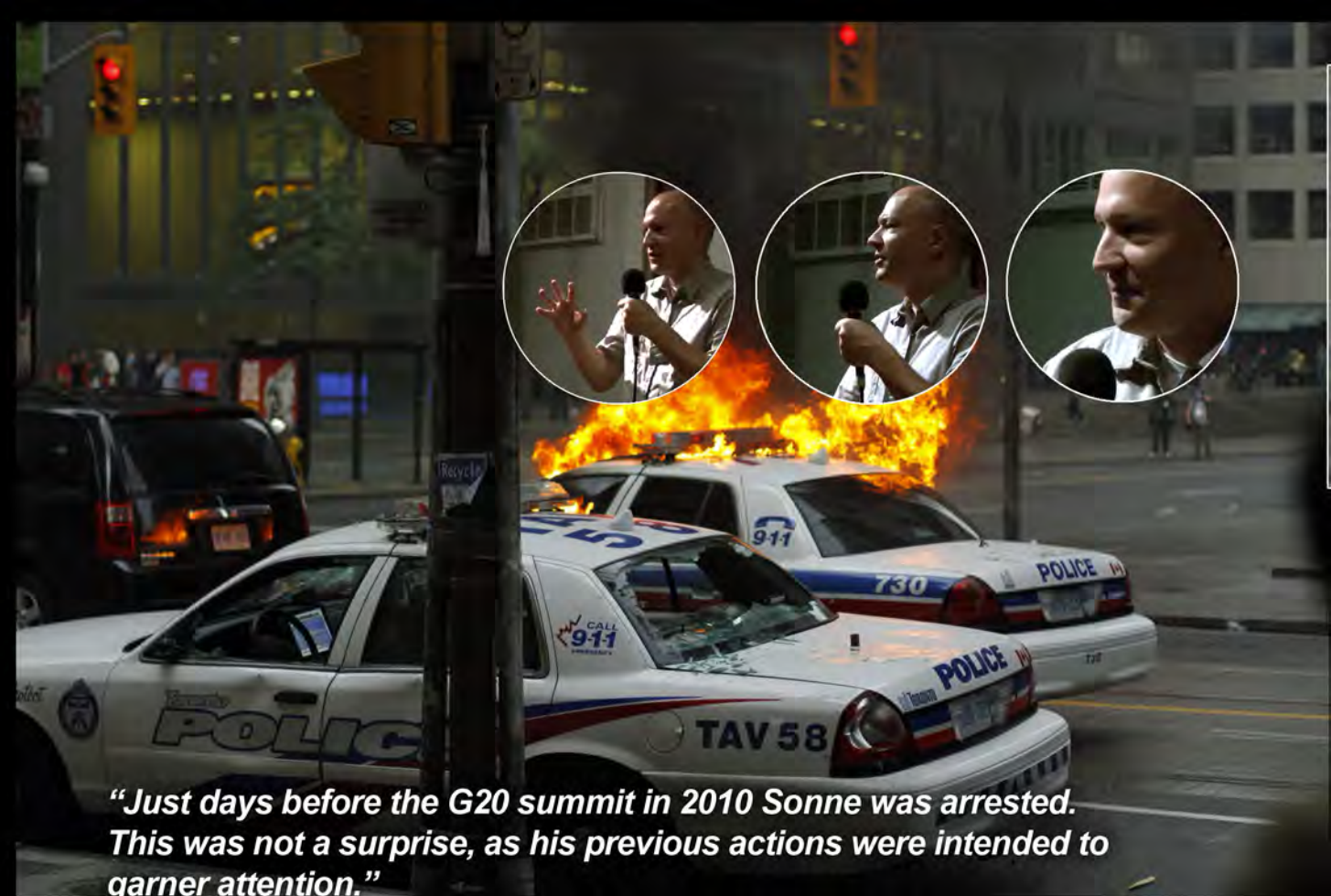
# FREE BYRON

## Lecture 2

### Byron Sonne: My Experience With G20 Oppression in Canada Essay by Pippa Cilliers

Byron Sonne is an anarchist. While this word conjures up images of punks and chaos, he is rather a true believer of the more harmonious and measured aspects of this political philosophy. He has suffered for his views, more so for his curiosity and willingness to test the system, yet remains resolute in his beliefs. Just days before the G20 summit in 2010 Sonne was arrested. This was not a surprise, as his previous actions were intended to garner attention. The subsequent two year incarceration was less anticipated despite initial, yet unfounded, accusations of terrorist activity. Sonne underwent an experiment of sorts, attempting to raise red flags by partaking in suspicious activity in order to find out what warrants government surveillance. Underlying the more playful aspects of Sonne's intellectual experiment is a serious and necessary questioning of individual rights and freedoms in Canada, with revelations of an arbitrary, broken penal system that is anything but fair.

Sonne got away with some dubious behaviour until he was noticed by police taking photos around the G20 security fence, after which his every word and action was put under a microscope. Even comments (most of which were tongue in cheek) made online by him and his former wife served to further incriminate an otherwise innocent Sonne. He attributes the misunderstanding to a failure to communicate sarcasm over the internet. In a supposedly free state, most do not give much thought to passing comments posted daily, and the consequences of monitoring and interpretation. Nevertheless, it remains puzzling that blogposts and twitter comments could be taken so far out of context, highlighting the arbitrary approach of a state security defensive under the stress of the G20.



***“Just days before the G20 summit in 2010 Sonne was arrested. This was not a surprise, as his previous actions were intended to garner attention.”***

Sonne's predicament poses a dilemma: how free is an individual to act (albeit in an intentionally suspicious manner) before attracting attention from the state? Alternatively, when attention has been achieved, when do those rights, that allowed such actions in the first place, become justifiably compromised? For Sonne, initial attention was his intent as he believed he could easily explain himself and end the matter, but once locked in a questioning room for 14 hours straight (12 of which no access to a lawyer was permitted), he began to see his rights slip and slide without justification.

Nevertheless, Sonne is still hard pressed to pinpoint blame for the loss of two years of his life. He believes he was more so the victim of preventative measures taken by a state security that was under pressure and disorganized, rather than a casualty of government backed malice. His experience still illuminates the flaws in a system most hardly acknowledge, until it works against them. Maintaining his anarchist views, Sonne has strengthened his resolve to continue to question and provoke an antiquated system of hierarchies and reveal the dangerous fallbacks of a government that maintains a guise of democracy, yet behaves (in some instances) like a totalitarian state.





# Lecture 3

## Alex Leitch: Laser-Based Collaborative Space Essay by Ian R. Wood

Alex's Leitch's presentation on "Laser-Based Collaborative Spaces" expanded on Open Source philosophy to demonstrate how group investment makes space for art to happen. Site3, the collaborative space Leitch works in, is "laser-based" because it started with a group investment in a laser cutter, an expensive piece of equipment with multiple uses that no one artist was likely to afford alone and use constantly. But many artists can invest in this kind of technology, which, through its variable functions, becomes continually useful to the group. For Leitch, the financial investment promotes a space in which artists take personal ownership of and responsibility for the project, in much the same way that citizenship is promoted through mutual investment, via taxation, in infrastructure and health resources. The concept of giving "people the ability to invest in themselves really easily" is politicizing, creating supportive space for trial and error outside of postsecondary educational environments and building community for people who might be considered weird or "alien" in the outside world.

But, Leitch cautions, the creation of collaborative space isn't just about personal investment. It is also about "getting people to invest in you." Hackerspaces need buy-in to be successful, and spaces like Site3 offer classes and tours, must make decisions (sometimes expensive ones) to be geographically and physically accessible and must do outreach to connect with members who will invest month after month. Leitch says hacker spaces need at least one "girl" because, in a techart landscape dominated by middle-class white men, women are already "aliens." You need one "alien" to talk to the other "aliens" – those marginalized in technological and artistic development – and invite them to join the space and make it more diverse.

Leitch supports the development of diverse collaborative groups in private, rather than public or quasi-public, spaces for practical and ideological reasons. Practically, there are issues for tech artists like insuring their spaces for particular techniques. Some kinds of welding and pyrotechnics require extensive licensing and insurance to be possible, and the paperwork is easier for private space. Ideologically, Leitch argues that "diplomacy only works by invitation": when you create a diverse space, your ideas get "stress tested" and become better through exposure to new ideas. But privatization gives you more control over who will form a part of your group, helping to guarantee that the space will be a welcoming one, where people are already "like you" and the new people you meet will probably like you.

While Leitch recognizes that marginalization has created identity-based barriers to access – not only to technology but also to technological thinking and discourse – her emphasis on financial investment and privatization begs the question of how hackerspaces will integrate analyses of class struggle and economic justice into their design. The associations of financial contribution with citizenship, of ownership with responsibility and of regulation of participation with peaceful or harmonious relations are ideological, not natural, positions, and one wonders what hacker art might look like under a different set of limitations.

From Leitch's presentation, it seems clear that hacker art has the capacity to respond to this challenge. As an art form based in the idea of play – of "messing around" until you can answer affirmatively to "is it awesome yet?" – hacker art holds enormous potential as a critique of the knowledge economy and art as labour.

*"...hacker art holds enormous potential as a critique of the knowledge economy and art as labour."*





# BIOART

*“BioArt developed from the same processes and ideas as printmaking and digital reproduction...”*

## Lecture 4

**Jennifer Willet: INCUBATOR LAB - Reproductive Technologies from Print Media to BioArt**

## Lecture 8

**Anne Milne: On the Plasticity of Flesh: Breeding, Bodies, and BioArt**

**Essay by Sarah Mann**

FunctionKeys featured two speakers on BioArt, a set of cutting edge aesthetic concepts and techniques based on the idea of “(post)biological reproduction” as the next step in the evolution of reproductive technologies for art. Dr. Jennifer Willet, from University of Windsor, explained in her presentation how BioArt developed from the same processes and ideas as printmaking and digital reproduction. Hired to be U of Windsor’s printmaking professor, Willet now operates the Incubator Hybrid Laboratory at the Intersection of Art, Science and Ecology.

Conducting her own research and artistic practice in the lab, Willet also supervises graduate student researchers and teaches an undergraduate class on BioArt: Contemporary Art and the Life Sciences for students new to either or both scientific protocols or artistic production. Willet was accompanied to her presentation by student Kacie Auffret, whose projects have used animal hides and bones with printmaking technologies to reflect on human-animal and animal-disease relationships. Incubator Lab teaches direct and indirect technological skills, as students learn basic laboratory protocols and reproductive techniques, as well as transferable skills like curiosity, integration of classroom learning with daily life, and repurposing technologies for unintended uses.

According to Willet, there is some debate about what constitutes BioArt, versus a more simulated or symbolic art about biology, but in a nutshell BioArt comprises cultural productions that manipulate or make use of “life” for aesthetic ends. BioArt is different from science, as it aims to create “something cool” and not necessarily reproducible or with controlled results. Willet argues that BioArt is a technological and aesthetic practice that ties biological reproduction to analogue (print) and digital reproduction as a process of reimagining our bodies and culture. In contemporary art that uses living matter as its raw material, artists, rather than merely simulating new bodies and ecologies, are actually producing and reproducing them, creating new forms or new processes for reproduction. For Willet, the decision to “manipulate life towards aesthetic ends” is also inherently political, and intrinsically tied to ethical evaluations of the artistic process.

For Willet, the “tinkering” that fuels BioArt can be read as a response to the “illusion of choice” that drives contemporary consumptive practices around technology and culture. By repurposing both technologies and our bodies’ relationships to technology, we can reimagine the “public interfaces” created by mass production to enforce hegemony as potential tools to resist it. While current BioArt does involve genetic and physical modifications, these tend not to look very different from unaltered biology. At present, the most visible “BioArt” is digitally produced or enhanced: a set of “visual metaphors” for post-biological life. Expecting these metaphors to inform a coming literal transformation of the reproduction of life, Willet argues that artists and the public need to participate in the production of these visual metaphors. If we don’t influence the shape they will take, they will be directed entirely by those with the most power and resources: at the moment, corporate interests.

Willet’s analysis, in its focus on reproductive technologies, provides an introduction to BioArt suggestive of its capacity to challenge heteronormative and patriarchal concepts of bodies and reproduction—a challenge to the idea that bodies, and only bodies, are for reproduction, that they must reproduce and that reproduction happens within contexts like marriage, romantic love and heterosexual sex (or sex at all). And her call for participation in the production of the visual metaphors that will regulate future reproduction is compelling. But BioArt is not without its critics, and Willet’s analysis can be enhanced with greater attention to the politics and ethics of manipulating life.

University of Toronto Scarborough’s Dr. Anne Milne delivered a critique of BioArt that began with its foundations, not in digital or print technology, but in breeding practices and their representations in England in the late 18th century. Taking the example of 18th century “gentleman farmer” Robert Bakewell, Milne shows how animals produced as breeding stock were represented as artistic creations, in portraiture and through naming practices that tied them to great dramatic and literary figures, in a way that enhanced the stature of their breeders in particular and of the practice of breeding, more generally. The animals’ appearances in art were marketing for breeding techniques and businesses, but they were also moments in which ani-

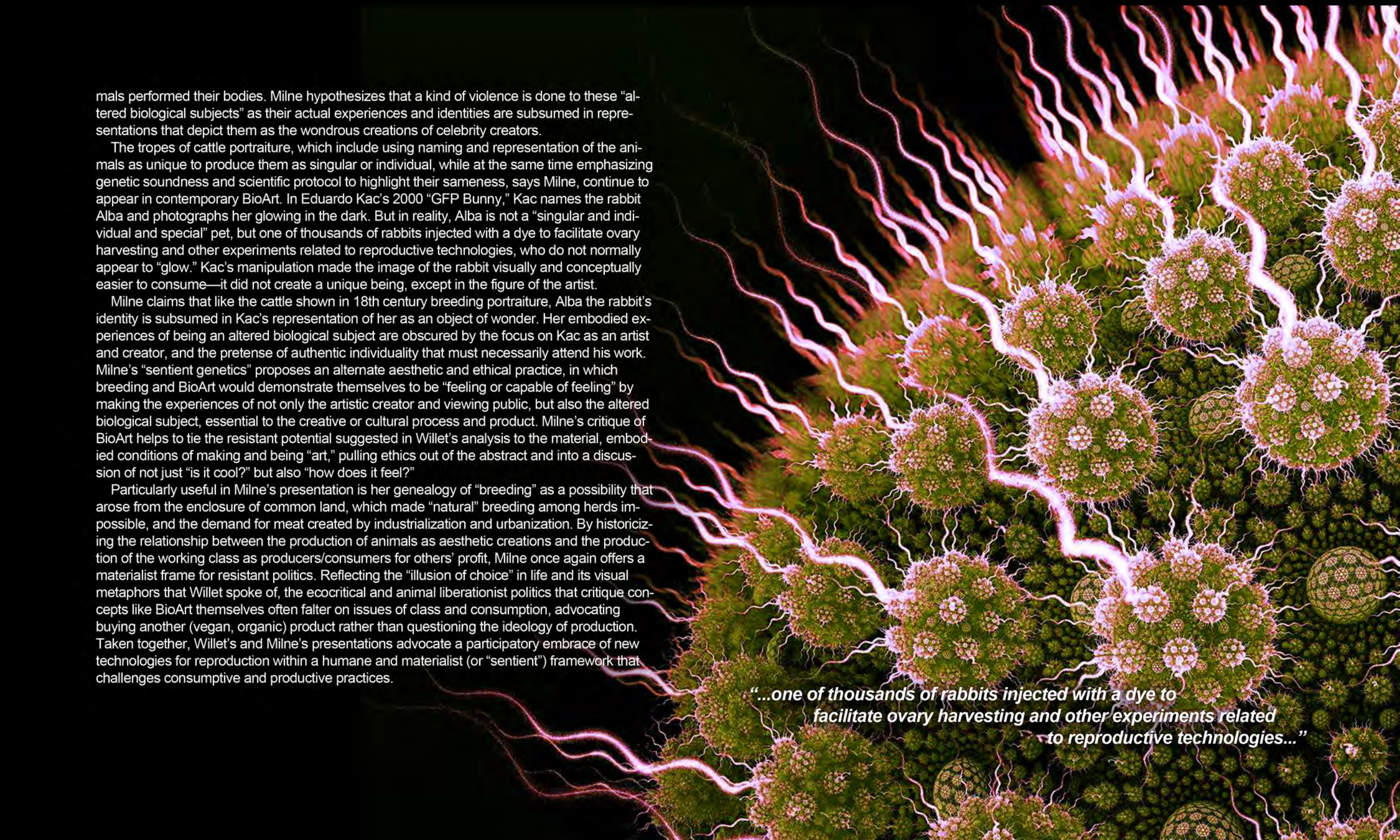


mals performed their bodies. Milne hypothesizes that a kind of violence is done to these “altered biological subjects” as their actual experiences and identities are subsumed in representations that depict them as the wondrous creations of celebrity creators.

The tropes of cattle portraiture, which include using naming and representation of the animals as unique to produce them as singular or individual, while at the same time emphasizing genetic soundness and scientific protocol to highlight their sameness, says Milne, continue to appear in contemporary BioArt. In Eduardo Kac’s 2000 “GFP Bunny,” Kac names the rabbit Alba and photographs her glowing in the dark. But in reality, Alba is not a “singular and individual and special” pet, but one of thousands of rabbits injected with a dye to facilitate ovary harvesting and other experiments related to reproductive technologies, who do not normally appear to “glow.” Kac’s manipulation made the image of the rabbit visually and conceptually easier to consume—it did not create a unique being, except in the figure of the artist.

Milne claims that like the cattle shown in 18th century breeding portraiture, Alba the rabbit’s identity is subsumed in Kac’s representation of her as an object of wonder. Her embodied experiences of being an altered biological subject are obscured by the focus on Kac as an artist and creator, and the pretense of authentic individuality that must necessarily attend his work. Milne’s “sentient genetics” proposes an alternate aesthetic and ethical practice, in which breeding and BioArt would demonstrate themselves to be “feeling or capable of feeling” by making the experiences of not only the artistic creator and viewing public, but also the altered biological subject, essential to the creative or cultural process and product. Milne’s critique of BioArt helps to tie the resistant potential suggested in Willet’s analysis to the material, embodied conditions of making and being “art,” pulling ethics out of the abstract and into a discussion of not just “is it cool?” but also “how does it feel?”

Particularly useful in Milne’s presentation is her genealogy of “breeding” as a possibility that arose from the enclosure of common land, which made “natural” breeding among herds impossible, and the demand for meat created by industrialization and urbanization. By historicizing the relationship between the production of animals as aesthetic creations and the production of the working class as producers/consumers for others’ profit, Milne once again offers a materialist frame for resistant politics. Reflecting the “illusion of choice” in life and its visual metaphors that Willet spoke of, the ecocritical and animal liberationist politics that critique concepts like BioArt themselves often falter on issues of class and consumption, advocating buying another (vegan, organic) product rather than questioning the ideology of production. Taken together, Willet’s and Milne’s presentations advocate a participatory embrace of new technologies for reproduction within a humane and materialist (or “sentient”) framework that challenges consumptive and productive practices.



*“...one of thousands of rabbits injected with a dye to facilitate ovary harvesting and other experiments related to reproductive technologies...”*



# Lecture 5

## Peter Rogers: Beyond the Uncanny Valley

Essay by Liss Platt

What is it about human-like robots that creep us out? Why is it so difficult to create robots that look and feel realistic and can be accepted as human substitutes?

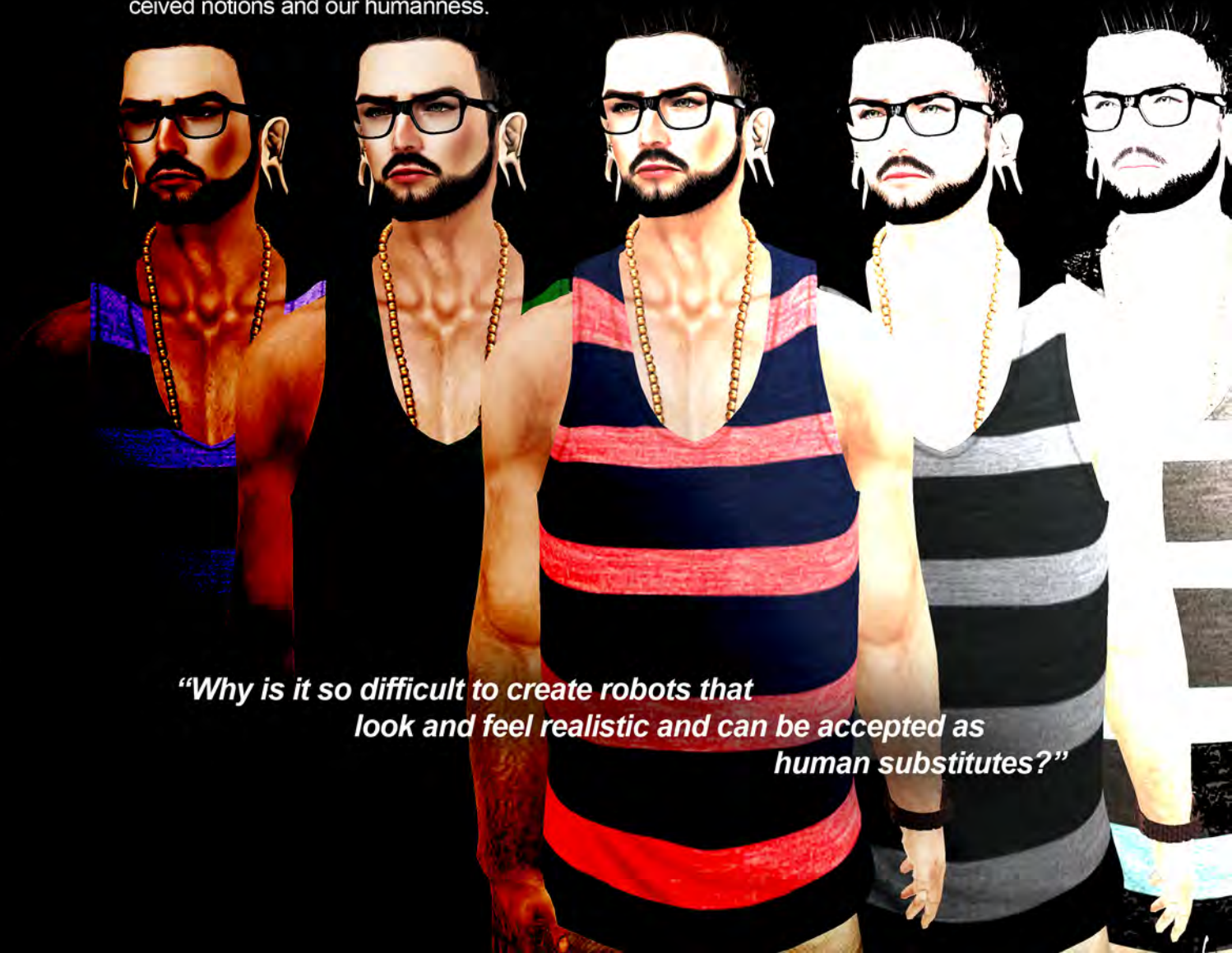
Building on the hypothesis of the 'uncanny valley,' proposed by roboticist Masahiro Mori in 1970, Rogers grapples with these questions as they relate to contemporary developments in science and entertainment. Mori claimed that as robots become more human-like they become more familiar and comfortable, but only up to a certain point. As the robots reach a high degree of realism a strange thing occurs: minor imperfections become noticeable and produce a sense of discomfort and unfamiliarity.

Mori dubbed this the 'uncanny valley' in reference to the psychoanalytic concept of the 'uncanny' popularized by Freud (generally understood as an uneasy feeling or sense of revulsion produced by an encounter with something simultaneously familiar and unfamiliar) combined with what is illustrated when you chart the relationship between familiarity/comfort and anthropomorphism/realism on a graph. In Mori's graph, the 'valley' is the drastic decrease in familiarity (resulting in an eerie, unsettling feeling) that occurs just as one gets close to a human-like robot – and just as quickly disappears when you achieve full human likeness.

After outlining Mori's main thesis, Rogers provides examples of a range of recent robot prototypes, drawing attention to the subtle failures of each that keeps them mired in the uncanny valley. As Rogers points out, the human face produces a complex array of expressions, through subtle shifts and movements, that are quite difficult to replicate. In fact, while not specifically addressed in this lecture, recent scholars (Tinwell, Grimshaw, and Williams) have proposed that there is an 'uncanny wall' rather than 'valley.' They argue that it is impossible to create a true human likeness because our ability to detect imperfections will always be greater than our capacity to achieve realism.

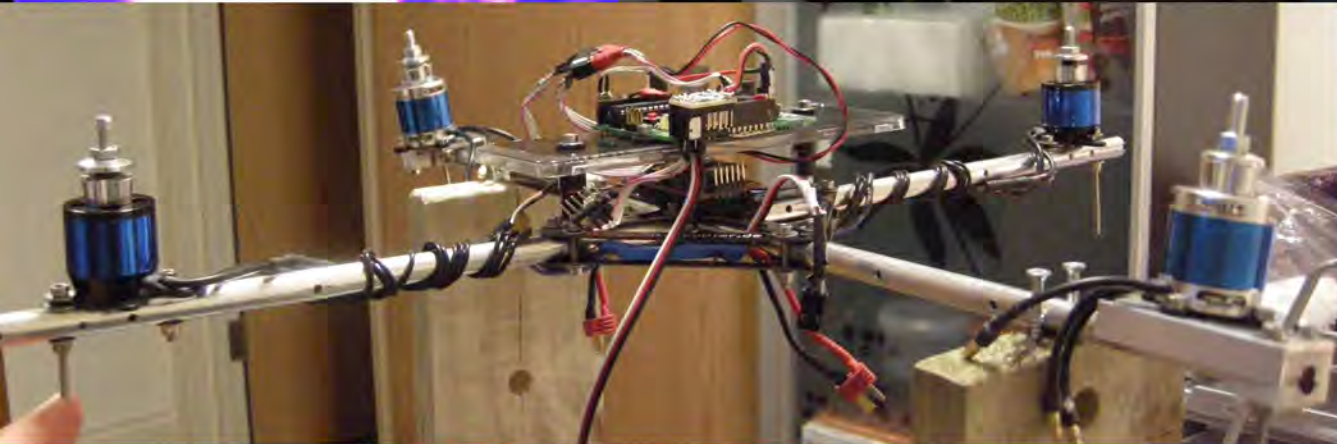
But still we persist in attempting to make life-like human robots, and, as Rogers goes on to discuss, life-like computer-generated characters in films and video games. While I am inclined to consider this part of man's continued quest for mastery over nature, Rogers turns our attention to the business of entertainment and states, "If your goal is to make believable characters you can have feelings towards and with whom you can emote, then the valley is your problem; the valley is what you need to overcome to really connect your audience with the characters." However, this begs the question, "Why do we need a human-like robot or animation to emote with, when we can achieve this sort of connection with a human actor or an anthropomorphized computer-generated monster like Sully from Monsters, Inc.?"

Rogers concludes his lecture by broadening the discussion to consider 'uncanny' effects in everyday life. From travel to foreign places to extreme weather that can make a familiar landscape seem strange, Rogers asks us to consider if the 'uncanny' is always a negative experience. He notes that the uncanny can be both eerie and exciting, as in the case of magic tricks and quantum physics. In these instances, our experiences are at odds with our expectations, and this can be a productive tension, one that allows us to reflect on our preconceived notions and our humanness.



*"Why is it so difficult to create robots that look and feel realistic and can be accepted as human substitutes?"*





*“...quadcopters in production and in action illuminate the themes of collaboration, grassroots power, and intersectionality...”*

The examples Watson provided of quadcopters in production and in action illuminate the themes of collaboration, grassroots power, and intersectionality that underlie the copters' development. As Watson explained, Open Source projects aren't "just" about giving ideas away for free: if an Open Source project can attract enough interest, then the original design will be corrected and improved by many more participants. Projects that are too big for one person or a small lab to undertake alone are made possible by a collaborative, non-proprietary model; openness feeds progress. By giving the power of flight and an "eye in the sky" to independent and activist projects, quadcopters make it possible for activists and insurrectionists to reverse the gaze of power, as, in examples provided by Watson, Libyan rebels used donated copters to survey government military installations, Polish protesters used a copter to document police repression, and environmental activists used a copter to document the negative effects on waterways (which were inaccessible by foot) of illegal manure-dumping from factory farms. As a science-based tool used by "soft" activist projects, copters thus facilitate intersectionality and reciprocity, bringing new technologies and capabilities to activists and a social justice analysis to technology development.

This reciprocity is timely. As Watson notes, the reason copters can be built cheaply is that North American and European builders can order parts at low cost from other parts of the world, a practice which raises the question of how activist technology developers will integrate analysis of labour rights and global economic equity into their building practices. Further, one worries about the possibility of co-option of activist technologies. In the video Watson shared of Stanford researchers piloting a true "swarm" of quadcopters through openings reminiscent of already-bombed ruins, the DIY aesthetic of the copters edged towards the militaristic. When global Northern governments are already demonstrating their willingness to use drones as "risk-free" killing machines in occupied regions, it seems more important than ever for the Open Source, independent and resistant ideas that have fuelled quadcopter development thus far to remain an inherent feature of their design.

## Lecture 6

### Trevyn Watson: Intro to Quadcopters

#### Essay by Ian R. Wood

Trevyn Watson demonstrated his homemade quadcopter for the Function Keys audience, controlling the humming machine as it hovered for photograph-taking on-lookers. He showed off the device's durability by allowing it to fall to the floor before rising towards the ceiling and slamming to the ground again. For Watson, quadcopters open the possibility of "leveraging a swarm of angry bees" to meet their operators' goals, which may include entertainment, art, profit or activism. Watson's introduction to the devices curated examples of their uses: as an enjoyable hobby; as a retail product sold to photographers and filmmakers, who could then produce aerial shots that would otherwise be unaffordable for independent or small-budget artists; and as a tool for activists who want to document current events or gain visual access to otherwise-inaccessible spaces. He explained the practical benefits of a quadcopter over a standard helicopter, including increased stability, and, as an Open Source hardware and software design, greater affordability.



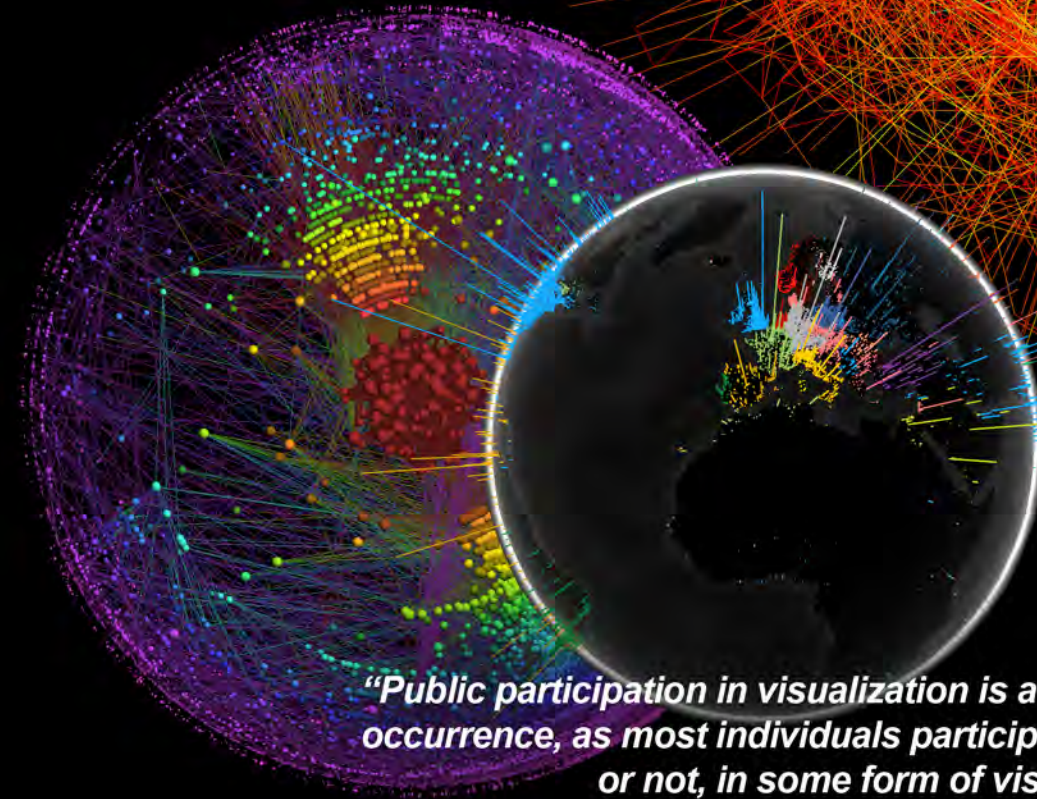
# Lecture 7

## Patricio Davilla: Public Participation in Visualization Essay by Pippa Cilliers

The ever-increasing rate of visual display in public life is closely linked with advancing technologies. Public participation in visualization is a daily occurrence, as most individuals participate, actively or not, in some form of visualization, and more so with visual technologies. Patricio Davilla carefully defines, at the beginning of his lecture, the potential meanings of the words “public”, “participation”, and “visualization” to arrive at an overall definition of this activity as an artistic endeavour. Prompted by a criticality of the excess of the visual in daily life, Davilla and a number of other artists seek to engage with certain visual technologies so as to produce a more enriching outcome for those involved. However, the use of terms such as “participation” and “involvement” can be problematic as they have become clichéd in their overuse as a professed artistic goal. Davilla also raises the problem of language, and how it creates a certain expectation of his work, due to the use of loaded terms with loose definitions.

It is hard not to relate these intentions with the terms of relational aesthetics, however there are significant differences that separate both practices. First of all, the endeavour of participatory visualization tends to occur beyond the confines of a gallery space, rather than bringing the social relationships that occur in daily life into an institutional context. Second, and more specifically, the visualization of participation, in itself, is where relations occur, where the public is able to see a visually tangible result of their involvement as opposed to acting out participation and acting as the work itself.

Another issue with aspiring toward involvement, is the means by which it is achieved. Davilla uses the example of E-Tower, a collaboration with artist Dave Colangelo for Nuit Blanche in 2010, to demonstrate a public visualization requiring participation. During Nuit Blanche, the more people who texted a specific number, the more the CN tower would light up; a simple yet effective visualization of participation utilizing technology. The issue arises with the prerequisite of a cellphone in order to participate, which raises the question of the accessibility of a project that purports “public” involvement. Clearly, a specific public is intended. Even so, it could be argued that the texting component is only one aspect of participation, and instead,



***“Public participation in visualization is a daily occurrence, as most individuals participate, actively or not, in some form of visualization...”***

all those who were able to witness the CN tower light up, participated with the installation as well.

Digital technologies significantly increase communication and interaction, yet most activities occur through a filter such as a computer/ cell-phone screen. Should face to face interaction be privileged over other technologically assisted forms? Does it even matter when the majority has already accepted new technologies as the norm? Davilla has acknowledged the overwhelming presence of visualization and technology in public life today, and seeks to use this permeated environment to acquire some collective agency in the making of our visual environments.

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## Lecture 9

### Dan Zen: Mediated Reality – Past, Present, Future Essay by Liss Platt

Inventor and software developer Dan Zen takes us on a psychedelic odyssey through various innovations in computing technology that have been developed to mediate reality and transform our experience of the world. Zen uses the term 'mediated reality' to refer to anything that sits between an individual and their reality, thereby altering that reality. He notes that even before the age of computers we have sought out ways to mediate reality - from spices (which boost flavor) to drugs and alcohol (which amplify or diminish sensations). But recent advancements in software and hardware have produced a quantum shift in the possibilities, especially when in the hands of artists and designers.

***“Zen is particularly interested in the way science fiction allows us to see and imagine the future, and the tools he creates are meant to promote such envisioning.”***

Zen begins his talk by situating his work within the context of Canadian computing pioneers - people who have helped define 'mediated reality' such as Steve Mann (created early mediated reality goggles), Bill Buxton (started making multi-touch interfaces in the '70s), and David Rokeby (created Jitter, which sits on top of MaxMSP, for interactive art installations) – before providing an extensive overview of his preoccupations over the past several decades.

Unlike the more critical stance proffered by media critics and cultural theorists since Marshall McLuhan cautioned against the 'technological extension' of ourselves and the resultant 'amputation' of our senses, Zen embraces 'mediated reality' as a fertile playground of the post-human age. While others may be touting the benefits of unplugging from our devices, Zen is all in. To this end he has produced a dazzling array of mediating technologies, from light shows/video feedback loops to open source software for gesture technology (so you can control a cursor with arm movements), from animated 3D Op-Art images to wearable computing.

Recent inventions, such as 'Touchy,' offer a mobile mediated gaming experience. In this high-tech cross between Twister, fencing, and tag, players amass points for touching a target on the screen of their opponent's mobile device and lose points if they allow their device to be touched. Zen explains that, "instead of playing a game inside of the device, the device is mediating the game and acting in between" the players.

Lately Zen has also been exploring interactive storytelling and has built several applications for the creation of web-based short stories. For example, 'Snipisode' is a program that encourages storytelling on social media by publishing one line of a story per day, in snippets. If the reader is intrigued by the out-of-context snippet they have the option to access the entire story, or they can follow it in serial form – think Charles Dickens of the Twitter times. Zen is particularly interested in the way science fiction allows us to see and imagine the future, and the tools he creates are meant to promote such envisioning.

For Zen, the future is filled with endless possibilities for art and entertainment through mediated reality. His closing slide depicts a hand-drawn(!) illustration of a technologically advanced Hamilton, an idealized vision of its potential future replete with the McMaster Dream Centre and Hamilton's own Nano Complex floating in the bay. If anyone can harness dreams to forge new realities, invent 'dreamware,' or help realize Hamilton's utopian future, I'll put my money on Dan Zen.



# Lecture 10

Melissa Shiff and Louis Kaplan:  
**Augmented Reality and Grand Island's Jewish Ghosts**  
 Essay by Kelly Hilton

Augmented Reality and Grand Island's Jewish Ghosts was inspired by a 300 pound stone dating from 1825, the only historical artifact remaining from Ararat, the failed project envisioned by political leader and playwright Mordecai Noah to develop an autonomous Jewish state in Grand Island, New York.

Augmented Reality and Grand Island's Jewish Ghosts reincarnates the Ararat Project through the use of a variety of digital media technologies and is expressed on three digital platforms: an augmented walking tour, an interactive cartography installation, and a website linked through social media.

The augmented walking tour is located according to the original 1829 placement of Ararat in the north-east corner of Grand Island, enabling the modern day rendition of the Jewish homeland to be rooted in history. The overlap of the two sites pays homage to Noah's original ideas and establishes the connective reverie of the projects - from present to past. The tour consists of sixteen augments - buildings, monuments or landmarks - that can be electronically transplanted into the Grand Island landscape when the participant directs a computerized device, such as a smartphone or iPad, to the specified site location. In addition, a sound file is attached to each of the augments, such as a synagogue or entry point building, to complete the virtual tourist experience. Also included in plotting the virtual history of Ararat are cultural artifacts and vernacular used to represent statehood such as flags, newspapers, postcards and stamps.

Selected for the Where To exhibit by Oodie Edleman at the Israeli Centre for Digital Work, Augmented Reality and Grand Island's Jewish Ghosts has attracted academic interest and opened up the debate on "the proper and improper place for Jews to exile", as Edleman notes. In particular, with regard to the historical Jewish challenges of the Diaspora and the Zionist state. The project offers an intriguing alternate paradigm of Jewish homeland - the concept of deterritorialization, a virtual region existing peacefully and autonomously in cyber space.



Falls of Niagara

Grand Niagara  
 Schlosser

Augmented Reality and Grand Island's Jewish Ghosts project clearly has an important role in communicating and creating awareness of Jewish heritage and culture. Professor Melissa Shiff refers to the project as the dawn of a new era of Jewish tourism, as compared to the sobriety of the prepackaged tours of holocaust sites, concentration camps, and the ghettos of Prague and Poland. These highly charged sites of death create "a passive absorption of horror and define Jewish identity in terms of past victimhood", states Shiff. In addition, at a time when much of our current living and learning takes place indoors, often in solitary settings, with technology as our point of connection, it is refreshing and perhaps vital that projects such as Augmented Reality and Grand Island's Jewish Ghosts create illuminating and interactive experiences as a means for gaining knowledge.

Perhaps the most poignant feature of the project and its reanimation of Noah's Ararat is its ability to connect us to paths, and possibilities that have remained unexplored. If history, says Shiff, "is the construction of desires and wills", then Augmented Reality and Grand Island's Jewish Ghosts offers us much by presenting the idea, what if.....

**"The project offers an intriguing alternate paradigm of Jewish homeland..."**

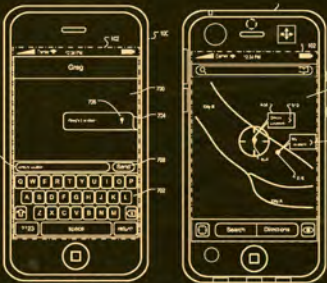
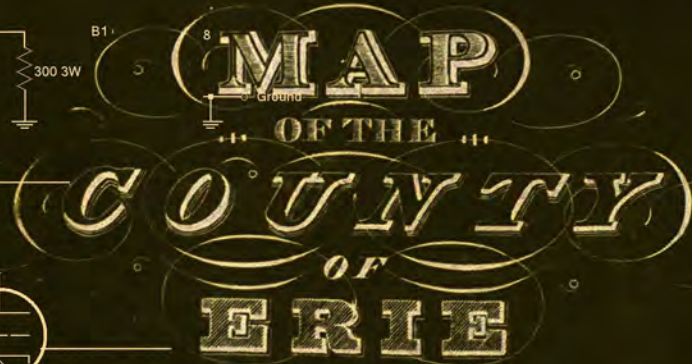
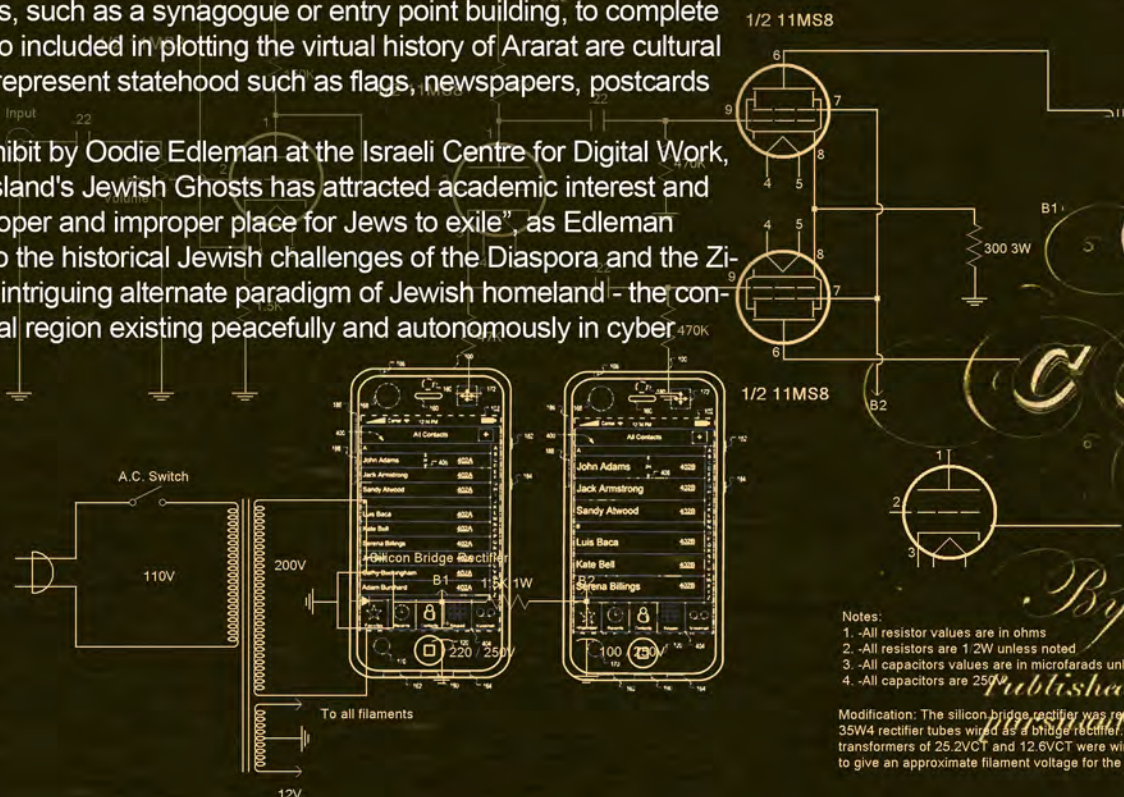


FIG. 7A FIG. 8



By David H. Burr  
 Published by the SURVEYOR GENERAL  
 Act of the Legislature

- Notes:
- All resistor values are in ohms
  - All resistors are 1/2W unless noted
  - All capacitor values are in microfarads unless noted
  - All capacitors are 25V

Modification: The silicon bridge rectifier was replaced with 4 35W4 rectifier tubes wired as a bridge rectifier. Two filament transformers of 25.2VCT and 12.6VCT were wired in series to give an approximate filament voltage for the tubes.

- Camera
- GPS
- Multi-Touch
- Accelerometer
- Keyboard
- Ambient light sensor
- Proximity sensor
- Microphone
- Speaker
- Vibration



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Here you'll find online videos for all the lectures mentioned in this catalog.

## Closing Notes

The Function Keys Conference was organized by Centre3 for Print and Media Arts. Centre3 for Print and Media Arts is located in Hamilton, Ontario and is an artist-run centre that is dedicated to promoting print and media arts in contemporary artistic discourse for practicing artists and the community at large. The centre encourages research and innovation and provides forums for discussion and examination of critical and theoretical issues.

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It is our hope to continue to grow the Function Keys Conference into an ongoing annual event. Please visit the conference website for more details of future speakers and workshops at:

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Do you have suggestions or feedback on the Function Keys Conference?

If so please feel free to drop us a line at:

[digital@centre3.com](mailto:digital@centre3.com)

Finally we'd like to take this opportunity to thank everyone who participated in the Function Keys Conference, the events, workshops, videos, website and the production of this catalog.

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