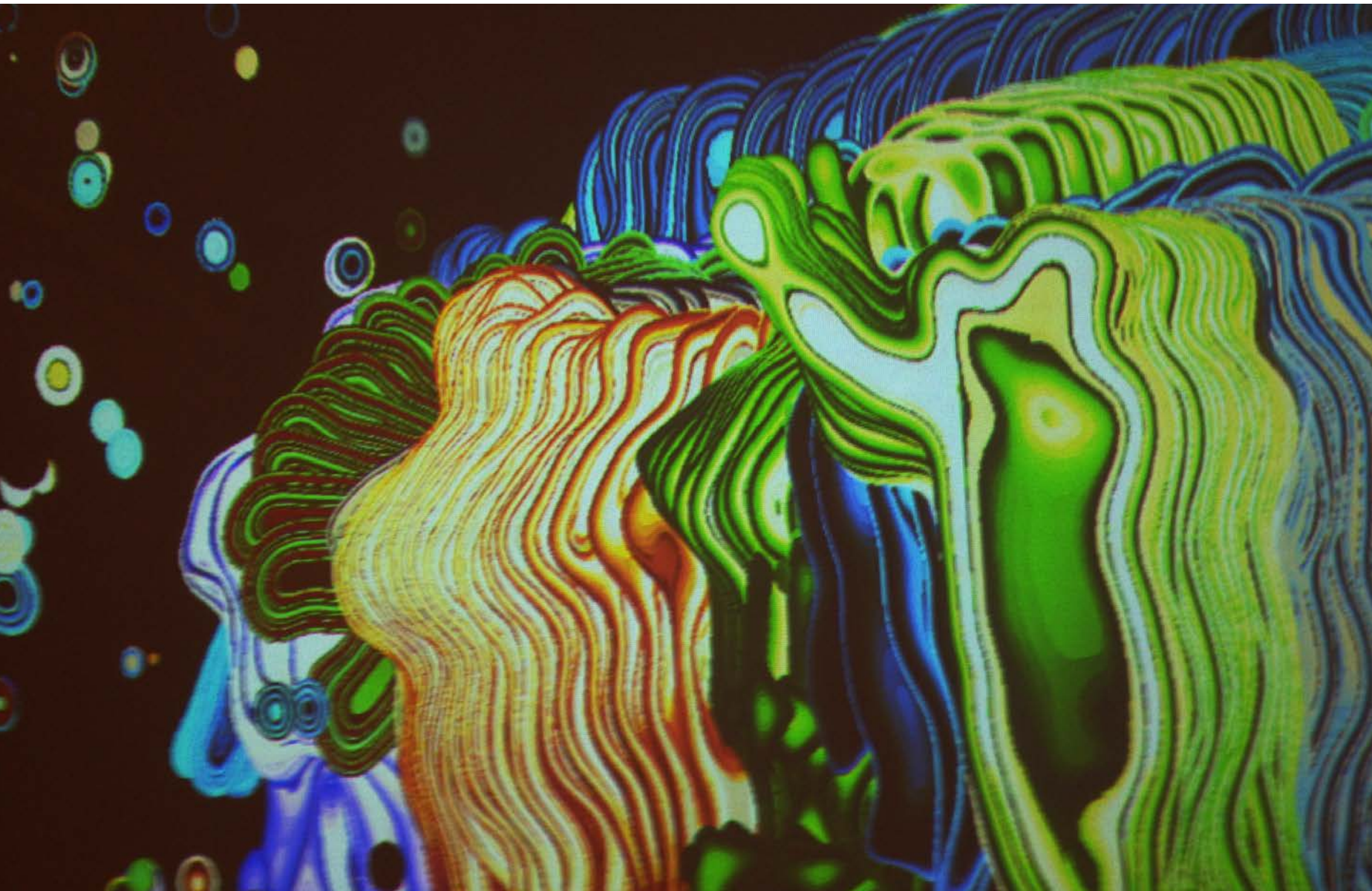
CINDY SHERMAN BISHOP

gestural dynamics



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thank you, Martha

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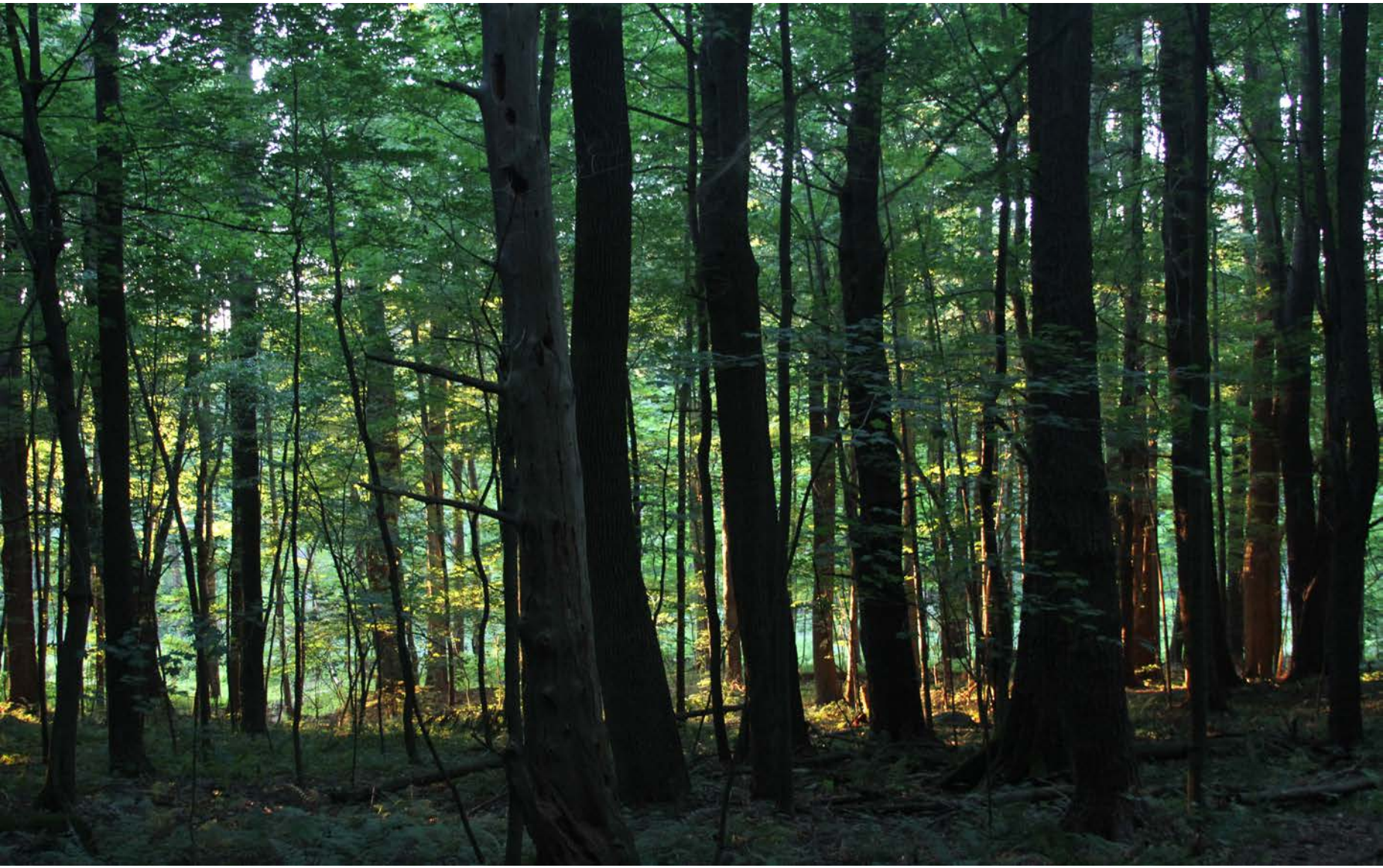
Abstract:

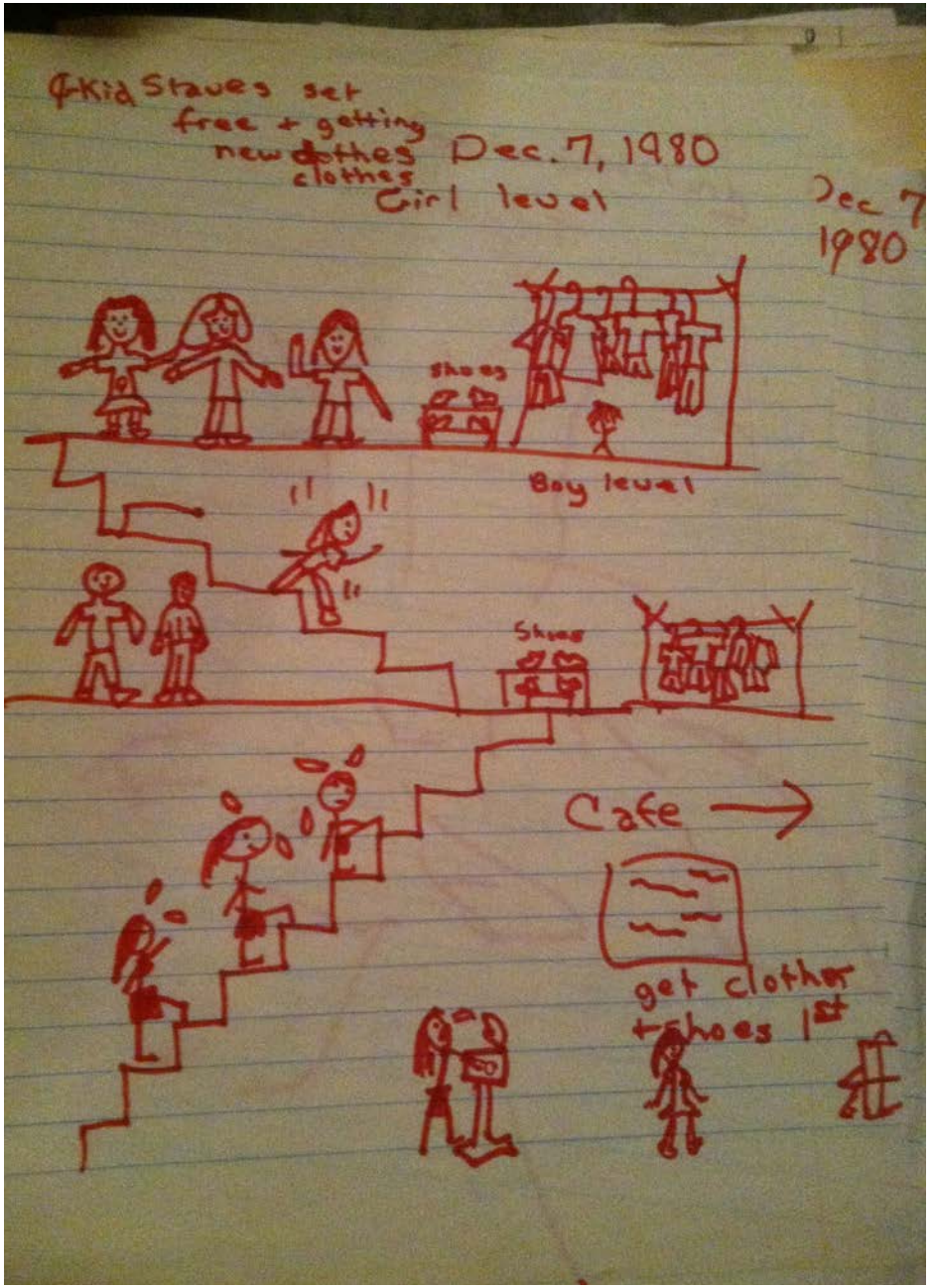
Over time, we become inured to the magic and to the wonder of the everyday. And, by extension, to the wonder of our own existence. I want to shift our perspective out of that rote perception. One good way to do this is to break my audience away from habitual spectatorship, pushing users into participation by re-contextualizing every day themes, and employing what I refer to as *gestural dynamics*.

I use dynamic media to make art that is informed and infused by the everyday. When properly showcased in unusual, aesthetic, and informative ways, the mundane can be transformed into the sublime. Because of the innate mutability of digital media, it is my tool of choice. I can harness the power of digital data and media to craft this kind of transformation and spark a meaningful full-body experience.

The Journey To Now....



We had a large forested backyard. “Three acres!” my parents would boast. It was plenty to get lost in; my sister and brother and I would erect forts, dig up clay, build dams. When things got unpleasant inside, I would retreat outside, into the deep backyard. Armed with a book or at least my imagination, all the ugly emotions would disappear for at least a little while (that is, until the mosquitoes joined me). For any child, it is imperative to connect with the joy and love of life; for me, I found that connection through the quiet beauty of the woods, the companion of stories, and wherever my imagination might carry me.



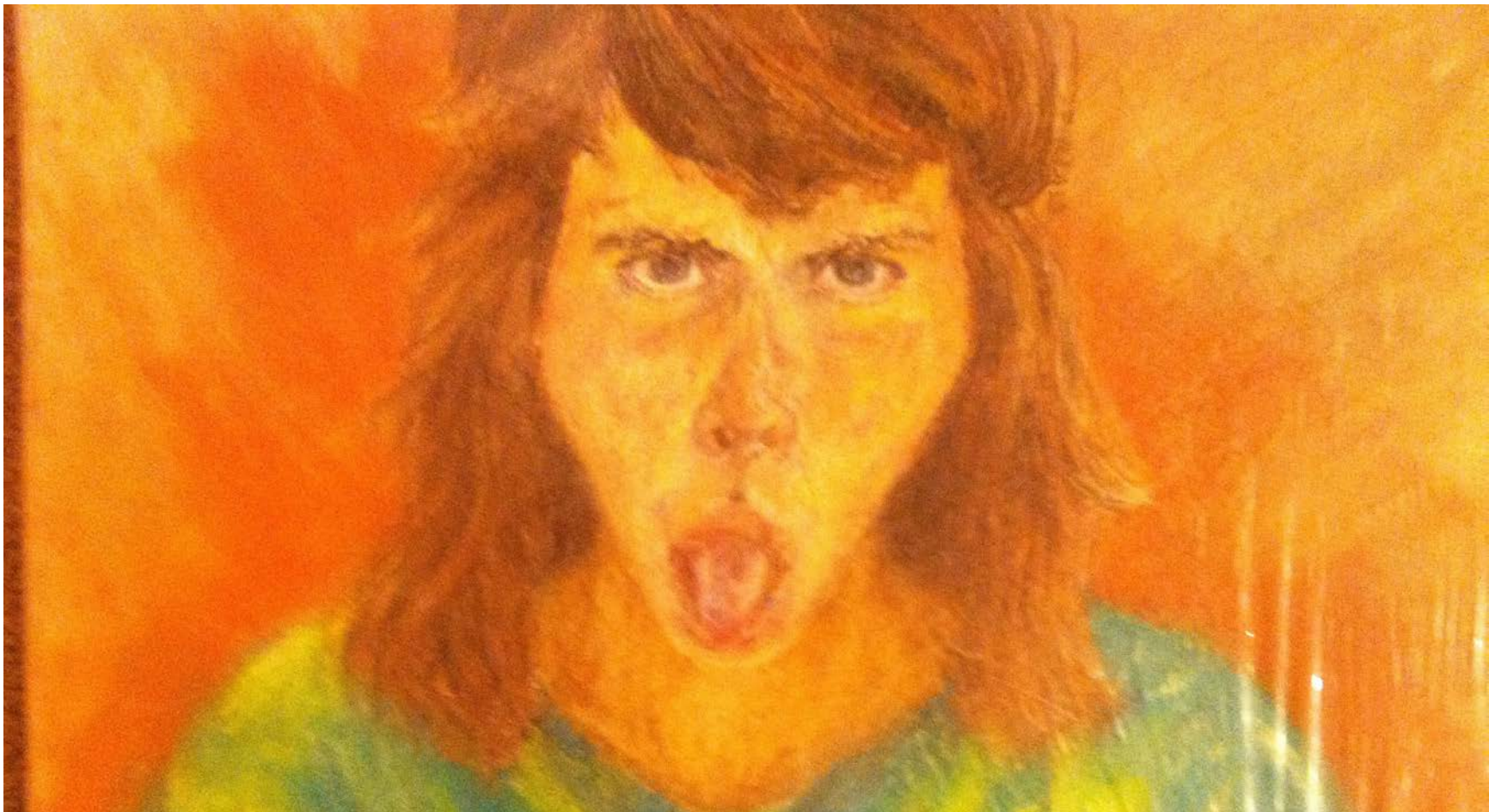
As a young artist, I manifested my thwarted dreams on paper. I made up people and stories about them. *Little Orphan Annie* and *The Lion, The Witch, and The Wardrobe* themes repeated often. In the third grade, I filled a giant notepad worth of cartoon kids whose lives resembled that of orphan Annie's until the proverbial Daddy Warbucks save them and they lived happily ever after.

OPPOSITE: Salvation for the poor starving orphans.
ABOVE: My fourth grade school picture along with the complementary self-potrait. Note the matching outfit at top. I had forgotten the bow, so I had to add it on top. *LEFT:* a sample of the cartoon kids.

Realistic portraits were challenging however, my siblings wouldn't sit for me (what children would?); I was my most accessible subject. Then, adults were sometimes awkward in their response – some of my pictures were provocative. "That is kind of disturbing, Cindy!" I suppose the portrait said what I couldn't. While I was powerless to change my family situation, I could at least express how I felt. "Mark-making" became my primary tool of empowerment.

Through high school, my themes broadened, but fear, escape and victory, heroism ran throughout. People from other times and worlds fought difficult battles. They engaged with truth and conviction and emerged victorious. These protagonists were something special. I wanted to be something special too. I was a strong student and athlete, but I always thought there was something really important I needed say through my art. I sketched, painted, sculpted my way through my adolescent years struggling with the feeling there was much, much more I could say, but how?

High School artwork
1984-1988



Gerome's *Pygmalion and Galatea*

Artists have always wanted to give their creations life. Jean-Leon Gerome's *Pygmalion and Galatea*, Colli Collodi's *Pinocchio*, Crockett Johnson's *Harold and the Purple Crayon* are only a few examples. I also imagined a world in which my creations would gain a life of their own. These creations would communicate the complex emotions I had always carried with me- to say something that really needed to be said.

While I taught myself the point-and-shoot camera for a Girl Scout badge, I didn't fully explore photography and film until my mid-30s. Fortunately, I was right on time to that party: just then digital video was coming of age. As with film cameras, digital cameras capture emotions and situations in a time capsule. However, digital media adds a very interesting dimension to mark-making; there are now more options than ever regarding when and how to unpack that time capsule and what it means depending on how you do it. Digital video opened doors for me that its analog form could not have.

Why DMI?

Let's break this question down. I want to address "Why Grad School," and "Why Dynamic Media grad school?", but also the implicit question "What is Dynamic Media and Why?" It took me three years in grad school to be able to answer any of these questions, so let's begin at the beginning.

If I had to pick a moment in time that would best serve to explain why I decided to go to art school at the age of forty, it would be around two years prior to applying to MassArt's DMI graduate program. Having abandoned my high-paying career as a software engineer, I found myself working like a dog as a production assistant for Adam Sandler's movie, "GrownUps." The pay was nine dollars an hour and the days were twelve-hours or more. I had left my cushy cubicle job to try to be an artist and I was doing this? Really?

The particular moment in question may have been when I was moving a family out of their Gloucester mansion house so that Selma Hayek's family could move in for the three months of shooting (to the tune of $50K a month), or it may have been when I was in "Babies R Us" buying the seventh crib for the actors' children. It also could have been when the head cameraman of "Grownups" appeared to be more interested in intimate handling of me versus handling of the camera. Regardless, the entire experience made me realize a few things:

- Already 40, I was probably never going to direct nor shoot a Hollywood movie.

- I was never going to have as big of a budget as Adam Sandler to waste on as many things as his production company did and still manage to work production assistants to death and pay them complete crap.

- I had software skills that few have, and these skills have always been in high demand.

- Surely in the new digital arena, with video and audio at my command, there was a way to be a filmmaker or visual artist and to leverage my skills as a software developer in order to make something truly beautiful to share with others. Dynamic Media (of course I wasn't quite sure of what that meant at the time) seemed to be a likely solution.

Growing up far too close yet forever on the other side of wealth, at eighteen I didn't dare pursue a career as an artist. Excelling in art classes my whole life, as an undergrad in college I took not one art class other than art history. I had adored every minute of AP Art as a senior in high school, but instead, at Vassar I filled up my time with computer classes, computer lab internships, varsity athletics, and other important recreational pursuits. Clearly, part of the reason I went to art school at forty was just because I had always wanted to.

After graduation, I targeted the fledgling personal computer industry, landing a job three months later. Just out of school, I had an unusually high-paying job at a time the economy had no jobs for my fellow graduates (1992). As desktop computing and its software program sales accelerated exponentially, I did very well for myself. Soon, though, I knew something was still missing. Throughout my software career, I never felt the passion I had for art or for athletics.

The finish of my race at the Pan Am Games. I won a bronze.

Athletics is worth mentioning for at least two reasons: passion and discipline. The software industry did not satisfy my heart, but success in sports did. Making the semi-pro soccer team in Boston and then later making the US rowing team through sheer hard work cemented the confidence in the fruits of hard work and lent motivation to future pursuits. With rowing in particular, it was passion towards perfection of a form that drove me. I now recognize that passion and honor it as a muse. Passion, motivation, hard work, these are the tools one needs to really get anywhere in the world. Luck helps too. And money.

After experiencing that kind of passion and success, from there I could only follow my heart. Hence, I was actually delighted when I got laid off in a merger from my high-powered software job in 2006, and for a few years became a not-quite-starving artist.

I started sketching again. And learned to really paint. The wide spectrum of colors and textures of oil paint could convey the sensitivity I felt about people and places and moments in time. I was fairly good fairly quickly, but it would take some years to get good enough to really figure out how and what I wanted to paint. This wasn't very exciting news. It was very depressing to paint all alone in a studio day after day. I wanted to make beautiful stuff with other people somehow.

LEFT: My nephew Ryley Fuller age 2.

RIGHT: Girl Returning. Here I have formalized a technique that for me captures the essence of decay over time

Finally, one day, there it was, the ad for New York Film Academy Film Camp – right there on the #77 bus blasting by me along Mass Ave. Movie-making was the kind of creative and collaborative process I was searching for, and my pictures finally started to move.

Fast forward a couple of years after that, having produced and shot other people's feature-length scripts for no money, I was moving Adam Sandler's coddled cast into their luxurious homes and getting really annoyed that my brain power was being spent in calculating how many new 'Memory Foam' purchases were needed from Target! It was time to either figure out how to merge my skill-sets or go back to the golden handcuffs of corporate software.

So, there I was, having tried a number of media to create my artistic vision and finding that no one medium was the right choice. Given my childhood pursuits, my general sentiment and having recently taken up yoga, my artistic vision ultimately focused around the need to remind myself – and others- of the beauty and magic

OPPOSITE: Deer Xing, my first attempt at a feature documentary. TOP: Behind-the-scenes for Tickling Leo, produced by Mary-Stuart Masterson and her husband Jeremy Greenburg. RIGHT: The Intensive. This feature will probably never see the light of day due to all sorts of indie problems. A good indie reference: *Living In Oblivion* with Steve Buscemi.

It can take something like an interactive or dynamic medium to focus our collective attention to these small beautiful moments.

in this world. Not the Harry Potter magic, but the every day magic of a human life on earth: the achingly bittersweet paradoxes we all experience.

We will miss most of what happens in this world, but it is a shame if we fail to pay attention to the things that we do have the privilege to experience. An interactive or dynamic medium can focus collective attention to these small beautiful moments unlike any other medium. Sometimes art has to insert itself into our everyday experiences -out of a gallery, off the canvas and perhaps right onto the floor where we are walking. Dynamic media can do this.

Of course, I didn't know this when I was researching grad schools. I wanted to mix all my skills together, to be a raging success and to live happily ever after. I applied to the Dynamic Media Institute at MassArt. It just seemed the logical choice: art and digital media and staying local in Boston. What could be a better mix?

August Summer, 2010. Oil on board.

Ok, so, why Dynamic Media? Why not painting or film?

"[Dynamic media necessitates] a continuing increase in participation which is bi-directional. It provides options, necessitates a change and changes you as you change it". —Mark S. Meadows

After three years studying dynamic media, I think I can answer those other perturbing questions: What exactly is dynamic media and why do you make it? I touched on it previously: an interactive medium involves the audience in a way that a painting on a canvas or film cannot. The term I use for myself is "smart art," or an art form that can dynamically and in real-time interact with its immediate surroundings, its audience as well as external stimuli.

Because the term interactive can be confused with reactive- because people react to paintings and to film, let me qualify further. An interactive or dynamic artwork means that the surroundings and its audience has an integral participatory role in the meaning of the artwork; as such, the outcome is always unscripted. The parameters are therefore carefully but loosely defined (and that calibration is a primary challenge of dynamic media) in order to engender a spontaneous 'conversation' between the work and the audience. Hence, the interaction is dynamic (Meadows, 2003, pp.37).

Furthermore, because the delivery method can sometimes be confused with the design, let me make this clear: digital media is not necessarily dynamic media and vice versa. Digital media is an excellent *tool* for dynamic or interactive media or smart art. A good rule of thumb: ask yourself whether a computer must be involved or would its analog suffice, and then, could that design still be dynamic? Improv and other performative, theatrical pieces are dynamic but not digital, for example. Because of the innate mutability of digital media, and because of my background as a software developer and a videographer, digital media is my media of choice when devising a dynamic interaction.

Plexiglass provides the projection screen outside at the AMP Gallery in Provincetown, MA.

So why dynamic media, or smart art? A number of people have asked me this. At various points along the way, someone asked, "why is this piece interactive? Does it mean something or are you just having it interactive for the sake of it being interactive?" And so on.

First of all, if someone has to ask why something is interactive, a redesign may be in order. However, it may be a sincere question from someone with little exposure to dynamic media who doesn't know where to begin. My answer often depends on the specific installation, but let me give you an example.

Late in the fall of 2012, my collaborator, Martha Bourne, and I had an installation at a gallery in Provincetown MA. It was an audio-video outdoor installation, and we were careful to design it for a residential-meets-commercial space; for example, the audio was not intrusive, was set to a low decibel level, and would turn off when no one was around. Irritated neighbors proffered the question: why does this gallery owner have to invite artists that do new media? Why can't she just hang paintings like everyone else? The town then put the question to a vote on their Article 29: What should an art gallery be?

Here is my response in support of the gallery owner that chose to show our work:

March 20, 2013

Dear Provincetown,

As artists, we are ever grateful for the opportunity to show our work. As interactive artists, we often create site-specific installations that respond to the need of the place and space of the installation.

We were delighted and honored Debbie Nadolney at AMP wanted to host us, and we were excited with the idea of showcasing something very special about Provincetown during the holiday season. *Ghosts of Christmas Past* celebrates this town's rich history and culture by repurposing old footage from the 1940s and 50s. But we do so in what many would consider an unusual way. **With new media, we can repurpose time-based media in novel and surprising ways. We can slow time down, speed it up, or mix it in with the past. Ghosts subverts the viewer's expectation – he is not only a viewer, but he finds himself turned into a ghost himself. In this way, we are able to say something very special about the compression of time, and our longevity as individuals and as a community. No other medium would have been appropriate.**

We recognize that all art has an ideal place and space to be viewed. However, with the movement of the Whitechapel museum of the 60s, Alan Kaprow and the avant-garde, **the idea was to bring art out of the museum, out of the gallery, and into people's every day lives.** This is an important point, and sometimes a difficult one for a community to absorb and accommodate. I am not sure what Provincetown's accommodation will be for art-out-in-the-world, but the Art-in-the-Bathhouse was something that has stood out in our minds as a beautiful site-specific work, and shows that the community can support unusual forms of art given an acceptable-to-many location. *Ghosts* is another such work. We hope that the Provincetown community will determine a solution for dynamic and time-based media that is economically feasible, art forward-friendly and agreeable to most.

Sincerely,
Cindy Sherman Bishop

Setting up the outdoor installation, *Ghosts*, at AMP Gallery in Provincetown, MA. *LEFT:* The black box at the left houses the Kinect camera, and the lamp illuminates the faces of the onlookers. *RIGHT:* the plexiglass screens hang from the porch.

Needless to say, we need to get people excited about how dynamic digital installations can be. There is a need for art out-in-the-world and beyond the gallery spectactorship to which we are so inured. There is a need for smart art, a need for art that integrates its audience in novel, informative, and often transformative ways. Taking full advantage of time-based digital media, the installation in Provincetown was smart and even a bit sneaky with its audience: snapping photos of onlookers as they gestured and played with the old footage and only revealing that it had done so once the users had walked away. It created a unique experience that most onlookers felt was very special. Creating art with digital media harnesses the power of digital devices and digital data and can launch a very compelling conversation that would not happen otherwise.

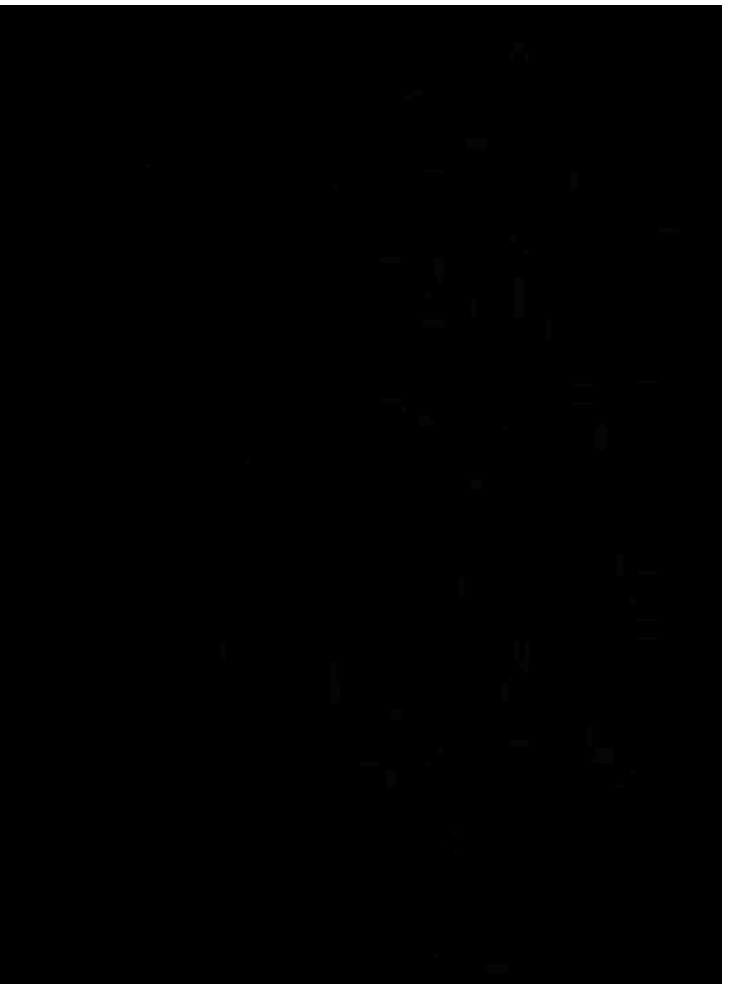
Guidance regarding how to make money with dynamic media can help too. Let me get back to you on that.

Pay attention to the little things, dammit.

In essence, I want to inspire people to consider daily existence in novel ways, ways that will enrich and elevate the mundane. I want to create experiences that do for my audience what my backyard and books did for me. I have something important I want to say with my art, and this is it: pay attention to the little things, dammit. They count. A lot.

It happens over time - we become inured to the magic and to the wonder of that which is common. And, by extension, to the wonder of our own selves. I want to shift our perspective out of that rote perception.

THIS PAGE AND NEXT: Stills from the video I shot of water just streaming out of an old hose. Beautiful, eh?



How do I design such a shift? How do I ensure a John Dewey kind of experience that is in essence a transformation – or a "consummation of consciousness?" (Dewey, *Art As Experience*, 1934, pp.29) How can I elevate everyday experiences and remind you, the audience, in the middle of your hustle and bustle and everyday crap, to take a second, breathe, and see the magnificence that is part and parcel of daily life?

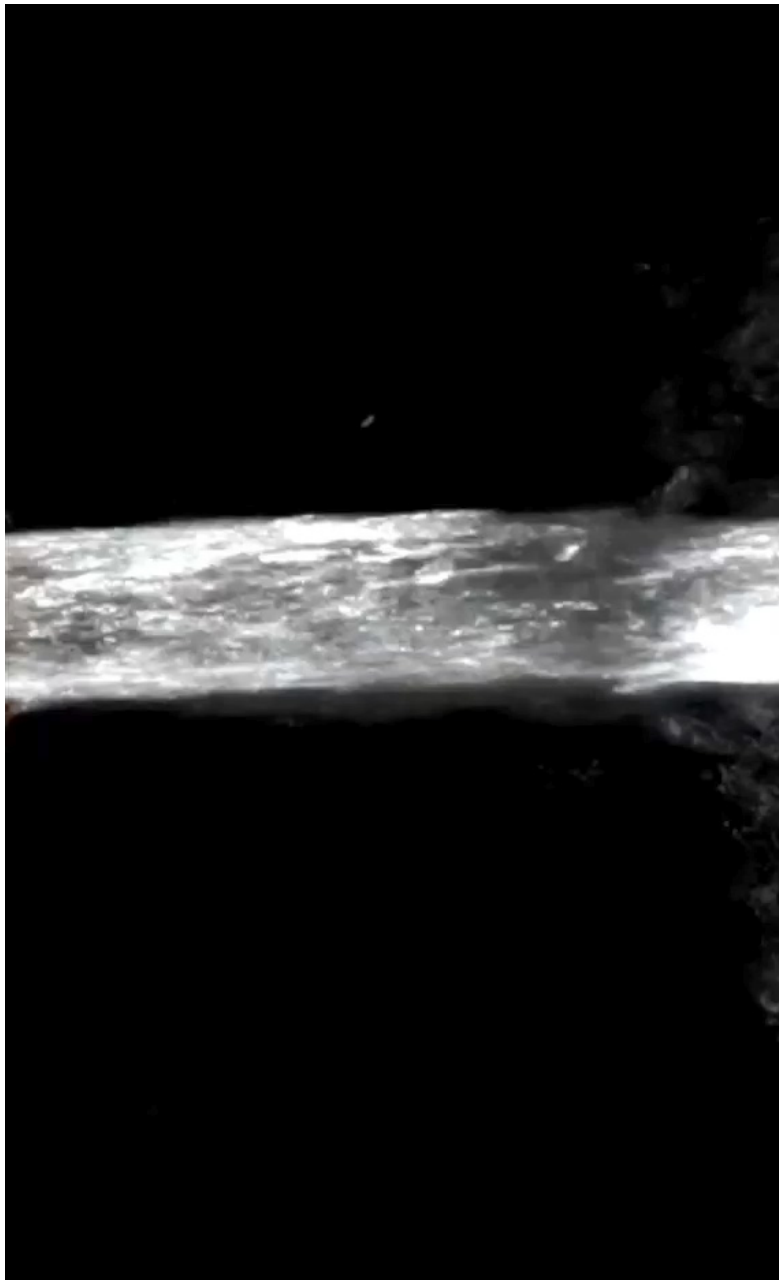
First, I should analyze how daily life is normally represented, and present it very differently. Daily life is driven by fact, by science, by chemistry, biology- all of which is fascinating stuff, but which is often presented in a less that ideal way. I want the experience I design to be informative and aesthetic.

One way to 'change it up' is to employ a technique termed "ostranie", in the spirit of the Russian art philosopher, Victor Shklovsky. Shklovsky stated that "we see an object several times, we begin to recognise it. The object is in front of us and we know about it, but we do not see it". Art "removes objects from the automatism of perception in several ways" (Clark, "*Class Notes*," 2010). I have always been drawn to creating this kind of art. Additionally, because I am wholeheartedly opposed to the didactic, drab kind of installations and interactions that we often see in museums, I'm very intent on creating interactive art in this manner. The desire to present material as clearly as possible usually means it is presented as plainly as possible, and hence is diminished. If I could teach students how to appreciate time with some artistic flair, *a la* Dali and his melting clock, that seems far better than some wall text explaining relativity.

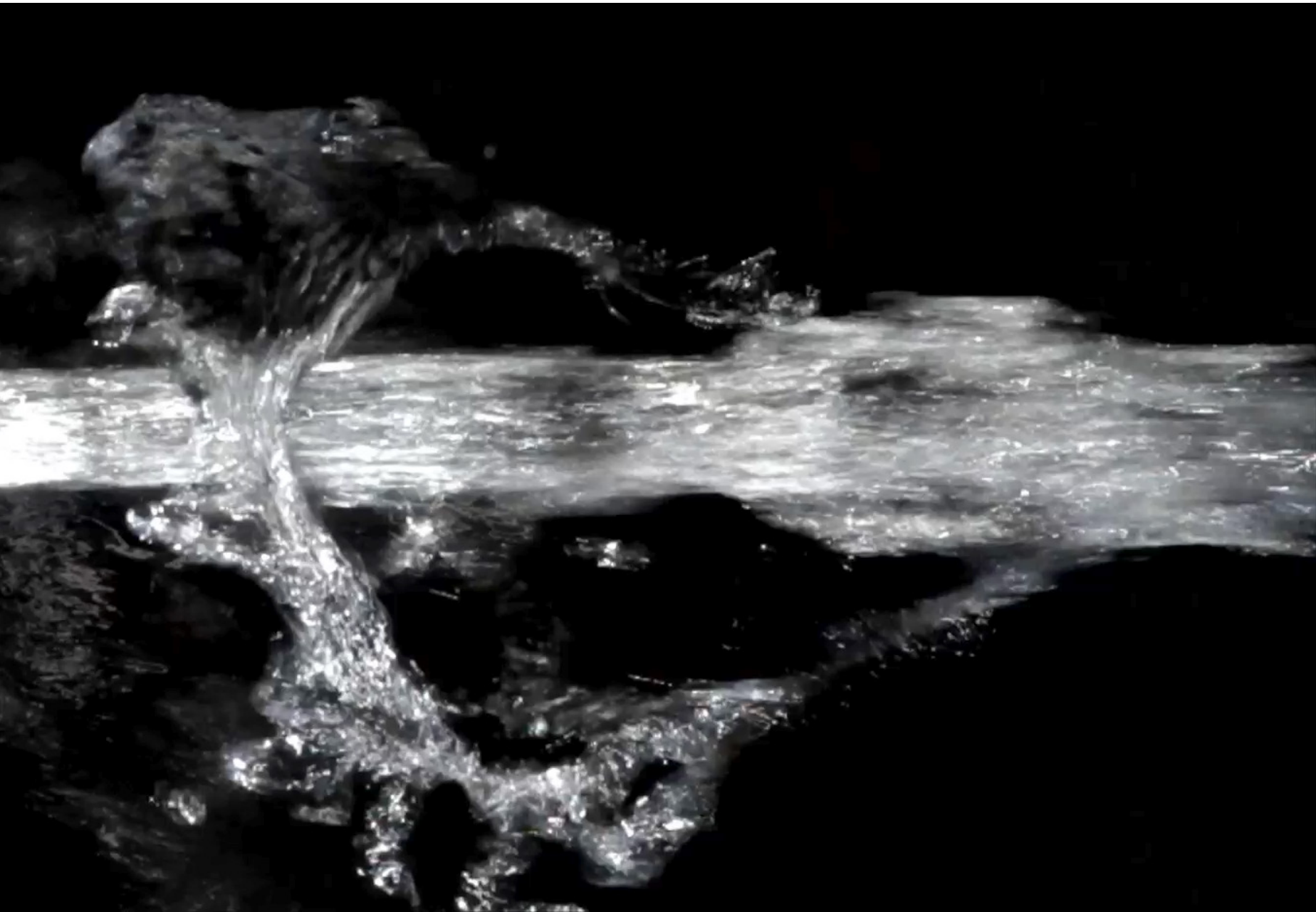
Second, considering how often I am in front of the computer, there is nothing less exciting for me than getting stuck in front of a computer again when visiting a museum. Sticky keyboards and grimy touch screens? No thank you! If I can be encouraged to use my body, my face, my gestures to do something, that is a better way to effect a shift in perception. Designing gestural, immersive experiences,creates a certain kind of dynamic, or gestural dynamics.

Third, the element of surprise, or unanticipated outcome, is essential to any re-contextualization. A scholar of John Dewey noted "It may be well that the most satisfying completions of all are those contained an element of surprise" (Jackson, *John Dewey and the Lessons of Art*, 1998).

Lastly, how can I distill the beauty and poetry of an experience into an experience of dynamic media that really makes people stop and think about themselves and their actions with a self-awareness? One way is to employ reflexive means. To explicitly expose either the artist's intent or the audience's expectation of an experience and then to subvert it in order to say something about the experience itself. As George Mead insisted, "turning the experience back on the person himself," is fundamental to a shift involving self-development and growth. The term he used is to describe this phenomenon is "reflexive," or addressing a sense of self-consciousness (Aboulafia, "*George Herbert Mead,*" 2012).



"The purpose of art is to impart the sensation of things as they are perceived and not as they are known. The technique of art is to make objects 'unfamiliar'." —*Viktor Shklovsky, "Art as Technique," 1960*



"Make it so, Number One"

So, what everyday experiences should I shake up, re-package, make different, and make strange to begin a dialogue with my audience? One that will make a lasting impression? Well, how about taking advantage of one of digital video's best features: the ability to manipulate time? Isn't that fabulous - one of my favorite themes happens to be time-travel!

Unless you are a historian or some kind of daughters-of-the-revolution civil war re-enactment buff, you may not have much sense of the past. Yet, modern society is built on the countless shoulders of folks who came before us. Michel Foucault noted that the history of humanity is uniquely human. (O'Farrell, "*Key Concepts*," 2007) With recorded history, we have a kind of collective consciousness, one that can scroll backwards in time and re-evaluate itself. George Herbert Mead was likewise fascinated by the re-interpretation of history given any new generation or social context. (Aboulafia, 2012) Myself, I am keen on bringing forth a palpable sense of the past in order to inform the present. A long-term fan of the autobiography, I believe it critical to place one's life in context of the many that have come before, and those that have yet to manifest. This is a richness of the human experience that too easily goes missing.

My second favorite theme is water, which also happens to be an excellent metaphor for the flow of time. Water's lifecycle is also a fitting metaphor for that of humanity. Carl Jung heavily used water metaphors to describe the collective unconsciousness, a shared consciousness between all humanity (Jung, *Man And His Symbols*, 1964). He noted that the ocean can represent all that is hidden below the surface, and the origin of all things. I also see how water vapor can symbolize an ascension of the consciousness, rain, a return journey to the source. The elemental and raw force of water is also a natural fit for powerful emotions. Water is also a substance that is experienced on an everyday basis but not with great consciousness.

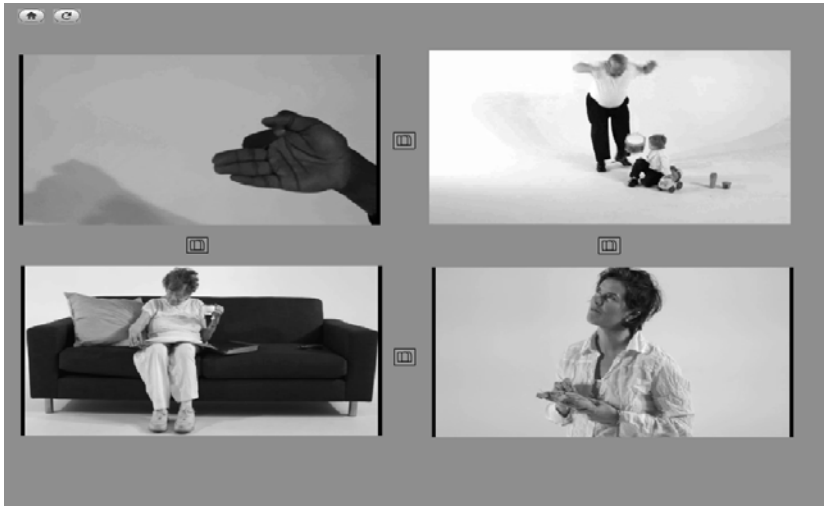
With the advances made in computational fluid dynamics and the advances made by Pixar Inc. and the like, water is an everyday experience I can easily elevate by digitizing it. Digital animations and videos of water can capture the essence of water and so can convey multiple metaphors – I don't need a water park or a real water installation to highlight the beauty of water.

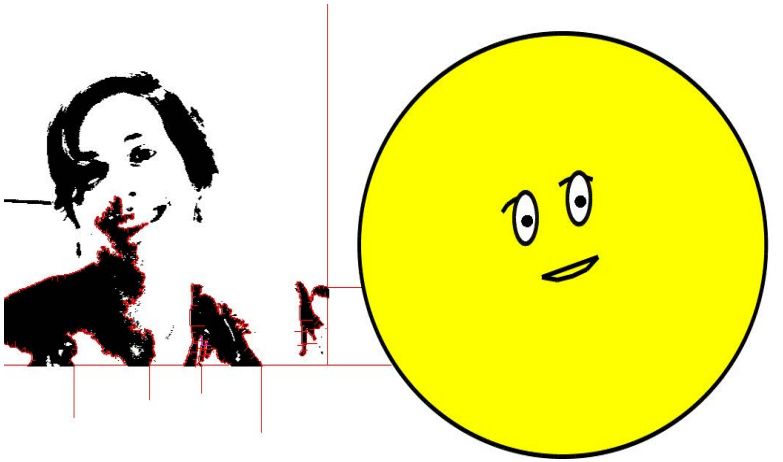
Doubly coupled, water, time and flow, these elements create powerful cases for a dynamic experience and an especially powerful case for digital media. Digital media eschews the

bounds of time and space in a way that its predecessors could not. We have unprecedented means to capture and manipulate time by recording the present via text, song, and image, all on the same medium (Manovich, "*There Is Only Software*," 2009).

Manovich emphasizes how the constant streaming of digital data, its manipulation and its distribution capabilities are game-changers. (Manovich, 2009) Regarding the concept of time specifically, moving video has never been so malleable as it is now in its digital form. The flow is not constrained to a linear progression. Live streaming video in conjunction with old footage makes a form of time-travel possible…. We can virtually move through time and space at any time, anywhere a digital data reader (aka a computer) is located. The possibilities of playing with time in weird, cool artful ways are endless.

Simulations of social interactions also work well within dynamic media, digital video in particular. I can focus our collective attention onto small beautiful moments between people. We can more easily observe the effect our emotions and actions have on others. A simple animated smiley face can have a surprising effect on the moods of





the beholders. A neighbor's actions can really ruin your day. This revelatory nature of dynamic media makes it possible for me to hold your nose up to the magnifying lens, and show the guts of what makes our human life really fascinating.

In these varied ways, I find it very possible to produce the kind of transformative shift I am looking for. We can algoritmically scroll backwards and forwards in time, slow time down and create a laser-like focus on a particular event and bring it to the forefront of our consciousness. We can use digital devices like motion-sensitive cameras to strongly correlate the participant's presence with an interactive installation. Digital video and animation also free us to use all sorts of visual metaphors. We can create interactions that are very specific and therefore particularly meaningful to an audience. Combined with a dynamic interactive capability, these possibilities open a wide realm of participatory experiences that can really effect a change in perspective of the everyday.

Conceptual Framework

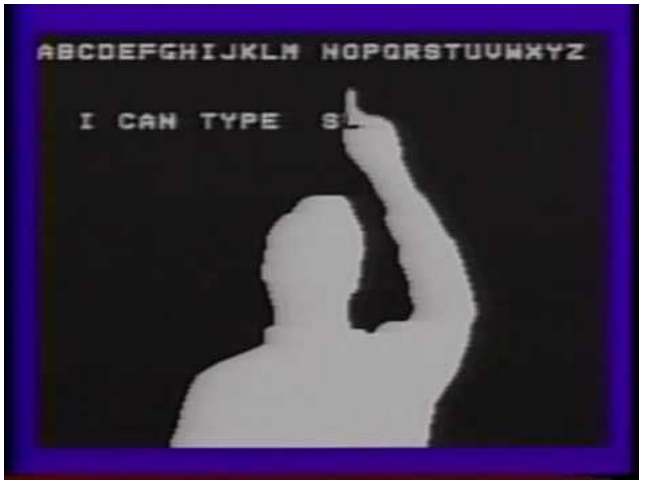
Body Language

As a former athlete, I have always been aware of being in my body. Similarly to Krueger, I have resented being tied to a desk in front of the computer screen for most of my adult life. Hence, I have naturally turned towards gestural and haptic immersive interfaces as a way to free myself – and my audience- from the singular perspective of the screen. It is interesting that conventional 'typewriter' interfaces have ruled our use of computers, especially since enterprising folk like Myron Krueger advocated for a more physical means of computing 40 years ago. Of course, better technologies do not always win out. Krueger's Videoplace (Krueger, "*Responsive Environments*", 1977) featured full-body touch and

"In [the responsive environment], the participant is confronted with a completely new kind of experience. He is stripped of his informed expectations and forced to deal with the moment in its own terms. He is actively involved, discovering that his limbs have been given a new meaning and that he can express himself in new ways. He does not simply admire the work of the artist, he shares in its creation. The experience he achieves will be unique to his movements and may go beyond the intentions of the artist or his understanding of the possibilities of the piece."

— Myron Krueger. *Responsive Environments*, 1988, p370-381.

hand gestures that have only recently (since the advent of the iPhone) been adopted by mass society. This appears to cross-industry and cross-generational – if a certain infrastructure already exists, it is less likely an entirely different infrastructure will win out over a slightly different one.



"I resented that fact that I had to sit down to use [computers], I resented the fact I was using a 100 year old device to operate them. And that it was denying that I had a body of any kind, and that it wasn't perceptual, it was all sort of symbolic. And I was trying to find out the best way of making a computer and I started thinking that decided that artists and musicians had the best relationship with the tools" —Krueger, 1988.

excerpted shots from Myron Krueger's *Videoplace, '88*

THE BOSTON HERALD, SUNDAY, DECEMBER 14, 1941

I chanced upon a *Boston Herald* article from 1941 – a coffee house in Boston had shellacked its bars with old newspapers. The article was written by Edwin Armstrong, the inventor of AC – or alternating current. He explains how AC was a much safer, more cost-effective technology but because the city-wide distribution of electricity was already set up for DC (direct current), it took 20 years to implement a superior technology. Much had to change in order for AC to come into fruition. In countless other ways, superior technologies have not adopted until the systemic issues have been addressed. (The Boston Herald, 1941) This is especially true for computer innovation.

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Inventor Tells

Armstrong Tells of Frequency Modulation and Future Uses

New Method Solves Not Only Noise Problem But Many Others Inherent in Existing System

By EDWIN H. ARMSTRONG

Once in a while an invention is made that overcomes so many of the problems with which an industry has been contending that its methods are quikly recognized as the right ones to follow by those who understand its technical phases. Sometimes the new invention fits nicely

the musical range; that is, instead of transmitting the range of 30 to 15,000 cycles which is required for natural reproduction, the range of 30 to 5,000 cycles is about the limit in present practice.

In addition, this restricted part of the range which is actually

Once in a while an invention is made that overcomes so many of the problems with which an industry has been contending that its methods are quikly recognized as the right ones to follow by those who understand its technical phases. Sometimes the new invention fits nicely into the established financial structure of an industry; sometimes it does not. In the one case, the inventor is met with open arms; in the other, he probably is assured that he really has a very fine invention and that if the art were starting out afresh no doubt it would be adopted, but to re-

The window of Alberti…

Image 1

Surely the reader is curious how the keyboard and the screen came to tyrannize the computing world at the cost of integrating the rest of our bodily senses? If incrementally different technologies (such as the incremental difference between use of the typewriter to use of the computer keyboard) are more readily adopted than drastically different ones (the leap from use of the typewriter to use of the Krueger multi-touch screen), then this visual tyranny is more than happenstance or the result of a marketing strategy.

Robert Romanyashyn and Robert Stam both argue that it is cinematic vision that has immobilized the 20th century viewer, and has separated him from his surroundings. (Romanyshyn, *Technology As Symptom And Dream*, 1989) (Stam, *Reflexivity in Film and Literature*, 1992). Romanyshan and John Berger point as far back as the Renaissance sentiments, to paintings in particular, pointing to the emergence of linear perspective, and to its objectification and quantification of property (Berger, "*Ways of Seeing*," 1972). The rise of the despotic eye, the all-seeing, all-knowing assumption that a linear perspective contrives, manifested because of painters like Giotto in 13th century AD (Meadows, *Pause and Effect*, 2003) and later Fillipo Brunelleschi and Leon Battista Alberti (1436), whose centre point and centric line (the horizon) enabled the viewer to perceive the world as something separate from himself (Romanyshyn, 1989).

Once upon a time, Romanyashyn explains, art was more body-based. Paintings of an urban settlement would translate the sense of the city, how it was to be within its walls, rather than looking at it from the outside. He cites two paintings that convey each perspective of Florence, a fresco in *Loggia Del Bigallo* (circa 1350) [Image 1] as com-

pared to the *Carta Della Catena* (1436) [Image 2]. He notes that the emergence of linear perspective [Image 3] has caused a disconnect in the way the modern person goes about living his life. An immobile eye rules our world, having transformed us into spectators, observing spectacles:"Ensconced behind the window, the self becomes an observing subject, a spectator, as against a world which becomes a spectacle, an object of vision." The cause, he argues, is the scientific mindset that has determined how we interact with the world, and each other. Furthermore, this visual tyranny is anti-body: "In the space of linear perspective vision the body is progressively abandoned." This is problematic as "regardless of the distance which we practice and achieve, we remain in our everyday living situations bodily creates with a carnal knowledge of the world" (Romanyshyn, 1989, pp. 38).

Romanyashyn continues: the scientific method of the Renaissance drove this perspective, which can result in dissonance between the mind and the body. We leave our bodies behind when we analyze (Romanyashyn, 1989).

Much also is to be learned from Robert Stam, who delves deeply into how cinema immobilized its viewer

Image 2

in his book *Reflexivity in Film and Literature (1989)* (I will discuss this further in the '*Let Me Tell You About Yourself*' section). Manovich too, notes "a hundred years after cinema's birth, cinematic ways of seeing the world, of structuring time, of narrating a story, of linking one experience to the next, are being extended to become the basic ways in which computer users access and interact with all cultural data" (Manovich, 1995).

Immobilized, we use the computer. Fixed in space, we see files, information at a distance. It is separate from us. Nowadays with social networks, we are even more at a distance from ourselves – as if we were looking at a mirror a few feet away. We are twice and thrice removed from our bodies the more social media portrays us as spectacle and specimen. This is the kind of spectatorship I want to buck. I want my users to "experience the computer" (Krueger, Videoplace '88, 1988), not to merely use it nor be used by it.

Not only do I want my users to experience themselves in their bodies more so than observing their visual representation, I want to get them to think about how different a body-based experience is. Can I design an experience that causes my users to ask why we typically have outside-in perspectives rather than the other way around?

Image 3

I have noticed something interesting with my immersive installations. While I have been projecting video and animation onto 2D surfaces, which is not anything drastically different than a computer screen, there is a difference in how it feels. I suspect that scale has much to do with this. With a large projection, we can basically insert our bodies into the computer to tell the computer what to do. This *feels* more natural. It isn't necessarily a bad thing that we are visually centered, it is that the screen or visual surface is typically too small to really feel that we are connected to it in an intuitive way. *Gestural dynamics* are the dynamic calibrations and combinations of scale, gesture, and body-based experience that can break the user out of his rote spectatorship.

Given the pre-existing infrastructure of the typewriter, and the rule of immobile eye, it isn't surprising that we have left the rest of the senses behind in the other aspects of our life. But it is unfortunate – the common comparison of Eastern and Western medicine illustrates that much has been lost in the name of an analytical and scientific mindset. I once spoke to a holistic doctor who had this to say about health and disease prevention "our brain was the last organ to evolve. Our bodies are far wiser in many ways that our brain doesn't understand. Sometimes you just have to ignore the chatter of your mind and listen to what your body is telling you."

Regarding time, history and the magic of film….

Ever since I can remember, I have been fascinated with the passage of time and the ability to capture and preserve a moment in time. I've always had a documentarian or an autobiographical bent. In third grade, there was a summer vacation in which I tried to write down everything as fast as it happened [Image 4]. I couldn't keep up. I told my mother what I was trying to do. "Good luck," she said, dryly.

Realizing that the present moment would inevitably leak through my hands no matter how hard I tried to preserve it, I discovered that photographs and film were in some ways better suited than text. A picture was certainly better than a frantic scribble conveying something that could more easily just be viewed. Even better, film contained a magical capacity: the ability to visually witness how things once were. I would marvel for hours at the pictures in my grandmother's house– the ones of my mother and her siblings as little children, then teenagers. How young my mother was, the resemblance between my grandfather's face and certain cousins. Words and books were good, pictures even better.

We all know the principles of how the camera works, it is nothing but the science of optics and chemistry (and now electric impulses and silicone) rather than any voodoo that produces filmic images. It's just that there is a mystical and magical component that results from capturing these images and how it frees them from time and place. Photographs, film and video can capture an essence of a place that has long gone by. It is these sentiments that have inspired and informed my love of history, archival photography, and the *Ghosts* project.

Film and video amplify the passage of time. Sometimes it is shocking how time can be compressed- a certain array of photos or a video montage and people age before our very eyes. Other times, it magnifies the ever-so slow flow of life, a slow ebbing we don't even notice on a day-to-day basis. This is useful, because there is much we don't notice on a day-to-day basis, and couldn't if we tried. No matter how hard you stare, you can't watch grass grow.

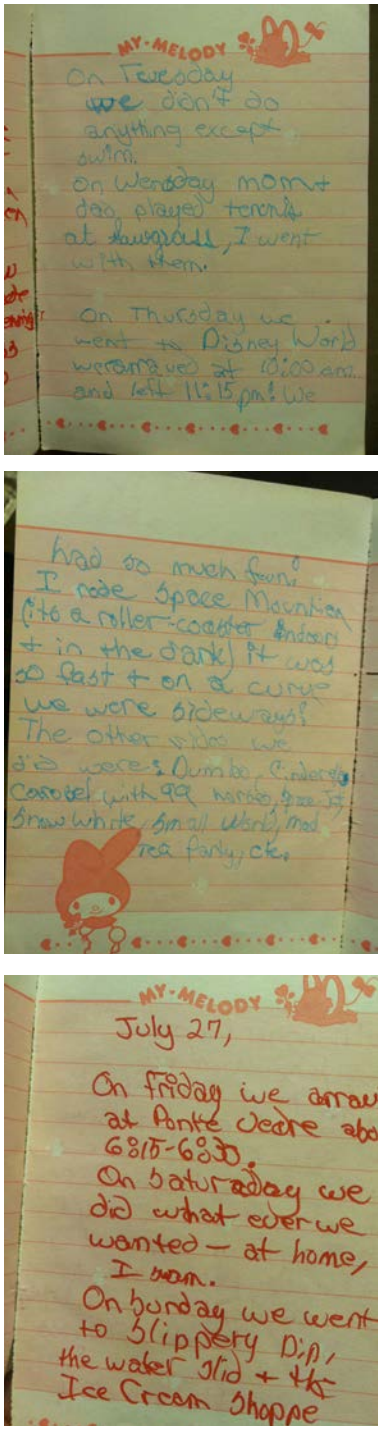


Image 4

"I really want to create systems that use technology but that also draw us back into our present moment in our bodies….Technology removes us from the present. You see everyone on their cell phones and how they are not completely aware of what is around them."

--Camille Utterback

Camille Utterback, Recipient of the 2009 MacArthur Grant

When I first read about Camille Utterback's *Shifting Time* piece (2010), I was both excited and dismayed. Someone was already playing with my idea! I got over that quickly (one must in the art world), and focused on what my particular twist might be. Utterback's piece allows the user to see both 'present' and past at the same time. Her pre-recorded video matches the locations of old film footage so that comparisons can easily be made. I feel that old footage is so valuable- it's as if the past opens up and we can get a feel for how things once felt. The element of motion in film conveys so much beyond a static photograph. It augments and energizes the feel one might get from reading a newspaper or article from that time period.

Stills from Utterback's *Shifting Time* installation at the San Jose airport.

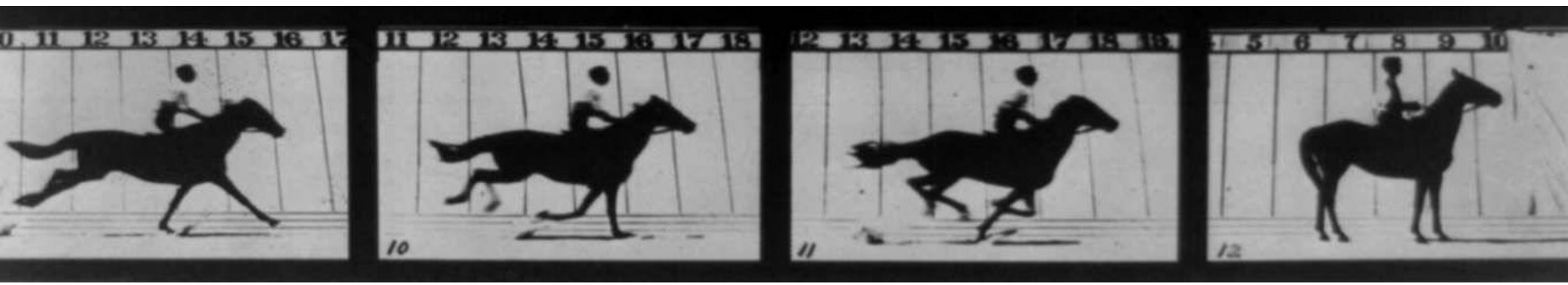
Foucault emphasizes that an analysis of "the events that have led us to constitute ourselves and to recognize ourselves as subjects of what we are doing, thinking, saying" is hopelessly biased as we are bound by the historical and cultural episteme we inhabit (Nielsen, 2011). However, with film and video, we have a chance at chipping away at our myopia. Time-based media enables us to see such things because the playback can be sped up or slowed in order to see things that we couldn't previously. Photographer Eadward Muybridge analyzed the gallop of a horse, we see rainforests unfurl new growth on the Discovery Channel. The compression and expansion of time can open our eyes to information we wouldn't see otherwise. In this case, the distancing afforded by the camera, which sees us as spectacles can be helpful – we can see ourselves more clearly.

TOP: The extended Howell family. Of the two babies in Aunt Mary Adair's lap, my mother is the one on the right. *LEFT (CW):* The nascent Howell family, Arthur, Carrie, my mother Lindy, Speed.

As distancing as the cinematic eye can be, it also communicates powerful and intimate emotions. For me, it is the powerful sense of time as captured through photorealism. Nick Nixon's *The Brown Sisters* is a more recent obsession – I recently spent a disproportionate amount of time during my Museum of Fine Arts visit comparing the aged faces of the sisters to their shiny twenty-something selves. There is something so intriguing and unbelievable about the demise of youth, until you begin to experience it for yourself.

RIGHT: Nicholas Nixon after my sitting for a shoot.
BOTTOM: excerpt from Muybridge's horse sequence.

Upon meeting him, Mr. Nixon told me that what he was doing wasn't any more remarkable than what other photographers doing, just that he was more organized. Perhaps he is more-or-less correct, in terms of photographic skill. However, organization of data, organization of the countless photos taken, especially in these days of non-stop digital documentation, is supremely important. The people that make it easy to sift through these snapshots of time are the architects that are creating a platform for the future viewers to access the past. In this way at least, Mr. Nixon will appear remarkable to future viewers. He was aware of how time takes no prisoners – that we are all subject to its ravages and he had the foresight to create and organize this kind of recording.



Video Artists — Contextual History

When I was researching grad programs, I happened upon a video from a RISD student. Her installation played her video backwards – it featured her walking backwards down a busy sidewalk through traffic. The simplicity of the piece made me scratch my head and say "what?!" Now I get it. I believe she was expressing what Lev Manovich describes as the departure of video from its origin, cinema. The main thrust of cinema was once to pretend "be a simple recording of an already existing reality;" to document real-life events, even if the nature of the film was fictitious. At its source, digital video is more innately free of those artificial ties to reality, the speed by which discrete, non-linear, digital samples are mixed and matched express the freedom from linear, or "human-mediated" time (Manovich, 1995).

Some recent digital video "mashups" stick out in my mind. Editors of digital videos are painting stories and creating songs using their own visual and audio language the way that DJs sample music. A quick perusal of YouTube music videos can evidence this. Snippets are played backwards and forwards, repeated, inverted and so on. Even newsworthy events are getting remixed and going viral as seen in theparodyfactory's remix of Channel 4's interview with Sweet entitled "*Ain't Got Time For That*" (the parodyfactory, 2012).

OPPOSITE PAGE: Sweet Brown.
LEFT: excertps from Pogo's Gardyn.

One particularly beautiful music video blew me away: an artist named Pogo created an audio-visual portrait of his mother from movie clips of her in her garden *"Gardyn."* It wasn't just the sampling of his mother's voice or sounds she was making in the garden or the smooth wide-angle pans of her plants on a bright summer day. It was the result of his particular synthaesthetic. As one of the 1 million YouTube viewers stated: "I feel like i can smell the garden. Like i can feel all the different textures ... the grass between my fingers, the dog's fur, the bark of the tree. Even the vibrations of the shovel when I see it scratching the stone. Every video from you I've seen so far was like a short vacation f or me. Thank you!"

One more favorite I'll mention is Everynone's *"Symmetry."* During my first year at DMI, I designed a prototype website to crowd-source movie clips that highlighted the wonderful moments in life. A classmate pointed me to this beautiful video which juxtaposes the spectrum of life experiences: birth, death, joy, grief, youth, old age. It is a masterful showcase of the time-travel inherent in video. This video won all sorts of awards, including the 2012 Vimeo award. I obviously wasn't alone in my appreciation. An observer wrote:

"Always able to take the regular, and make it special. Bravo. Again."

Here was an excellent example of elevating the everyday. As I learned more about what it was to design a dynamic experience, I used this video as an example: in what ways could interaction add to what was already a powerful experience?

excerpts from Everynone's Symmetry

Compression of space and time

It is somewhat ironic that while the cinematic tradition immobilized the viewer, the medium itself enabled her to virtually travel through time and space. Now, with the rise of modern media-enabled personal devices, the viewer is no longer immobilized if yet still screen-bound. Yes, "time-travel" still has its limits- we can only 'travel' from the present backwards. Even still, the modern day and its devices provide a staggering ability to experience phenomena in a compressed format. Today, if you query the Picasa Face Movie online, you can



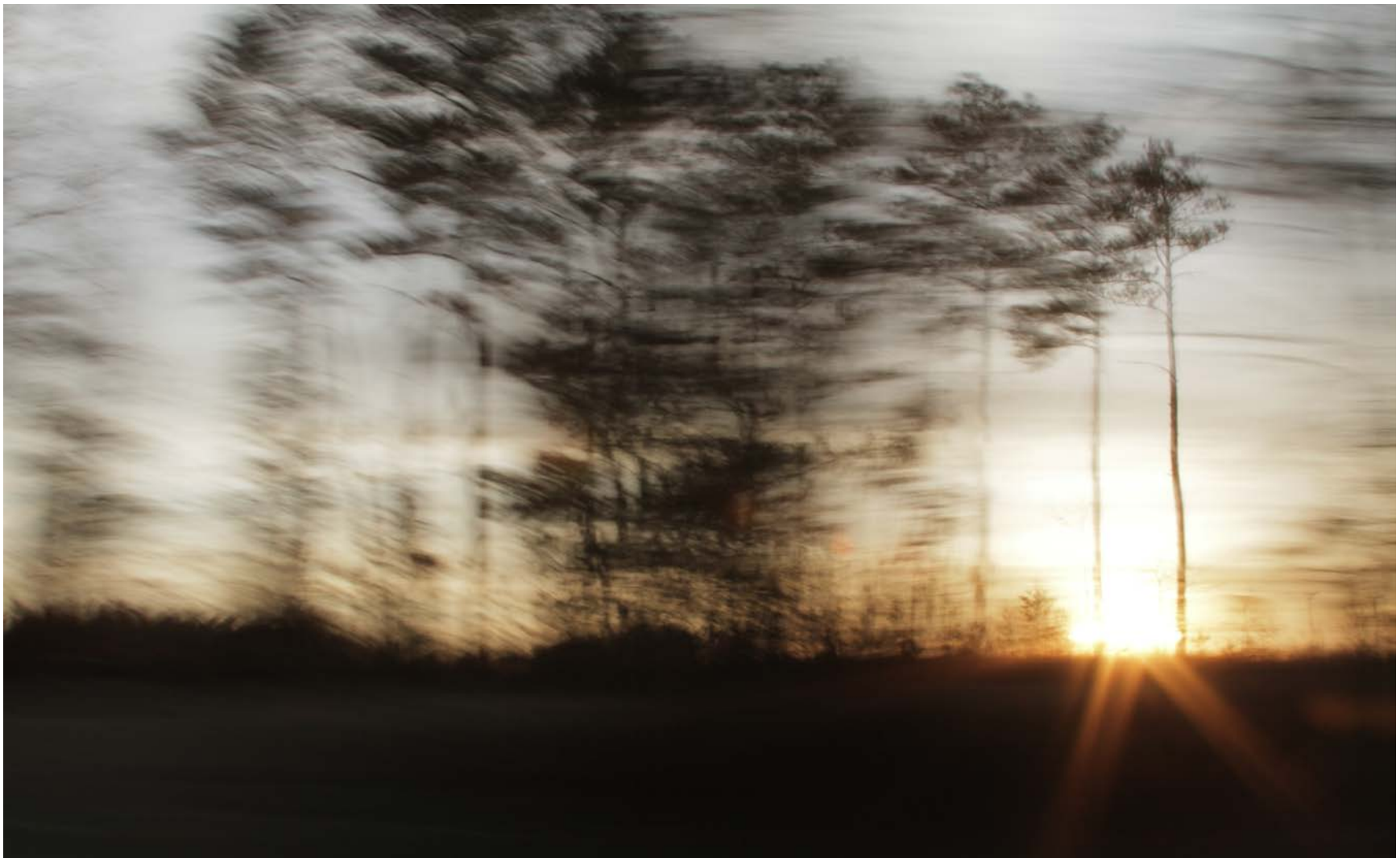



witness the birth and life story of someone you may never met in person within a span of a minute. Going forward, we are witness to the first generation whose daily activities have been documented en masse ever since they were born. We are able to view someone's entire life, perhaps even our own, in the matter of minutes. What are the sorts of things we will notice when watching a life fly by in a few minutes or even seconds? What sorts of things will we miss? Will we become too much of a spectacle, as Romanyshyn warns? Will there be too much data, too many recordings to garner compassion for every tiny but fierce life?

Assuming the digital world exists far into the future, our descendants will be able to 'spend time' with their deceased ancestors on an unparalleled breadth and depth. Facebook, Shutterfly, LinkedIn and counterparts – should these networks exist in the future, will make a very interesting case for digital personas existing far beyond their counterparts flesh-and-blood. Are these emerging possibilities forerunners of those science fiction's computer personalities, such as The Neuromancer's matrix in which a consciouness can be stored cyberspace's core operating system (Gibson, *Neuromancer,* 1984)? I suppose only time will tell.

Dziga Vertov foretold as much when he wrote his manifesto in 1929 (Vertov, *The Kino-Eye*):

"free of the limits of time and space, I put together any given points in the universe, no matter where I've recorded them. My path leads to the creation of a fresh perception of the world. I decipher in a new way a world unknown to you." --Dziga Vertov, 1929



Celluloid was a game changer of enormous proportions, primarily because it changed the way life was remembered: memories were recorded in a definitive, visual way. It changed the way we told stories, how we saw ourselves, how we considered time and space and the relationship between the two.

Now as digital media replaces celluloid, the compression of time and space is even greater because the rate at which life is recorded and referred to has accelerated. Should we be concerned? MIT's Sherry Turkle sure is. But Turkle has a doctorate in sociology from Harvard and it's her job to evaluate the affect of new technology on society. Now, even your average fashion rags are concerned. Last month's Vanity Fair (Febuary 2013) featured an article which stated that people in leadership positions seem complacent regarding the massive social changes arising from the rampant technological innovations. While further discussion exceeds the bounds of this paper, let's take a moment to examine a tiny sliver of how we bend time and space as far as digital photography but more specifically, cinema, is concerned.

In the beginning, the primary intent of photography was to represent reality as accurately as possible, coining the term photorealism (Manovich, 1995). The beauty of capturing time on film is best articulated by Marvin Heifferman:

"Every photograph that captures a moment in time simultaneously documents its passing. As a result, every snapshot is both wondrous and sad. Each is a touching reminder of life and of our inevitable disengagement from it" —Marvin Heifferman

Me, my sister, Callie, my brother, Ken, and my mother, Lindy in St. Augustine, Florida 1981.

"Gradually, cinema taught us to accept the manipulation of time and space, the arbitrary coding of the visible, the mechanization of vision, and the reduction of reality to a moving image as a given." —Lev Manovich, 1995

Cinema followed suit – also adhering to linear or "human-centered" (Manovich, 1995) time. However, digital cinema's innate ability to jump the confines of traditional story-telling is not just a game-changer, but a different sport altogether.

It is truly wondrous to be able to capture precious moments in time in this way, but it is worthwhile to consider the ramifications. We can capture images that seem to represent reality, and use them in a multitude of ways, completely out of context with their origin. As much as photographs and film can document and record, the converse is unfortunately also true, they can confuse and obscure. Propaganda and scandals have abused the cinematic vehicle ever since the medium was created. A contemporary of Dziga Vertov was Leni Riefenstahl, filmmaker and propagandist for Adolf Hitler. Her film "*Triumph of the Will*" was funded and employed by the Nazi dictatorship to propagate fascist ideology (Riding, *The New York Times*, 2003).

Most art attempts to persuade in one way or another. It is up to the viewer to observe with a critical eye. Without skepticism, deceit is exceedingly possible today in our digital mashed-up world, where simulations of reality are indiscernible from true reality. By this I mean reality in the Lev Manovich sense of the word: that what happened in front of the camera, or "live action footage" is indistinguishable from that which never did – or anything created through animation software or the like (Manovich, 1995). However, I think it has become increasingly hard to fool the experienced viewer. Most of us operate by this general rule-of-thumb: if the content appears incredible, then it probably is.

As Lev Manovich says, "cinema, over the course of the last hundred years, has taught us to accept its particular representational form as reality" (Manovich, 1995). In some cases, we even willingly allow ourselves to be deceived: most of us do not believe that the stately three-masted 100-foot ship of the *Pirates of the Caribbean* was engulfed in a giant boat-swallowing whirlpool that the film crew just happened to be able to capture that day, but our eyes saw it happen. Our eyes can no longer distinguish the digital simulation from cinematic photorealism, although our brains usually do.

Simulation seduction

> “The charms of spectacle transform us into wide-eyed children, astonished by lions we know to be illusory”
>
> –Robert Stam

With digital video’s ability to not only simulate reality, but to map time onto two-dimensional space, where it can be “managed, analyzed and manipulated more easily,” (Manovich, 1995) we find ourselves in the curious place of creating new realities. John Berger states “The invention of the camera has changed not only what we see and how we see it, we can have it any size, anywhere, for any purpose. “

In “What is Digital Cinema”, Manovich predicts the demise of live-action footage and the privileging of digital simulation.

> “It is hundred years later [since the advent of the camera] and the simulation techniques are fully perfected. And it is becoming clear that it is ultimately more advantageous to simulate the world than to film it directly. A simulated image can represent non-existent reality, it can be endlessly modified, it is more manageable, and so on. Because of this our society will try to use digital simulations whenever possible”
>
> –Lev Manovich, 1995

What is happening as we become desensitized to simulation, as we sacrifice authenticity for convenience and more satisfying experiences? Sherry Turkle, in “Alone Together” (2010) writes of her shock that children – including her own – expressed preference for robotic turtles over the real Galapagos tortoises at the American Museum of Natural History in New York. The real tortoises did not perform on cue, and their habitat was aesthetically unappealing (their tank was dirty). The importance

ABOVE: A Disney episode of the children's animated tv show *Aquanauts* (2013) features an animated shark, but at the end of the show reveals its real-life counterpart.

of the original flesh and blood animal was subordinate to the desires of the audience. Turkle's answer: proceed slowly and with caution before we lose sight of what it is to be alive for the sake of a spectacle.

False immortality

We cannot physically go back in time. We cannot grow younger, we cannot change past events. But with photography and film we can see them and experience past events here in the present. Does this create an unrealistic sense of immortality? Do we lose sight of how truly bound to time and space we are – we do still all grow old and die, after all? What is the point of these voices and images from the past? Should we spend so much time recording ourselves for posterity's sake rather than living in the moment? Is the proof of how something once was, or how we once were, quantifiably useful?

We may mimic Icarus and fly too close to the sun, but the view that flying affords – or in this case, technology – is one that doesn't have to end in tragedy. The perspective of Alberti's window can inform the heart as well as the mind. Vonnegut is right – we are going to repeat the past whether we know about it or we don't. But arming ourselves with self-awareness is bound to deliver a richer experience (Tally, *Kurt Vonnegut and the American Novel*, 2011). Whether it is political maxims from Macchiavelli or pictures from our grandmothers, our lives are enriched and aided by those who have gone before us. As long as we teach ourselves to critically examine the source, the capacity to peer into the pastshould be nothing but a boon to our humanity.

Rescuing the past

Some of the reasons I have a deep connection to Provincetown, Massachusetts is its tall lonely dunes, its deep back woods and the deep history it contains. I know it to be a place of relative mystery, wild, beautiful and somewhat desolate in its vast dunes and scrubby pines, once occupied by a native people we know little about. When walking about the quieter places, you can almost sense this. Then came the European settlers and great conflict; we can just barely glimpse them, there they are, in etchings and paintings, Governor Bradford, Chief Massasoit, and the rest (Philbrick, *The Mayflower*, 1995). They sit on the far horizon–through 350-year-old media - these people responsible for the ensuing wars and the founding of the United States. Later, Provincetown became a busy whaling and fishing town, its bay so full of cod the land was named after it. Coming more into focus through the new and clean crisp lines of 20th century photographs, a community of artists settle in, including Ralph Waldo Emerson, Charles Hawthorne, Emily Dickinson. In the latter part of the century, attracted to the vibrant arts scene and the liberal sentiment of the populace, gay men and women joined the residents in town and pushed its growth in yet another direction.

There are so many secrets hidden away there, stories in the architecture, in the very dirt of the land. For example, many of the houses are still original to the time that they were treated by their ship-wielding owners as ships themselves, being floated across the bay for relocation. Truro's Corn Hill so named because the Pilgrims stole corn from the native Americans, they were so desperate for food (Philbrick, 1995). Very rarely, a gold relic will reveal itself ashore, from the pirate ship, *The Whydah*, that sunk offshore in 1717. These hidden secrets spark my imagination. What's great is that starting around 1850, there were many secrets captured in photographs and old film footage, and when we look at them or watch old films, we get to time-travel back into these forgotten times.

ARTISTS AT WORK, PROVINCETOWN, MASS.

- About 1916 -

Cape Cod Times — Summer Preview '78

Artists now flock to Provincetown — thanks to Hawthorne

By SUE MELLEN
Special Writer

PROVINCETOWN — "One photographer compared the light in Provincetown to that in the desert in Arizona," said Ben Brooks, archivist (historian) of the Provincetown Art Association.

For almost a century now, artists have flocked to Provincetown to paint in that clear light, reflected in surrounding waters, and to represent the beauty of the land that juts into those waters.

Though some painters had begun to work in Provincetown in the latter part of the 19th Century, it was really Charles Hawthorne who gave birth to an adhesive artist colony in Provincetown with his establishment of the Cape Cod School in 1899.

According to Brookes, this "propelled Provincetown into existence as an art community and attracted other artists."

"Once it starts, more and more people come. It is difficult to work in isolation," added Bob Rodgers, Association conservator.

Hawthorne grew up on the Maine coast and was thus comfortable in Provincetown's seacoast atmosphere. He was generally regarded as a good, if demanding teacher.

He was almost neurotically concerned with the use of color and shading, and his critiques of students' use of these elements were rumored to be unmerciful.

Brooks and Rodgers used the words "figurative" and "representational" to describe Hawthorne's work. The terms refer to his tendency to paint the world as it truly appeared, in contrast to the more interpretive forms we associate with art of recent years.

Hawthorne and his school attracted, in the Pre-World War I period, other highly regarded figuratives such as William Paxton and Richard Miller.

Perhaps the most famous of the Cape figuratives, though, was Edward Hopper, famous for the stark beauty of his bleak landscapes. For years he thought Cape landscapes "too soft" to paint in his style, so never became prominent on the Provincetown scene until the 1930's.

George Elmer Browne and E. Ambrose Webster established two of the six art schools that flourished in the pre-World War I era, rooting Provincetown more deeply as an art community.

"Provincetown was one of the earliest and most important (American) art colonies," said Brooks, "mostly because of the people who were here."

Webster, whose contemporary Ross Moffett described him as "the pioneer of modernism" was the advance guard of modernists. Moffett and Karl Knaths followed during the twenties.

Another prominent painter at that time was Edward Dickinson, who kept more in line with Hawthorne's school, supporting traditionalism.

In the Twenties and Thirties, a split developed between the two factions in Provincetown as evidenced by differences between the most prominent artists at work.

Between 1926 and 1936, the traditionalists and modernists held separate Association shows, departing from the tradition of a single annual exhibition dating from the group's inception in 1914.

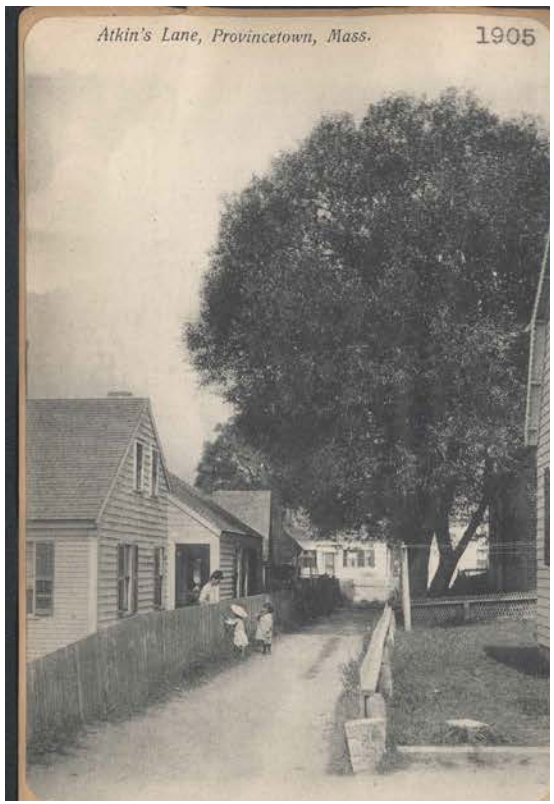
"It was an exciting place to be at the time. There was lots of ferment and discussion," said Brooks.

For almost two decades following World War II, Hans Hoffman was the major artist in Provincetown. He came from Germany to teach in California in the Thirties and was warned by Hitler not to return if he continued his projects.

He eventually found his way to

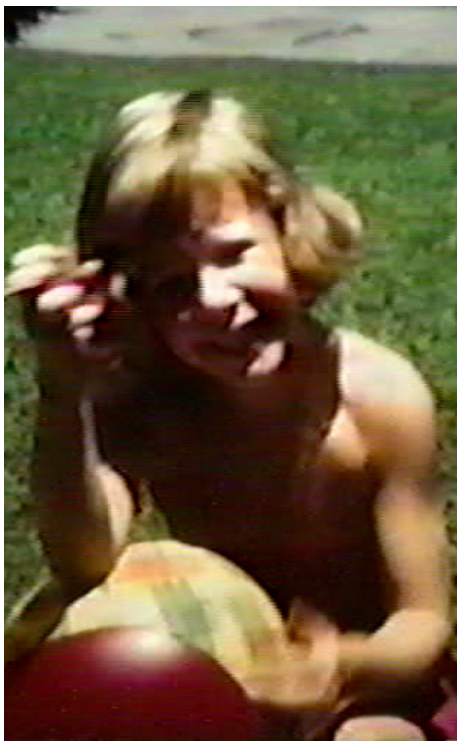
OPPOSITE: Dunes of the outer cape, Provincetown, MA.
LEFT: Provincetown Graveyard.
ABOVE: Excerpts from the Althea Boxwell Scrapbook Collection of Provincetown.

Written biographies and auto-biographies are special, but I think for many of us, it is even more amazing to see the past in action. I had read Mary Heaton Vorse's account of Provincetown (Vorse, *Time And The Town*, 1910) front-to-back. She richly describes many sections of the small town that are still virtually unaltered today, and she includes pictures and old postcards. I could compare the static shots and marvel how different or very similar it was then to now. But when I obtained old Provincetown footage from the 40s and 50s for *Ghosts*, I had found a small treasure. Not only could I compare photos of this house or that road, I could see people, their expressions, the way they too were enjoying the special sun of a Provincetown summer. Look, there are those ladies in their big hats painting a model over there on Atkins beach. Look, in that old postcard, there's the summer house I rented last summer. I can see the roadside is dirt where it is hard concrete now. Two little girls are in their summer petticoats, playing.



Excerpts from the Althea Boxwell Scrapbook Collection of Provincetown.


PROVINCETOWN



COUNTER - CLOCKWISE:
My mother, Lindy Howell, at age 2, age 7 , age 9
OPPOSITE PAGE:
my mother, age 30, and present.

Imagine how I felt when I found the old film footage of my mother and her siblings from 1946 and later! I could witness a life I had only ever seen in photos. There's my mom, two years old, with a blond shock of hair, staggering around like a drunken sailor with a necklace clutched in her chubby hand. There she is at 9 years old, knobby-kneed, feeding her pet goat (that her mother gave away because the goat had an appetite for her flower garden) . It was a wondrous treasure.

Video can capture a time like no other medium. Hence, when I create art with digital video, and then use algorithms to manipulate that digital video, I can create a very special experience.

Storytellers and bards were once the primary custodians of past secrets. With the advent of alphabets and writing, texts and books enabled anyone who could read the ability to not only communicate important current ideas such as religion and politics, but to document them, and enable future viewers to effectively reach into the past for them. However, these forms of documentation did not have the kind of affect the photographic image did regarding legitimacy for how something once was. Lev Manovich would agree: a photo truly says more than words ever could.

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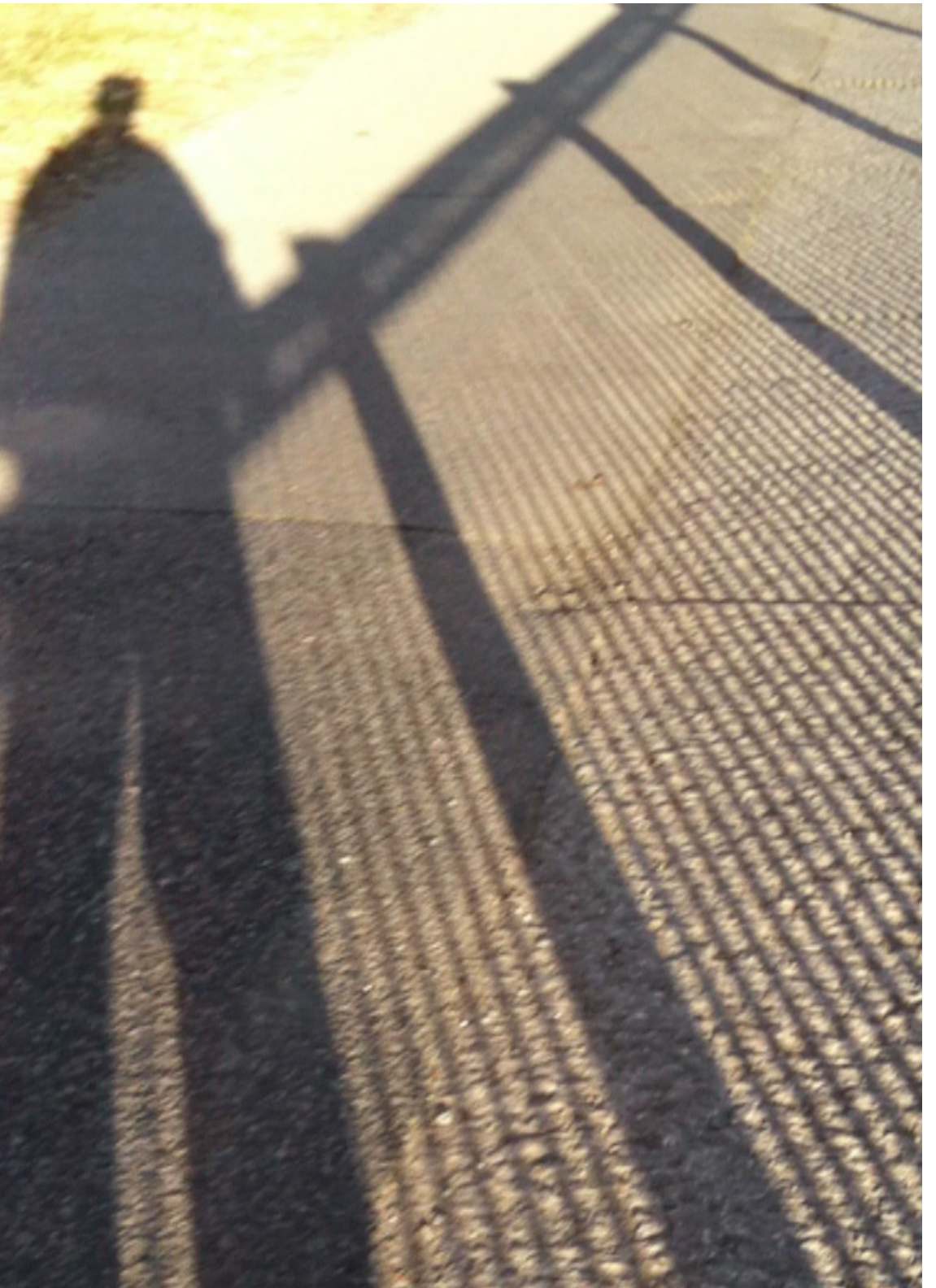
Let me tell you about yourself…

My friend Mimi teaches middle school. She has a great energy for these kids, and can meet them halfway, straddling the world of the adult and of the child so the kids both trust her and listen to her. One of her favorite sayings, when a kid is misbehaving, is "Don't make me hafta to tell you about yourself". When someone "tells us about ourselves," it may not be something we enjoy, or necessarily want to hear (unless it's praise) but something that we probably need to hear. Reflexive works can be like that. Not always pleasant, but important for self-growth.

Reflexive revelation, or reflexivity can mean a lot of things depending on who you talk to. George Herbert Mead, an American Pragmatist, from the early part of the 20th century, provided what seems to be the most succinct definition for reflexivity that makes sense to most people even today. Turning an experience back on oneself is key to one's sense of self, or her self-consciousness. In film, reflexivity is a technique to create an explicit correlation between the narrative and the viewer. Robert Stam eruditely analyzes Hitchcock's use of reflexivity in *Rear Window* (1954), explaining how the wheelchair-bound protagonist, L.B. Jeffries, is the epitome of the modern cinemagoer- someone who is immobilized in his seat. He prefers passivity and spectatorship over involvement and action – he is complicit in his role as spectator and also spectacle (Stam, 1998).



How do I get my audience to a) identify in what ways they are in the proverbial wheelchair and B) get them out of the wheelchair and from behind the glass? What better way than to incorporate him into the piece itself? Or, as Mead says "turn the experience back on the person himself."

Film and video are perfect conveyances of reflexivity. I can turn the experience of the story back on the viewer, I can expose artifice by literally pulling the camera back and exposing the constructs of the scene. I can subvert the viewer's expectation of the narrative by anticipating what she would expect, and then doing something tangential to that expectation. I can slow the video down, repeat it, speed it up, flip it backwards. I can bend time and space in order to show you something I think is important. Furthermore, Manovich explains, digital video is more flexible than film, because the cinematic image can now be simulated (Manovich, "*What is Digital Cinema*", 1995). Does this make

Interactive art

Many interactive artists can use the computer to break out of the constraints of Alberti's window, or out of the spectator/spectacle dynamic. Getting people to act more like people rather than machines gets us closer to creating that shift in perspective. If they are using their bodies, their faces, to interact with the system, it is most likely a more effective experience than operating with a mouse or a touchscreen. When we make way for a more intuitive Human Computer Interaction (HCI, we provide an experience that is more authentic. When we have more authentic experiences, we are less spectator and spectacle. We are more in our bodies, coming closer to a self-expression is less analytical and arguably more memorable.

Chris O'Shea

I learned of Chris O'Shea's Audience [at *LEFT*] my first year at DMI. I watched the video over and over, enthralled that someone could and would create art like this. Since then, it has symbolized the best of dynamic media to me. It is innately reflexive- the "audience" is made up of little robotic mirrors that exhibit human interaction. It is playful and entertaining – the mirror's swivel as the camera eye tracks the humans moving in the room. It is also aesthetic.

"I use technology to make the unimaginable come to life. Inventing new approaches that explore play, human behavior and engagement through interaction design and the visual arts." --Chris O'Shea

Katarina Cizek

Katarina Cizek's "Out My Window" (2010), broke new ground as a tour de force in interactive documentary. No filmmaker nor director had accomplished anything like it before. When I had the opportunity to interview Gerry Flahive, Executive Producer at the National Film Board of Canada, he concurred wholeheartedly. This masterpiece (sponsored by the NFB) is to me the true artful experience of the kind which Dewey wrote.

For starters, Cizek did not treat this new project as an ordinary online video project. Rather, she wanted to create "a collage of meaning, of experience... Leaving room for interpretation, for the unspoken, the unsaid, the private, the personal." Such a collage could be ascribed to McLuhan's "cool" media (McLuhan, *The Medium Is The Message*, 1967), or that which leaves room for inference, and requires "intense participation" on the part of the observer. She writes "the idea was simple: to build a virtual high-rise, with each floor housing a different global city."

One cannot help but be reminded of the movie I mentioned earlier- Hitchcock's Rear Window. Engaging us with this initial, complex yet simple metaphor of the spectator, it is easy to engage into the initial stages of the "movement" that Dewey insists is fundamental for creation of "an experience." The role of the voyeur is a societal phenomenon (Howe, 2008), and by offering the viewer a privileged position from which to begin discovery of the inhabitants of the monolithic high rise, the invitation is a strong one.

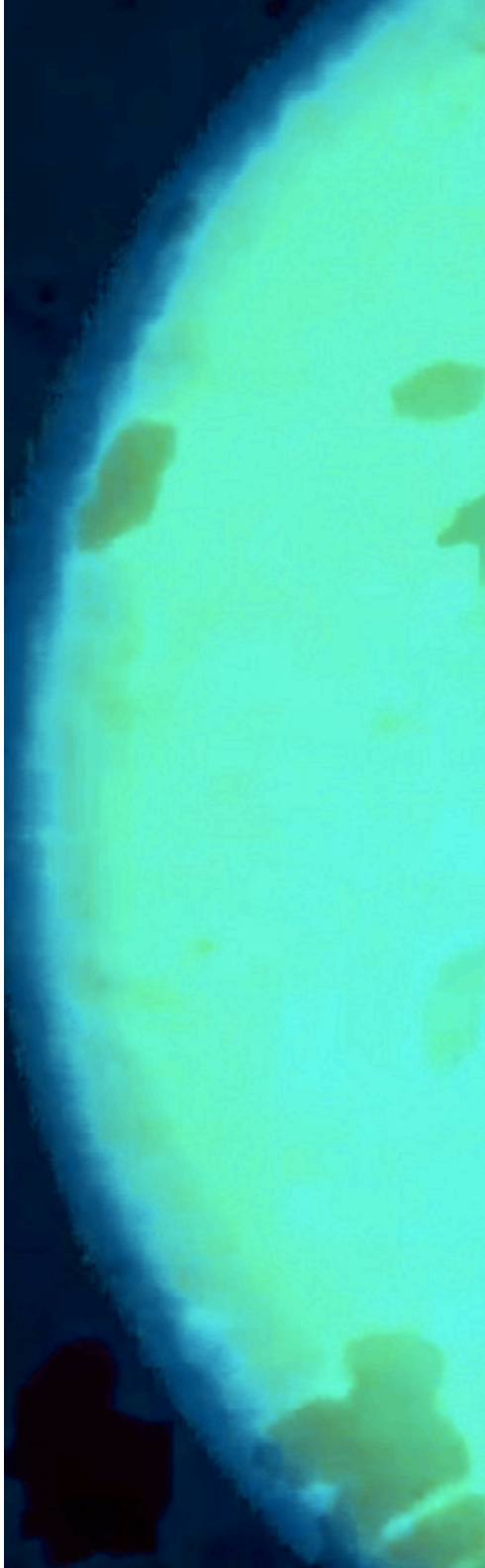
digital video merely another version of animation, which in turn is yet another form of painting? Not entirely. Because of our predisposition to regard film and video as somehow more authentic, there is a unique role the moving picture can play, especially in terms of seeing ourselves as the spectacle in thought-provoking ways.

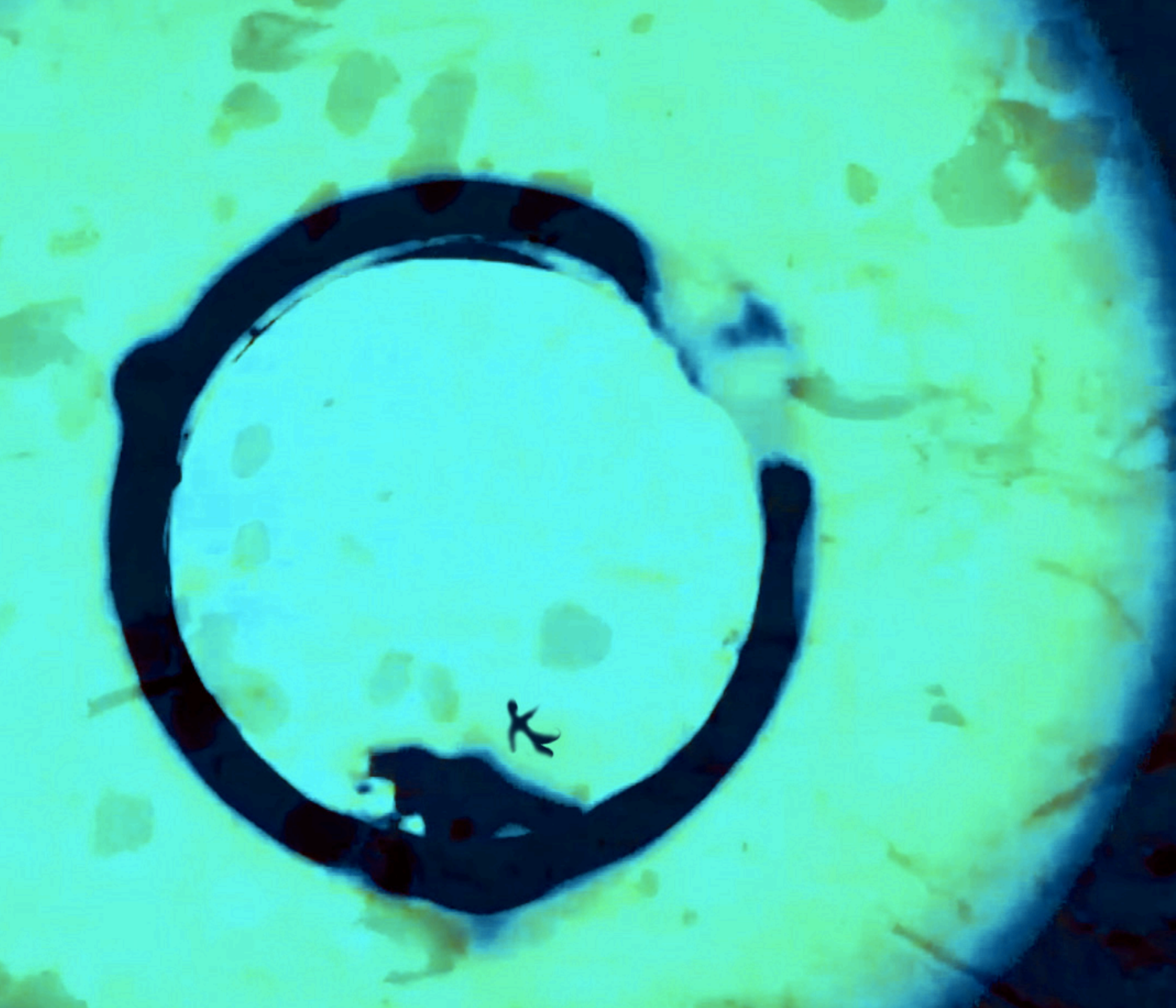
One time I was vacationing in Miami and enjoying the long stretch of South Beach, doing yoga. Upside-down, I saw how much people bounced as they walked along the horizon. This is something that isn't usually obvious because of how acclimated we are to watching people walk. It can be fairly difficult to turn an entire audience upside down, but I sure can take a video, play it upside down in a gallery and offer a fresh perspective about ourselves in this way.

Mirroring water

Since the core focus of my graduate work is to elevate the hidden beauty of the everyday and of ourselves, the role of water in daily life provides excellent source material. We humans have a multiplicity of associations we humans have with water. In fact, Carl Jung considered water to be one of the primordial archetypes. Water as a metaphor reflects much back to us; it is deeply ingrained in our psyche. Perhaps this is because it is our life sustenance. Perhaps it is because we evolved from it. Whatever the reason, as Jung says: The elemental and raw force of water is also a natural fit for powerful emotions. The feel-

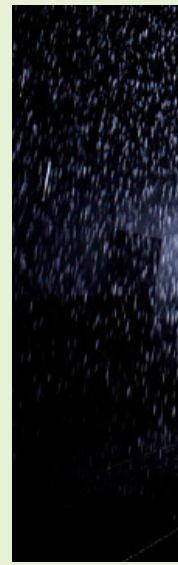
> " whoever looks into the mirror of the water will first of all see his own face. Whoever goes to himself risks meeting with himself [1; 113]. True there's always a doubt as to whether fear is the only obstacle for man on his way of researching deep into the "dark waters of his unconscious". May be not fear but pride, one of the worst sins! "… The mirror does not flatter, it faithfully shows whatever looks into it; namely, the face we never show to the world because we cover it with the Persona, the mask of the actor. But the mirror lies behind the mask and shows the true face. This is the first test of courage on the inner way, a test sufficient to frighten off most people, for the meeting with ourselves belongs to the more unpleasant things that can be avoided so long as we can project everything negative into the environment" (Jung, 1954)





Water installations

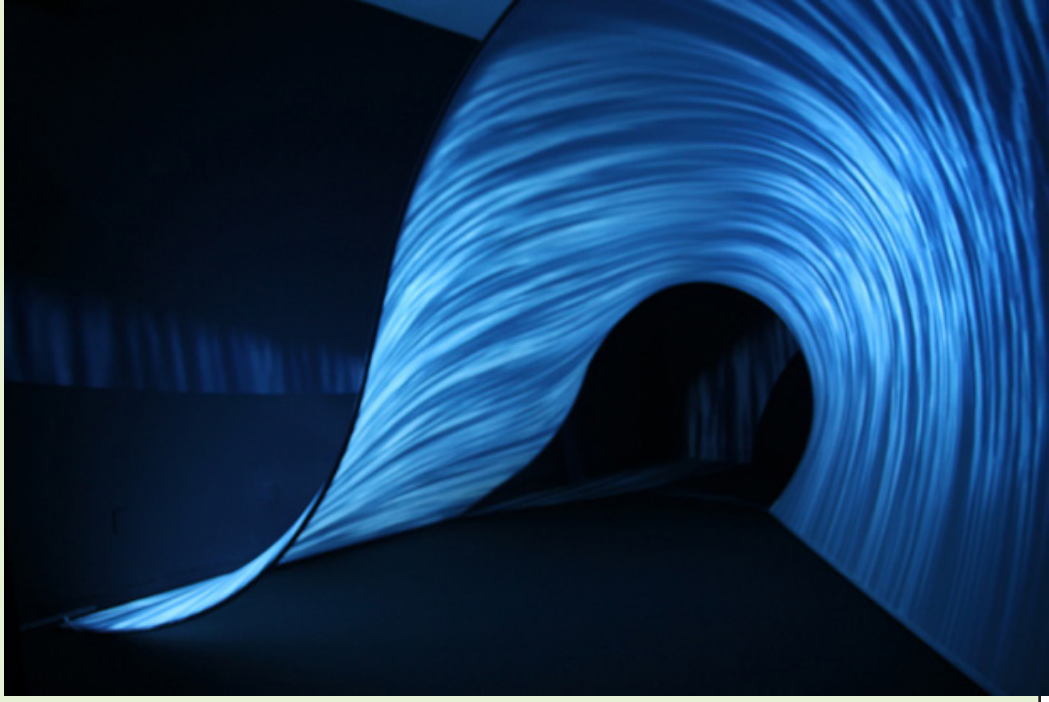
CLOCKWISE: rAndom's *Rain Room (2013)*. Georgie Freedmans' Dark Swell (2010), Bill Viola's *Oceans without A Shore* (2007) Fourneau's *Water Graffiti (2012).*



There is nothing about a water installation that is easy. rAndom's *Rain Room (2013)*, installed in London's Barbican Centre Curve Gallery is an amazing feat combining immersion with interaction and gallons and gallons of water. The designers funnel water throughout a grid of ducts in the ceiling. As people move through the room, the ducts directly above the visitors shut off so no one ever gets wet. The goal is for participants to feel as if they are controlling the weather, something that I wish to explore in further installations of my work entitled *Bodies of Water*. Of course, such an installation is not always possible or economically feasible. Georgie Friedman is a Boston artist whose work also explores water, but as a video artist, she chooses to work with digital water, projecting it onto 3D shapes that people can walk around and into. The simplicity of her forms reminds me not to overdesign. Sometimes simpler is better.

Out-of-doors may be the best location to work with real-life water. A great interactive example is the *Water Graffiti* (2012) project by Antonin Fourneu. Set outside in Poitiers, France, water can be squirted, brushed, sponged, written onto an interactive backboard containing thousands of contact-sensitive LEDs (light-emitting diodes). It is beautiful, interactive and fun for everyone.

Bill Viola is a video artist whose work explores the transformative power of water. While I haven't experienced his installation in person, even the still images captured are deeply compelling. *Oceans without A Shore* (2007) illuminates the transcendental capacity of water – those dead become un-dead by passing through a wall of water. As I too consider water to contain great significance, I am intrigued by his work. In addition, Viola's manipulation of video – extreme slow motion- brings a heft to his pieces that will inform my own work in the future.



ing of solitude from rain, the rage of thunderstorms and lightening, the hope dawning after a storm, the balmy heat of a humid day, and all over again. Isn't it interesting then that for most of us, our daily interaction with water is through a pipe?

Some of my work explores what I call the "domestication of water": the fettering of a powerful elemental force, a metaphor of the human spirit. Humanity has mastered the properties of water, and has thus been able to architect its transport for a multitude of reasons: consumption, cleansing, irrigation, and so on. The water of our daily interactions is confined to modern plumbing. Domesticated water does our bidding – for the most part until the pipes burst. Interacting with this water feels very different than with that of its source, those rivers and oceans that are part and parcel of a vast and wild flow of an elemental force of nature. It is rare that we see these two forms of water as the one and the same.

If we consider Jung's concept of the collective unconsciousness, the ocean represents all that is hidden below the surface, and the origin of all things: If connected subconsciously, we humans do not necessarily recognize nor

> "Some thinkers, like Jung and Sheldrake, see individual human consciousness like an island in a huge ocean in which there are countless other islands. Above the surface of the water – waking self-awareness – there is a sense of separate existence, with definite boundaries where the shore meets the sea. Beneath the surface however, one island is connected to all other islands. The land stretches away under the waves and rises here and there into other islands. So, it is thought, personal awareness, beneath our everyday consciousness, shades off into a connection with a collective unconscious we all share. Through this connection we may be able to arrive at insights into other people otherwise denied to us."
> —Davidov A.N. and Skorbatiuk O.V. "From Carl Gustav Jung's archetypes of the collective unconscious to individual archetypical patterns." 1990

behave as if we are. Nor do first-world inhabitants value domesticated water despite the fact that our very lives depend on it.

As a response, my installation, *Bodies of Water*, integrates videos of water with a gestural interface in order to showcase the conundrum of domesticated water. Here I can closely examine what water looks like and sounds like when confined by modern plumbing. This I share with my audience, illuminating the confines we have created. I can both champion and challenge humanity's feat in controlling their environment.

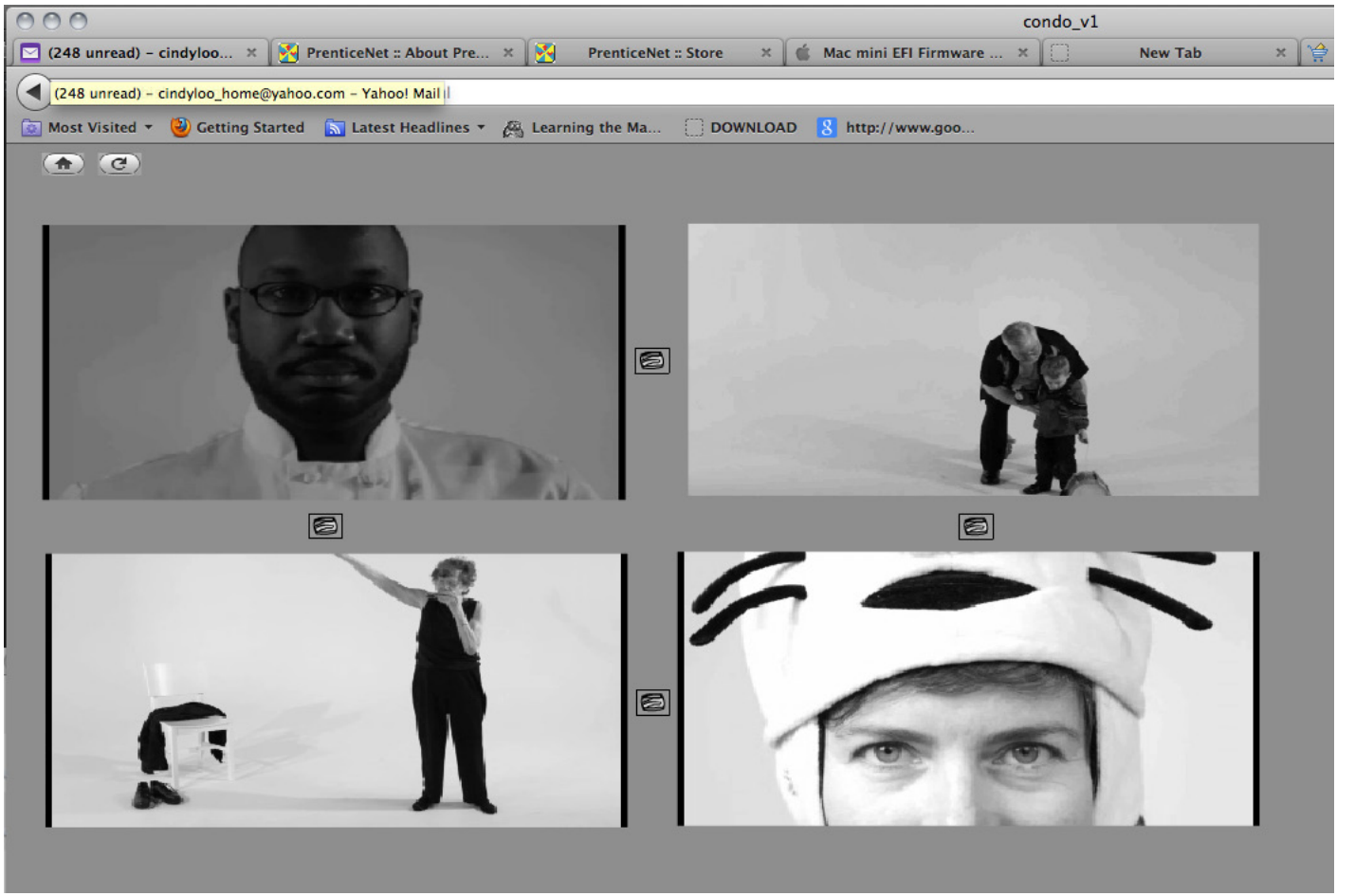
This and other water installations elevate everyday aspects of water and its lifecycle. Something as simple as the water lifecycle can be loaded with meaning. The ocean is the origin of all things. Vapor embodies an ascension of the consciousness, rain, a return journey to the source.

My next water installation will have a real-time component. I intend to hook my installation into the health of local rivers and open waterways - the data from local water authorities (CWRA, NOAA) will drive the animation and visualization of water. I had the good fortune to meet with MIT Media Lab's Glorianna Davenport and share with her my interests. We agreed that it is time to create systems that will elevate and promote local water health in real time. I feel that the ability to simulate water or to algorithmically affect a digital video of water presents a strong argument for a dynamic media installation. Such installations can drive a very needed and timely appreciation of a most precious resource.

CASE STUDIES

Neighbors

My first work at DMI, *Neighbors*, synthesized my love of both portraiture and moving pictures. I used video to create vignettes of four individuals who are connected together in a cyber condominium complex. The net result is a portrait of urban life: what it is like to live in close contact with people who are not friends or family. Many can relate to the challenges of these very human relationships, I myself had a very challenging situation that forced me to move out of my own condo. This was very unpleasant, but the experience inspired me to create this piece and balance the bad with the good.



Being an artist and filmmaker, as an interactive designer, I've had to learn how to share the authorial voice. *Neighbors* was my first attempt at lending some authorial control over to the audience, concurrently exploring the bounds of interactive narrative. It was difficult to construct a truly dynamic experience. If the Neighbor's vignettes were pre-scripted, how could the audience truly have an authorial voice? How should the users interact with the vignettes?

Embedding the vignettes in Flash, I decided to give the audience a set of four controls that were placed between each pair of Neighbors. The viewer could select the control to see how those particular Neighbors interacted with each other. It was definitely interesting and entertaining, if not significantly dynamic (the story wouldn't change no matter how many times the user pressed the same button). After this project, I moved away from web interaction, and narrative as I knew it and began to create more immersive experiences that involved less of a linear story and more of an aesthetic, sensory experience.

Excerpted scenes from *Neighbors*:
Characters (CW): Cameron- the musical chef,
Chris the single dad with loud child, me the irritable artist, Greta the lonely grandmother.

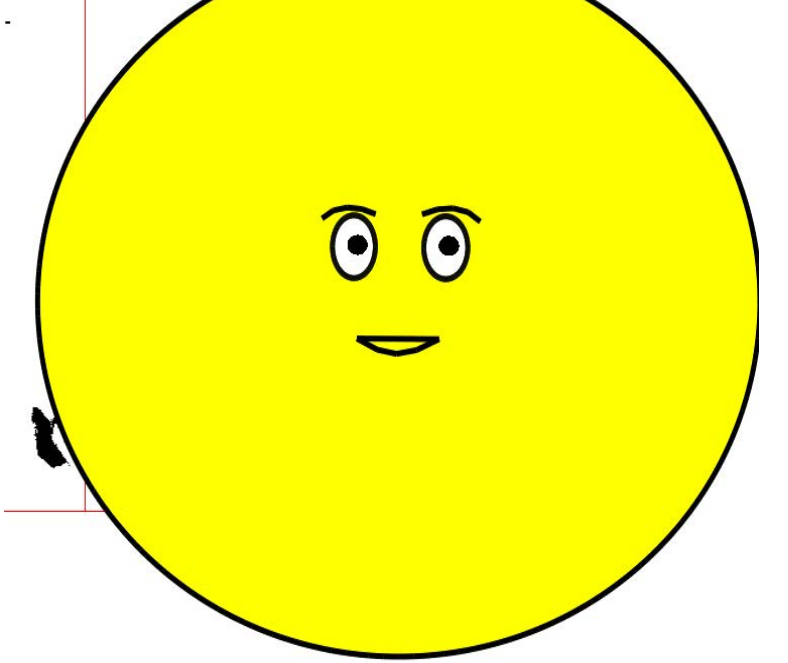
Smiley 1.0

Smiley 1.0 is a facial-recognition animation system that creates a real-time animated smiley face mirroring the viewer's current expression. It is written in C++ using the openFrameworks platform and a proprietary facial recognition library from an Australian fellow by the name of Jason Sarangih.

Objective

My second year at DMI started out by attending Heather Shaw's Tune-Up session. It resulted in a wonderful melee of paper cuttings, photographs, glue, and stencils as we mocked-up our ideal design posters. Having felt somewhat like a fish-out-of-water my first year in graduate school, this process launched a meaningful year for me – one in which I re-engaged in tactile creations, and through which I focused on authentic feelings and means of communicating them. Combined with Gunta Kaza's creative assignments in Elements of Design, I was able to access a lighter, more playful side of myself. Since Smiley 1.0, my projects have all been informed by this desire for authenticity.

Smiley 1.0 came about for a number of reasons, but primarily because I think I wanted a companion. I felt alone



in my studies and not particularly connected with my classmate nor my co-workers at the time – for that matter. At school, I was at least 10 years senior to my classmates, and lacked the opportunity to forge friendships primarily because I was working full-time. At work, I was working as a contractor, and was only marginally involved with the happenings of the ad agency.

Secondly, for the past 15 years, I had been working with one computer language or another, preferring the 4th-generation languages since frankly they were easier and quicker with which to build demos. However, once introduced to openFrameworks and the power of computerVision through

my DMI classmates, I was inspired to go back to C/C++ and again tackle pointer arithmetic in order to command a powerful set of libraries. I also wanted to create an iphone app and openFrameworks provided an iphone libray from which I could port to objective-C.

Hence, in a nutshell, I'd say my objectives for Smiley were:

- To entertain and sustain myself in a challenging environment
- To connect with others
- To have fun
- And to take advantage of the creative coders' library, openFrameworks

Research

To be honest, there wasn't a lot of initial research around facial communication, the effects of humor or about play as a method of engagement. I was just inspired to get people to smile and laugh, myself included. It was only after the initial demo when I began to delve deeper into the science of the smile, laughter and non-verbal communication. Reflecting on this project, I would say that much of my work since has concentrated more on triggering an emotional or sensate response as opposed to an intellectual or visual one. In the case of Smiley, the desired result was a big smile and a belly laugh – a lightness of feeling. In other projects, it's about designing an immersive experience that highlights awareness of the self, of one's physical and emotional state, of others and our physical surroundings in an existential kind of way.

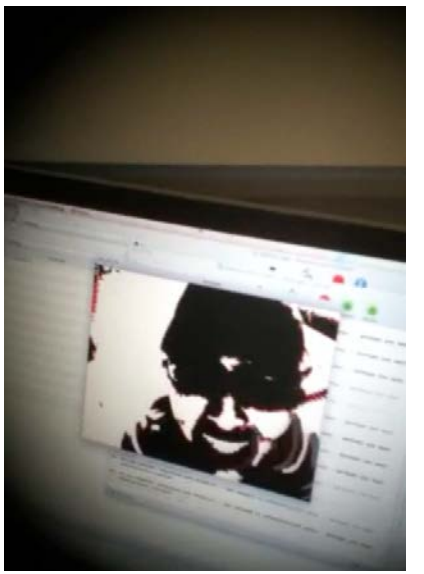
Most of my research was spent on addressing technological problems and testing proof-of-concepts. I had never done anything with facial recognition software before and relied heavily on online examples and tutorials. I was fortunate that most of the openFrameworks (oF) libraries were open sourced, and whatever was proprietary I generally had access to as a student. The contour-detection and -tracking modules were fairly straightforward to implement, and I gained access to highly coveted facial tracking software from an Australian fellow who made me promise I would only use the software for good (or just non-profit). Furthermore, the oF community is an active one, with frequent posts to the forum and many resources in Boston of which to take advantage.

That said, exposure to heavy graphics processing and 2D and 3D animations made me realize how little I knew about computer graphics and animation. I had never thought much about matrices and alpha channels, and I found myself

quite overwhelmed. For example, I had been researching the Microsoft Kinect, wanting to use its depth perception with the facial tracking module. But between the oF Kinect library, the contour detection library, and the facial recognition algorithms, I got stuck trying to map pixels with depth information to pixels without and wandering around in a wasteland of 2D and 3D vector points. I gave up and used the webcam. As it was, Smiley was successful especially because it was a lo-tech smiley face. Despite my dreams of making it a spherical smiley a la Monsters Inc., it was actually perfec the way it was. This year and for the future, I need a rigorous application of study in order to truly master the power behind openGL and openFrameworks.

Design process

While I have always loved animation and admired animators (I have a stock-pile of *Spike And Mike's Festival of Animation* VHS tapes and have been guilty of being one of the only adults without children at a animated movie); other than my stop-motion animation attempts, I had not ever attempted to create an animation until Smiley. I didn't aim too high.



In my childhood, we had those solid thick plastic yellow cups that said “Have A Nice Day” with a not-too-smiley smiley face. I made Smiley look pretty much just like that. As the project progressed however, there just wasn’t enough expression with two dots for eyes. I added eyebrows, and irises with sclera (whites of the eye). This made Smiley very expressive while keeping Smiley simple and therefore arguably more approachable than something coming out of the Pixar factory.

Adding irises to Smiley did complicate matters. The facial tracking software didn’t enable me to track the irises, so I had to fake it. I made up an algorithm and made the irises move in conjunction with any movement across the camera. Hence, if the viewer moved to the right, Smiley’s eyes would follow her. While it was a complete fake-out, it was very convincing – most viewer didn’t even notice that the eyeballs moved on their own accord. Smiley was to be an accessible and simple animation with which it was easy and enjoyable to interact.

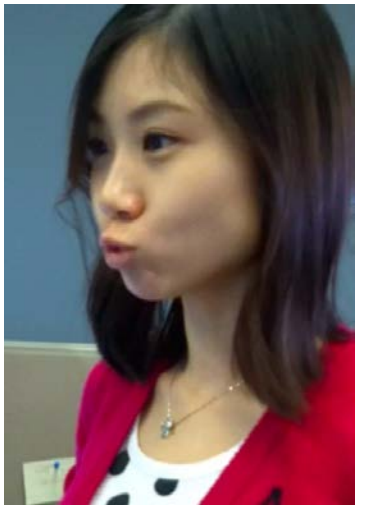
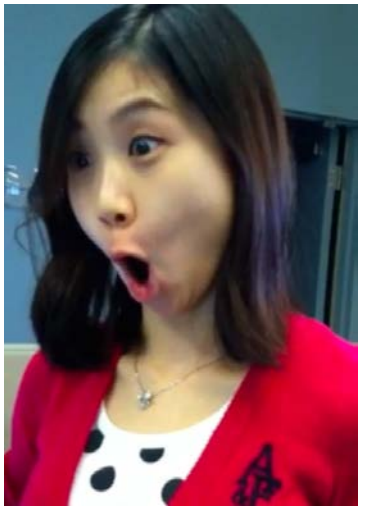
Results

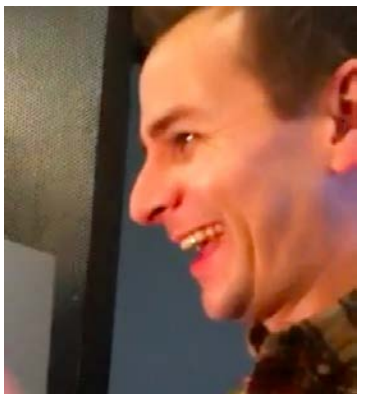
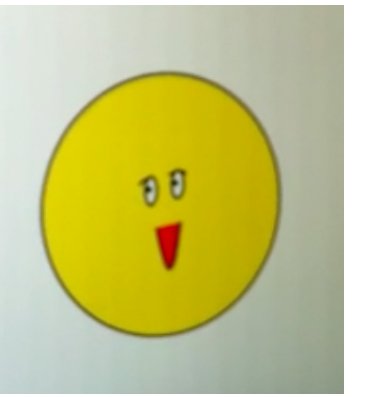
prototypes at school

When I first showed Fred Wolflink the Smiley, I think he was under-impressed with the animation quality although he did admire the technological challenge that I had overcome. I decided to surprise him – I would have Smiley do random things in reaction to Fred’s expressions. This was a hit – the element of surprise elevated the experience of Smiley beyond just a mirror or reflection of the viewer to something that would intrigue.

results at work

My former workplace, according to an ex-coworker that I just ran into last weekend, is an ad agency dying a long, slow death. We are both at new jobs now, and marvel that anyone would still choose to work at such a depressing place. Some people there

work 80 hours on a unimpressive salary, and get little to no credit for it. Hence, a lot of the people around me at work rarely smiled. I remember looking around the fluorescently-lit meeting room thinking, wow, everyone here looks totally depressed. Get me out of here!

So, when I brought Smiley in to test, I had some really great results. My manager, Brian, was one of the employees working 80 hours a week for a pittance. He had missed all sorts of family engagements, and had a new baby he hardly ever saw. He rarely smiled. However, when I got Brian in front of Smiley, it was amazing to see him smile in order to get the smiley face to smile. He jumped and made funny faces just to see what could happen. It was great to see.

Smiley had a similar effect on the other developers – they did all sorts of funny things with their faces and bodies to see what Smiley would do. They would play with it. It was a time-machine of sorts – it turned everyone into a kid again, and caused them to behave very differently than how they otherwise would.

LEFT: coworkers playing with Smiley

results at DMI reviews

For two years now I've sat in reviews at Massart and have had all sorts of thought-provoking experiences. I've observed stronger and weaker presentations, and have felt the ramifications of that spectrum through my own deliveries. While the audience is usually attentive, we get distracted from truly listening or appreciating– either by preparing for our own upcoming presentations, or by comparing our work with others. I have always wanted reviews to produce a warmer, more inclusive environment. Perhaps that is why I chose to give a live demonstration of Smiley last year during the fall semester reviews.

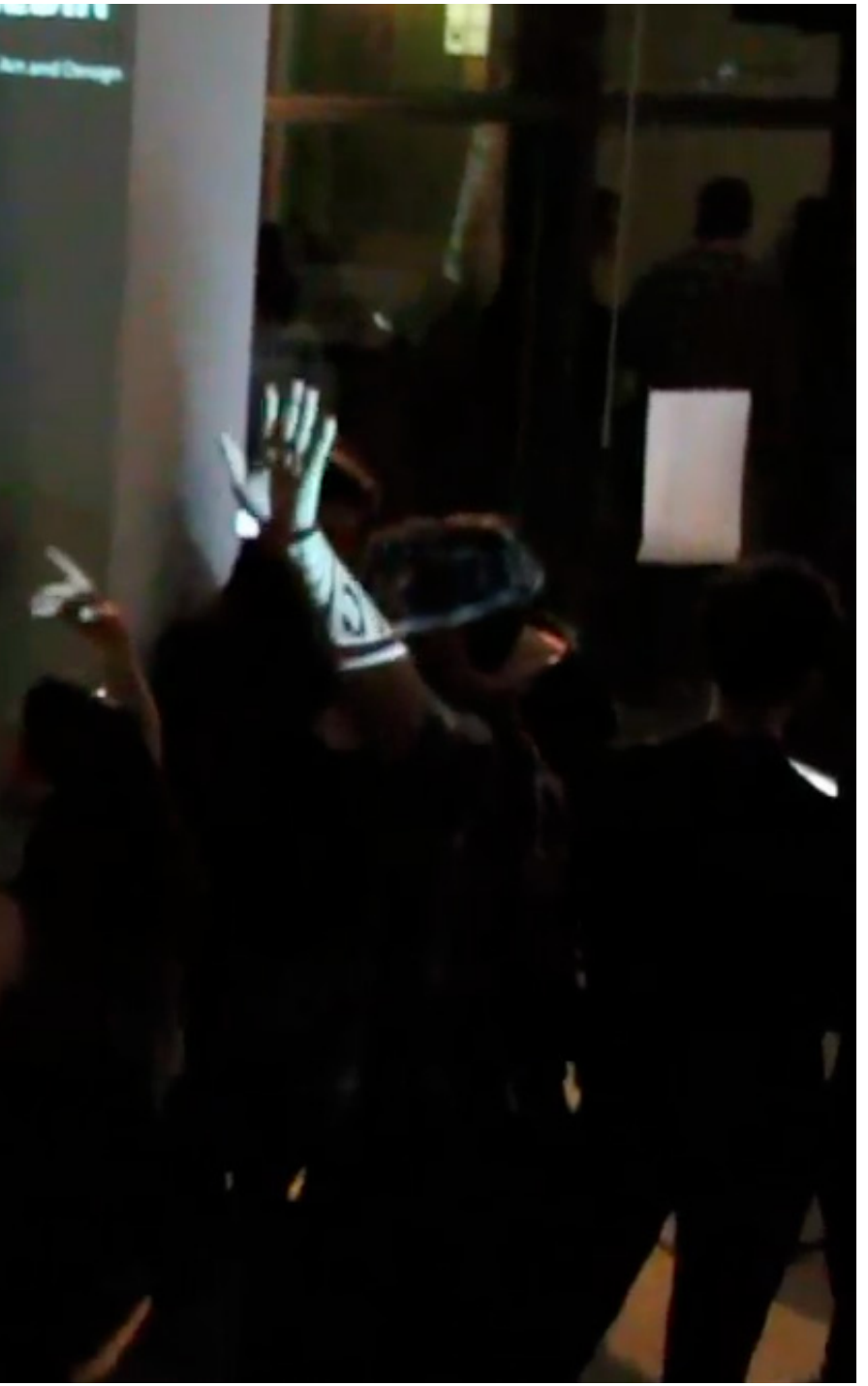
Smiley had great reception. It was great to see that the way Smiley broke through to the developers was also in effect here. As Smiley parroted an audience member's facial expressions, it made the audience smile, and gave them an experience that many still fondly recall. It was especially significant when Smiley seemed to develop

its own feelings and emotions, changing facial expressions as I received feedback from the review board. While the Smiley animation was merely looping through default behavior (but which were fairly amusing expressions regardless), the audience projected humor onto Smiley, making it a truly memorable experience. Gunta Kaza remarked "I haven't laughed that hard in any DMI review before or since."

Conclusion

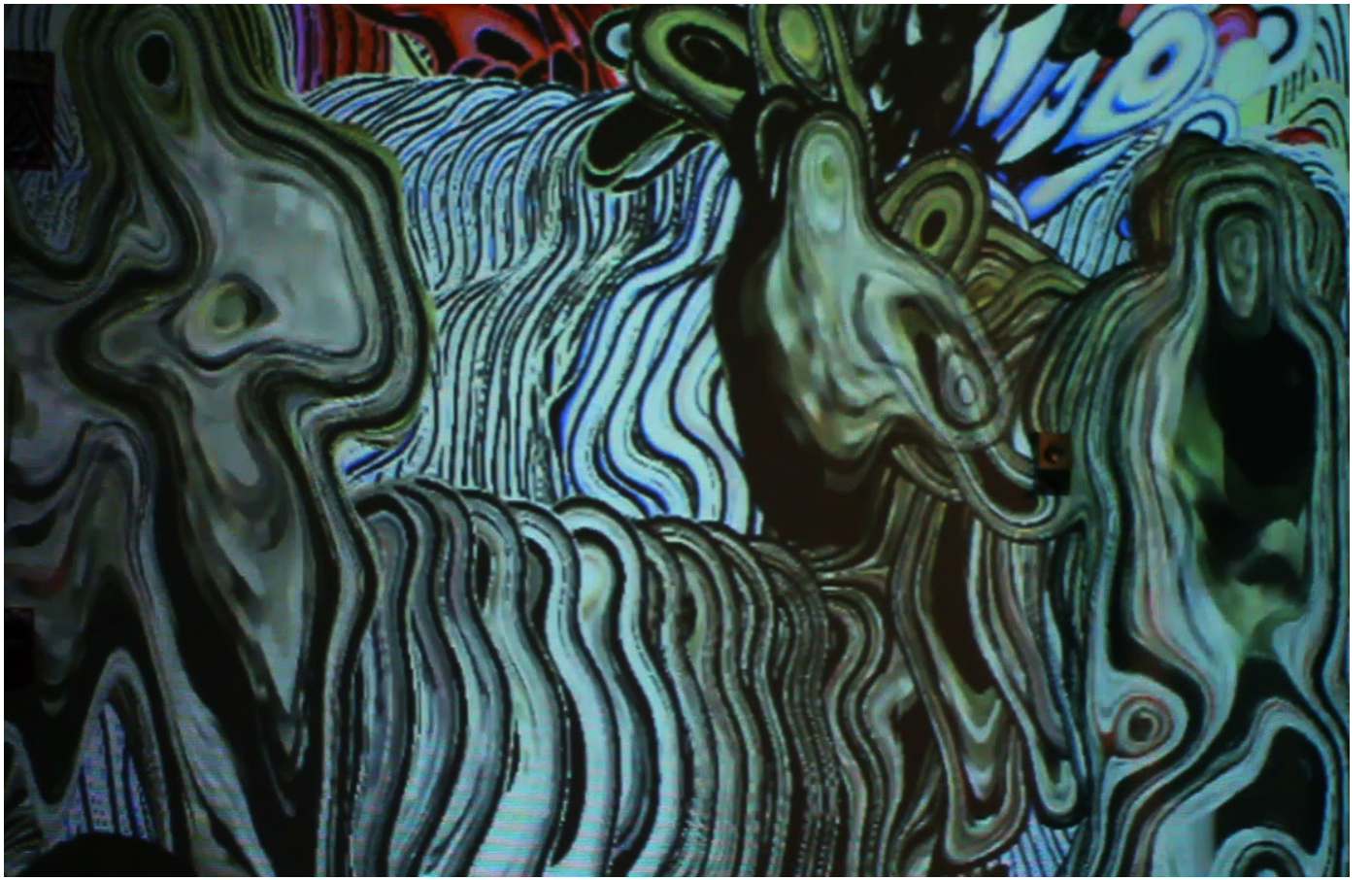
In conclusion, I intend to take Smiley global. By this I mean to enable others to make their own Smiley and share it. It may take the form of an iPhone app, or it may be a sketch of a personal smiley-face that becomes animated. Regardless, this iconic and universal yellow circle touches people in a very interesting place. It is a cartoon, and therefore somehow manifests a youthful audience, no matter the audience's actual average age. It is a low-resolution technical animation, and therefore conveys some sense of simplicity – as opposed to these high-res, high-tech computer animations and games that daunt the unfamiliar user. It also accesses emotion very directly – a smile is worth a hundred words. Some folks have suggested autistic children could benefit from simple interactions with Smiley. Regardless, this project is able to connect with its viewers in a very simple and direct way.

I can only hope that future projects will captivate in the way that *Smiley 1.0* can – on a very basic emotional and authentic level free of pretense or over-construction. While its interaction is limited to the screen, mobile devices are not bound to any particular place or space and therefore perhaps a mobile iphone Smiley could create more of a pervasive experience than one might think.
To be continued!



Dear Water

My Dear Water, The Way You Move installation at FreshMedia 2012 capitalized on my lessons from *Smiley 1.0*. A watery 'magical mirror' reflected the gestures of the audience. A viewer would slowly realize that the forms in the projection were the bodies of the viewers. Once he came to that realization, the viewer began to use the camera to create beautiful designs that would in time be added to or overwritten by other users. Again, as with Smiley, the viewer begins to play. Here, the viewer is playing at painting; he is the artist, his body the brush. He forgets to care what he looks like, or who is watching. He is fully engaged in the experience, he cares about the cause and effect he is having and wants to continue moving his body around in order to have the desired effect. I cannot be sure what each person's individual experience was, but I know that it made an impression.

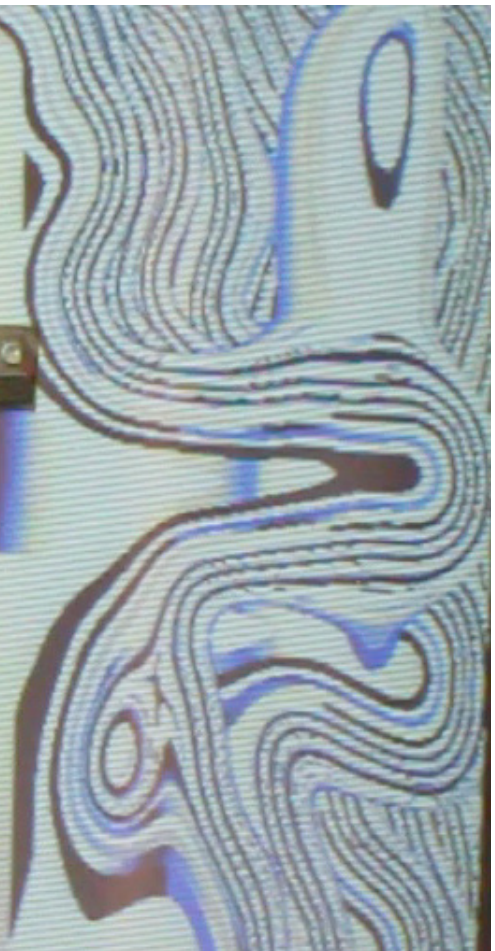


Dear Water: The Way You Move originated from an audio-visual installation I had created earlier that spring: *Dear Water: You Started It*. This was installed in the bathroom alcove at the Fourth Wall Gallery. The gallery had several large flange pediments towering 20 feet or greater and they inspired me to create a visual experience of water shooting through what looked like huge pipes. This is where my focus on indoor plumbing began – I realized that the respect for water that I typically reserve for the open ocean and waterways is not connected with the water that comes out of my faucet. Why is this so? Who can drink ocean water? Hence, I shot

a bunch of abstract video of water coming out of faucets and going down pipes. I even got into the bathtub, and my girlfriend humored me by holding a piece of metal pipe so I could shoot the water running through it. We were both soaked but pleased with the footage. I named the video “The Tide” to evoke the natural flow of “free” water but within the modern plumbing system.

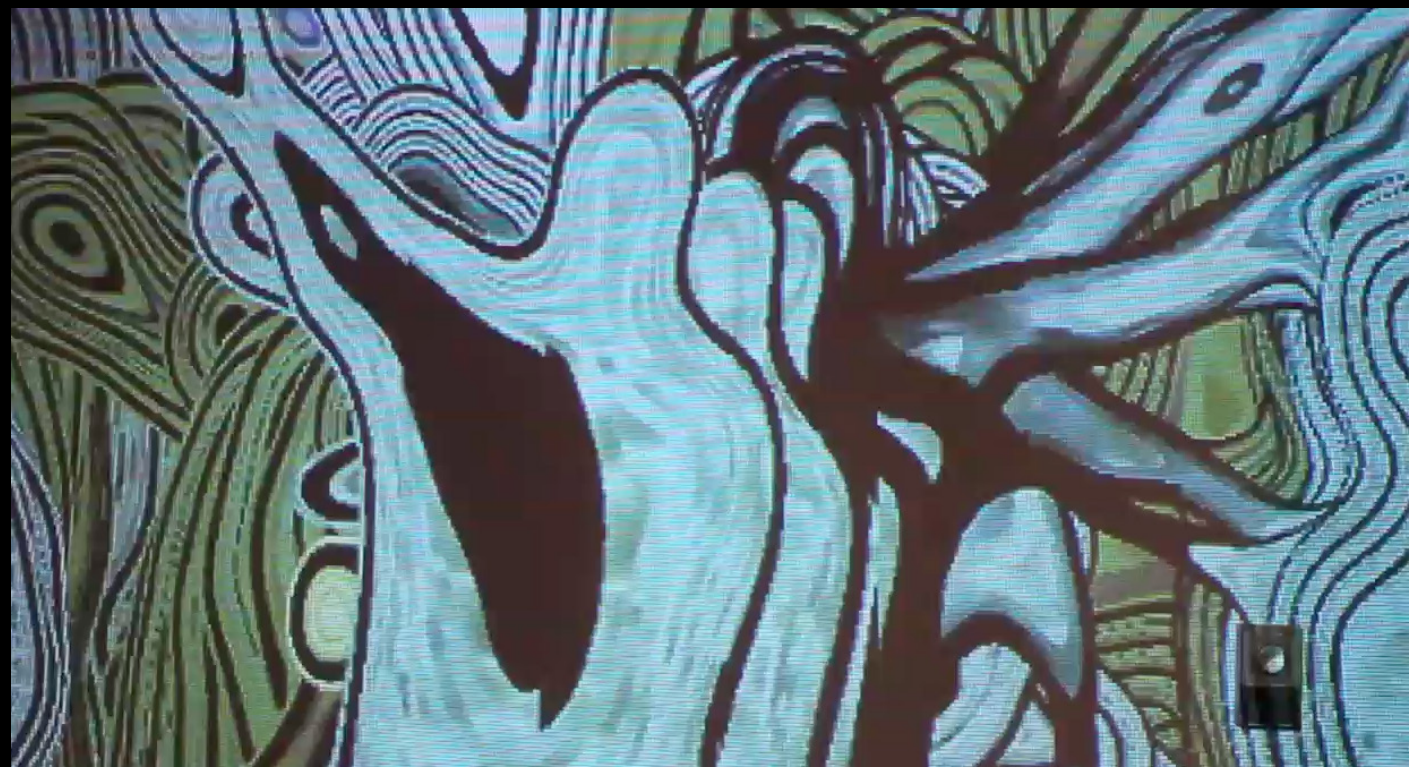
The installation itself was a bit of a disappointment- I have since learned to be very particular about projector strengths and group shows that can impact a site-specific work. However, the projection across the multi-level surfaces of the bathroom alcove was successful. It did carry the metaphor I desired, the multiple applications of “domesticated” water. Site-specific, it was fixed to a place and space in a meaningful and poetic way.

TOP LEFT: still from FreshMedia 2012. OPPOSITE and THIS PAGE: stills from Fourth Wall Gallery installation *Dear Water, You Started It*.



For FreshMedia 2012, I repurposed the abstract footage, and was very pleased with the result. People really liked creating artistic designs with their bodies. My only issue was that people couldn't actually see the video in its entirety. Because I was warping the video with users' gestures over time, the video itself was obscured. The subject was water – domesticated water at that, but no one could really infer that. The images created appeared liquid, or aqueous, but that is about as far as the metaphor went. I still haven't been able to feature the video the way I feel it should be. This is one reason why I pushed this concept further in *Bodies of Water*.

THIS PAGE AND NEXT: Stills from FreshMedia 2012 installation *Dear Water, The Way You Move*. Participants of all ages realize they are part of the art work.



Ghosts of Presents Past

A set of site-specific interactive audio-visual installations, the *Ghosts* series is a celebration of the past, conflating archival footage with a ghostly live feed of current participants. Who are the ghosts: the ones in the footage or the ones inserted into the film?

Objective

As I noted earlier, I have always been moved by stories from the past. It rocks my comprehension that countless, faceless millions have lived before this time, lives full of emotion, trials, tribulations, joys and sorrows. I want a palpable sense of the past. I want a perspective on my life that isn't so myopic, so limited to my own immediate needs and surrounds. And I want to share that perspective with my audience in an interesting way. Of all my projects, *Ghosts* is the one that encapsulates so many of these goals. It addresses a sense of the collective past, it is attached to a place and time, it is gestural, it is fun, and it literally turns the experience back on the viewer.

The primary objective was to connect observers of a place and space to the past and present. The secondary objective was to provide a fun and engaging experience. Both objectives were strongly met.

A New Kiss Good-bye
I've inserted myself into the footage of a 1950s ferry docking at MacMillian Wharf in Provincetown Harbor.

Research

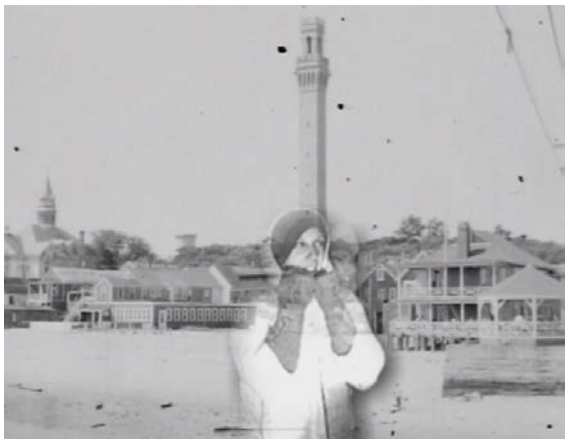
When the gallery owner at AMP, Debbie Nadolney, first proposed the idea to me and my collaborator, Martha Bourne, I had originally thought to re-purpose a friend's postcard collection, using that as the installation's attraction. But when, in response to my request, Provincetown Public TV came up with not just one but three old reels of footage, I was ecstatic. Here was the parity I was looking for between past and present. Past footage, present live video feed. The ghosts would be of either time. We were all very excited about the idea. We had no idea that some residents would be put-off by our outdoor installation, and intolerant of a new form of art "in their backyard." As noted in my "Why Dynamic Media" section, it is important to champion dynamic media as a site-specific, customizable art form so that these kinds of conflicts can be addressed before they even begin. There was much misinformation and misunderstanding about whether our piece was an acceptable form of art, and whether the gallery could even show it. At the time of this writing, it seems there are more supporters of new media than against it – the vote to restrict the definition of an art gallery in Provincetown was indefinitely postponed. I think the sentiment was that most people understood and appreciated why *Ghosts* took the form it did.

Design process

In its first installation, ***Ghosts: Ghosts of Christmas Past*** showcased footage from Provincetown of seventy years ago, from the 1940s and 50s. It was to open for the holiday season as part of the Holly Folly festival in December. We knew it would be a complicated installation, but the experience was designed for the passerbys ambling past the gallery during the holiday season. Their images would be recorded live from a Kinect 3D camera feed, and inserted into the old footage, thus blending two different times into one. Music played an important part in setting the appropriate mood.

How it works:

A wintry slideshow displays until a passerby “wakes-up” the installation by the motion-sensing camera. The slideshow converts to a silent movie (LIVE mode), accompanied by music. It begins to snow…. The real surprise is when the passerby sees that she too is part of the show. Her image is inserted live, into the footage, alternatingly black-and-white and color. She notices the shots in the footage look familiar, yet something is different. It is the Provincetown of seventy years ago.



Many participants play with the footage, mimicking the town-dwellers of the past. You may say they are time-traveling. The more participants, the more it snows.

What they don't yet realize is that *Ghosts* is secretly snapping photos of their antics. That surprise is revealed as the participants move out of the camera's frame. The video then reverts back to the slideshow displaying its freshly captured new ghosts, those of a very, very recent christmas past.

Retiring inside the gallery, people anticipate the surprise of every new participant as he or she engages with the installation… Only some realize they have unwittingly left their own ghostly trace - Unbeknownst to them, Ghosts, having taken pictures all the while, has turned them into ghosts as well.

I selected two sheets of translucent plexi-glass as my screens to hang from the gallery porch. It would be better for the images, allegedly ghostly, to seem slightly translucent than fully robust as they would appear on a plasma screen. Steel rope was cut and used to fasten the screens to the porch struts. Happenstance is sometimes a wonderful thing- one of the projectors was set to black and white, so one screen was black and white, the other in color, which made each screen offer something slightly different depending on where the viewer was standing.


CIRCU
CELLAR

After the initial surpise, participants have fun interacting with the old Provincetown footage.

Because it was an outdoor installation, there were many complications. The gallery owner needed to bring the camera, light, and speakers outside each afternoon before sundown, adding to the complexity of the piece. There was a point in which the camera and music were not interacting properly. I debugged the software: nothing seemed wrong. We then realized that the lamp used to light the onlookers had been placed in a different location, and was triggering the system. Little things like this make an interactive installation exponentially more complicated than those of other art forms.

The second installation, *Artistic Spirits,* was installed as part of FreshMedia 2013. The Provincetown footage was replaced by MassArt footage from the 70s featuring students and teachers, linking the installation to the proper place and space. This footage came from the MassArt archivist, Paul Dobbs and was a huge 16mm reel that totaled 28 minutes full of group critiques and student interviews. I digitized the reel and edited it down to the more interesting conversations. I still want someone to go through the footage with me and identify some of the other people in it besides a young Nick Nixon.

Thankfully, the installation was inside this time, but there were other challenges. It was necessary to adjust the software because, situated in the President's Gallery on the 11th floor of the MassArt tower, the foot traffic was much greater, the system and the picture taker was triggered more, thus slowing my software and in fact making it crash if too many pictures clogged the system. Also, there were some other modifications: I could fit only one sheet of plexiglass, and I had to hang curtains to hide detracting brick walls and a fire hose. Because of the installation directly across and in front of my Kinect camera location, I had to calibrate for distances.

Music is a powerful medium, it can set a mood almost instantaneously. Coupled with the video and footage, the music for *Christmas Past* delivered a powerful spectral experience. After trying several different genres, we decided to use all of them. Each song created a different mood. The footage featured in *Artistic Spirits* had an audio accompaniment, so we carefully chose background music that had a artful and youthful component that wouldn't interfere with what the students and teachers were saying.

We also had intended to have an audio capture, along with the image capture. However, in public spaces, it is difficult to secure the microphone, and it is difficult to isolate the kind of sounds we want to capture.


MASS ART
SPRING 1979

Results

Sometimes people aren't going to look up – no matter what you do. With a sidewalk display during the winter, there were quite a few times the passerby didn't look up, or if he did, he looked up too late to notice himself on camera. For *Artistic Spirits*, the installation was in a gallery, so people already had a clue that something should be happening. However, if they walked by without looking soon enough, they would also miss what was happening. This is ok, and in fact, by design. Ghosts is an ethereal, subtle piece. It won't tell you what it's doing- you have to discover that on your own.

Once people did see themselves on camera, they realized it was a live feed, and would play along with the video for a bit. One of my favorite experiences was watching my friend Scott pretend to climb the ladder on an old ship in the Provincetown Harbor.

Through both *Ghosts* installations, I was able to elevate time and the past in a meaningful way. Footage from the past is a treasure, documentary footage in particular. The footage from Provincetown of the 1940s and 50s was a delight to experience. Many of the stores had changed hands, but many of the store

THIS PAGE AND PREVIOUS:
Snapshots secretly taken by Artistic Spirits

windows were very much the same. The people were wearing different clothes, the women, hats, the men, dress shirts. Quite different from the casual dress of today. People were doing pretty much the same thing they do today – shopping about, enjoying the sun, smiling and waving hello as they came in on the ferry. Similarly, the MassArt footage was delightful. Seventies attire, and requisite attitudes are noticeable, but the eagerness and determination of the students is the same. Artistic angst doesn't change from generation to generation, evidently.

Thanks to my software and the willing participants, I now have an amazing array of photos blending past and present. I plan on presenting these at some point in the future.[images]

Conclusions

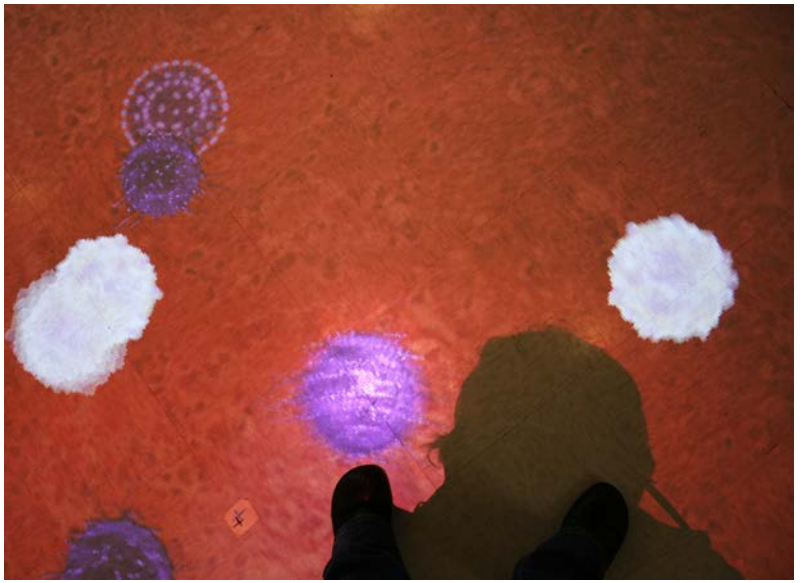
The *Ghosts* series speaks to people. It is a simple concept, but it offers a unique perspective that people appreciate. It gives the viewer a way to experience the past and herself at the same time. What I wrote to the Provincetown community bears repeating: we are able to say something very special about the compression of time, and our longevity as individuals and as a community. No other medium would have been appropriate.

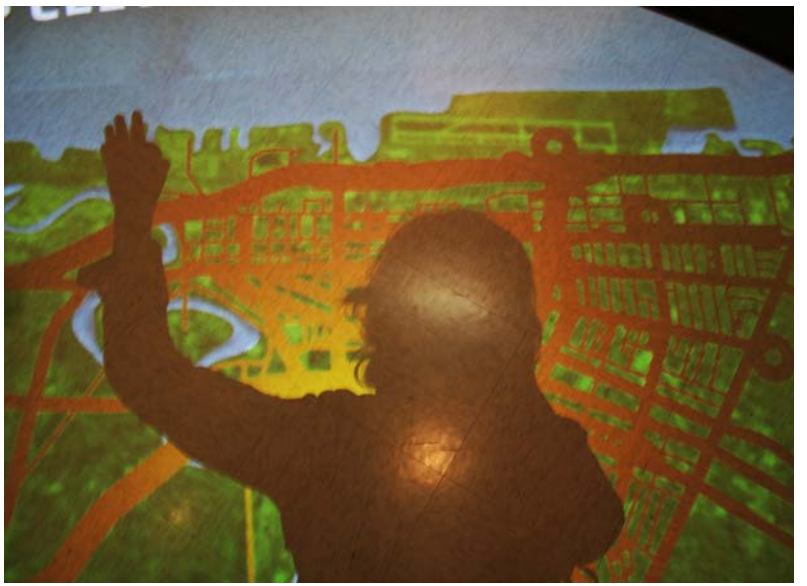
NASA Installation

“Museums seek out artists precisely because they want mystery, elegance, meaning. Ultimately, we all want communication and magic.” — Scott Snibbe

The *NASA installation* is an interactive audio-visual floor projection for the NASA Glenn Museum in Cleveland, Ohio. While this project is for work, not school, it is a culmination of the goals I have been targeting. It is immersive, gestural, and site-specific. It helps to elevate awareness of the really cool stuff happening in and around Cleveland, and is the sort of proect I am already using as a calling card to other museums and galleries.

The Great Lakes Science Center, Cleveland, Ohio





The four modes: SPACE, BIOMEDICINE, GREAT LAKES, and TECHNOLOGY

Objective

NASA wanted to showcase Cleveland's top attractions – and by extension, Cleveland itself- in a fun and interactive way. Space, Biomedicine, Information Technology and The Great Lakes topped the list. Situated at the entry of the museum, this installation is a gateway to the other exhibits. The expectation is that this projection would entertain and inform for a few minutes before or after visitors experienced the main part of the museum.

Design Process

My co-workers and I began the initial stages brainstorming what a client like NASA might prefer and what could be fun as well as educational as an interactive projection. We decided to leverage my understanding of C++/openFrameworks and the Kinect camera to make a gesture-based blob-tracking system that adults and kids alike would enjoy. We came up with the following four modes of operation:

SPACE
Stars twinkle and move about randomly until a player enters. Ambient sounds play. When a player is detected, stars cluster around the player, effectively "sticking" to her. Upon of movement of the player, most stars follow, but a few peel off and follow other players.

BIOMEDICINE
Virus, cancer and white blood cells track across the ectoplasm. When a player enters into the projection, the cells come after him. He swings his arms to "Wipes Out Disease." As his arm collides with a cell, it visually explodes and makes a "splat" sound.

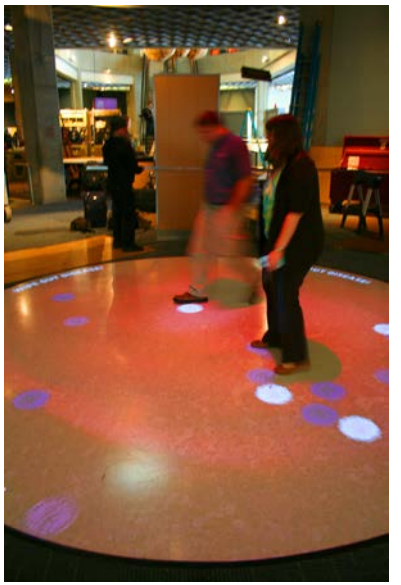
TECHNOLOGY
A map of the city is projected, lanes and highways resembling a circuit board. When a player enters the projection, an electrical pulse emits from under their feet, accompanied by sound effects.

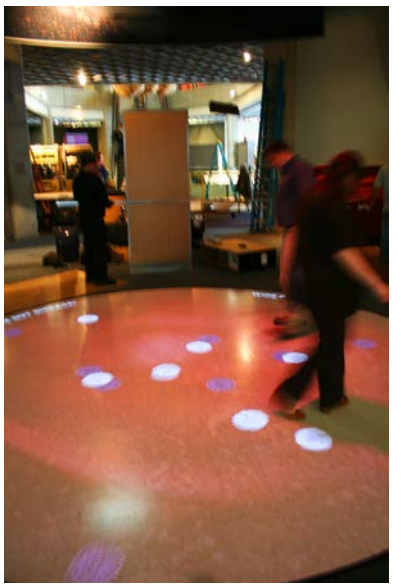
GREAT LAKES
A map of the lake separating Cleveland from Detroit emits waves from the shores. Upon entry of a player, a wake is painted as they move across the projection.

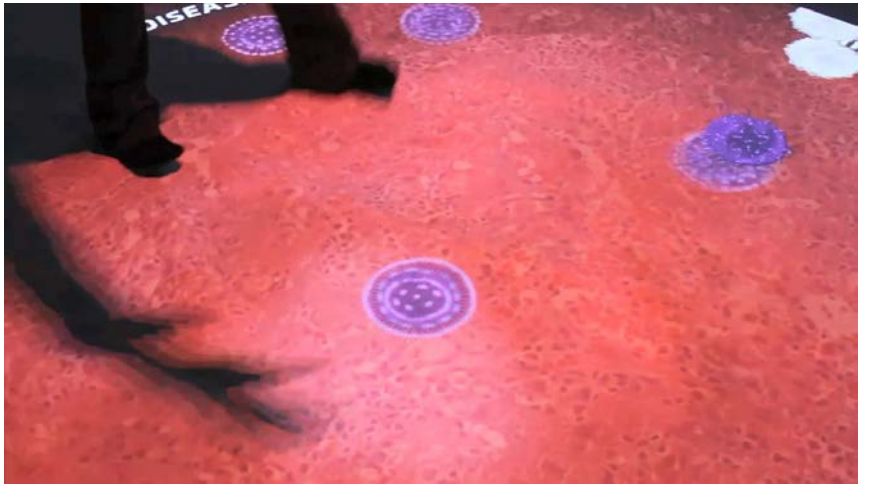
Prototypes

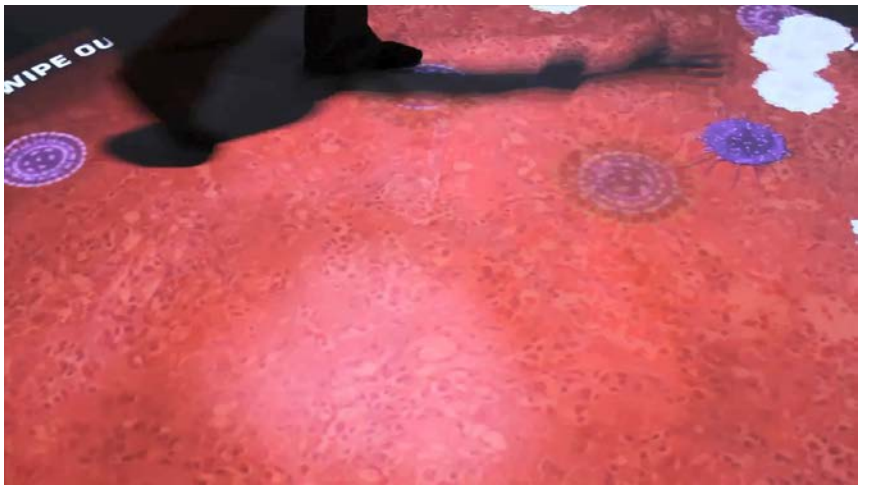
OpenGL and the GPU lessons

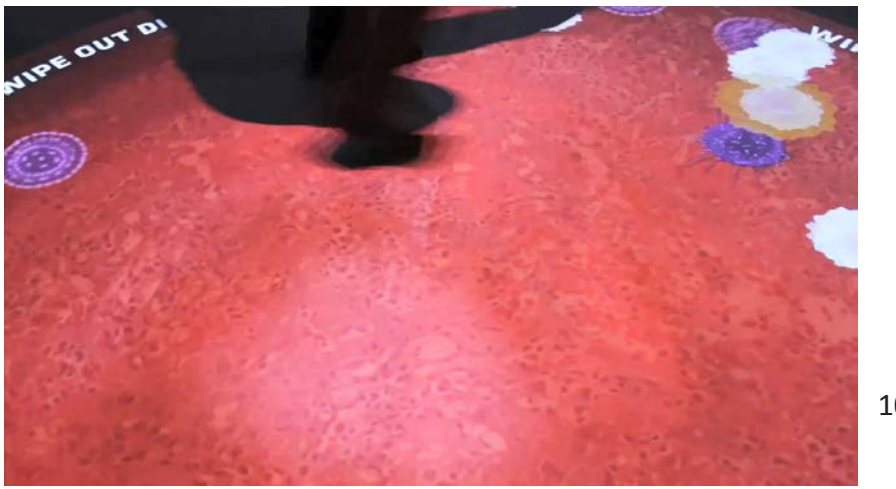
Having little experience drawing with OpenGL, it took me more time than I care to admit to learn how to draw something that resembled a star. I knew it was computationally advantageous to have the graphics card draw the image than load a PNG each time, but I wasn't sure how to optimally do the former. Once I tackled the star itself, I then needed to make a lot of them. It was my first experi-












BECOME A STAR ATTRACTION!


BECOME A STAR ATTRACTION!
Space: stars follow the users as they walk through projection


BECOME A STAR ATTRACTION!

ence using ofBox2D and the underlying Particle system. It was fairly straightforward to implement, but I began to tax the CPU with more than 3 groupings of stars (at a 100 per person).

I researched the solution and realized I was executing on the CPU, not the GPU. As soon as I modified my rendering code to load itself on the GPU and stay there, the stars and their orbits were as fast as any video game. I was very excited to develop this CGI skillset. The CITY and GREAT LAKES scapes I was able to animate myself as well. The CITY electric pulse was nothing but a different kind of star form that grew and shrunk, and the GREAT LAKES water ripples disturbed the pixels in a uniform circular way as well. The CELL images were too complicated for me to draw auto-magically at this stage in the game - I had no choice but to load in the corresponding PNGs.

Sound? Check.

The system was first planned without sound. When we added a sound component to the BIOMEDICINE mode, (the "splat" sound of the cell) the others seemed comparatively lackluster. We added in specific and ambient sounds that made the overall experience better. NASA decided to upgrade the speakers for the installation as well.

Results

While I was installing the piece at the museum, children would pause, looking longingly at the floor projection. They could not yet interact with it- it was sectioned off because of all the construction going on. I would hear "Cool!!!" and "what is that!?" with an accompanying answer that varied in accuracy but was overall quite astute. It was also great to see the installers and museum administrators spontaneously play with the installation. While I wasn't able to be at the grand opening, I hear there were upwards of 20 children playing on the projection at a time.

No matter what anyone tells you, installing can be fun, but it is *never* easy.

There were a few minor crises. The first was when the fabricator informed us they would be two weeks late. That meant that the Audio-Visual (A/V) installers wouldn't be able to get our cameras and projectors up any earlier than 5 days before the opening, making my job pretty

tough if anything went wrong. However, these are the kind of complications that happen all the time in the exhibit world, apparently.

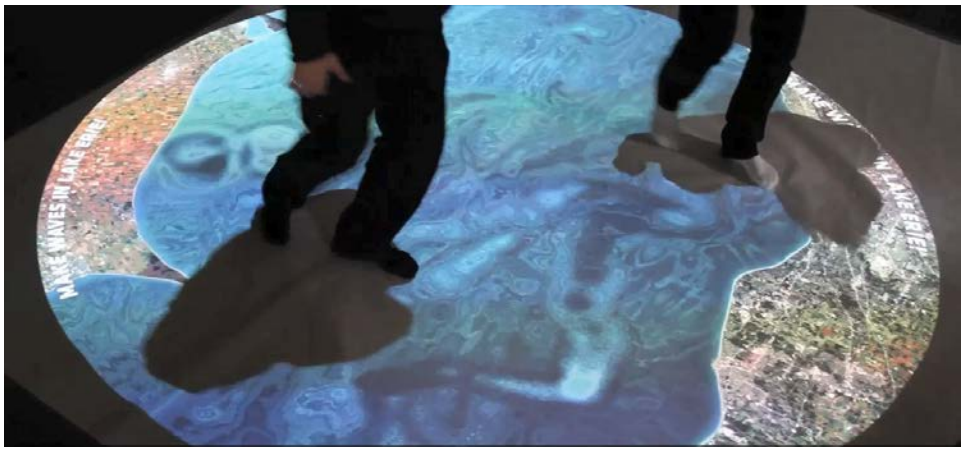
The next crisis originated in the kind of network the A/V installers were using once they actually got in there to install it. They did not implement a router for our video players (BrightSign boxes), to which my program broadcast the signal to change the video. Therefore, the static IP that was assigned caused a continuous looping broadcast from my program to the boxes and back. All programs were crashing!! It didn't look so great to the client, needless to say. Fortunately, we had set up my program first, and it had run smoothly. Then the BrightSign boxes were connected, and that is when that the errors started occurring. This made for easy debugging and less panic, and a fairly straightforward answer: get a router and mimic the configuration we had tested for 2 weeks straight back in Boston.

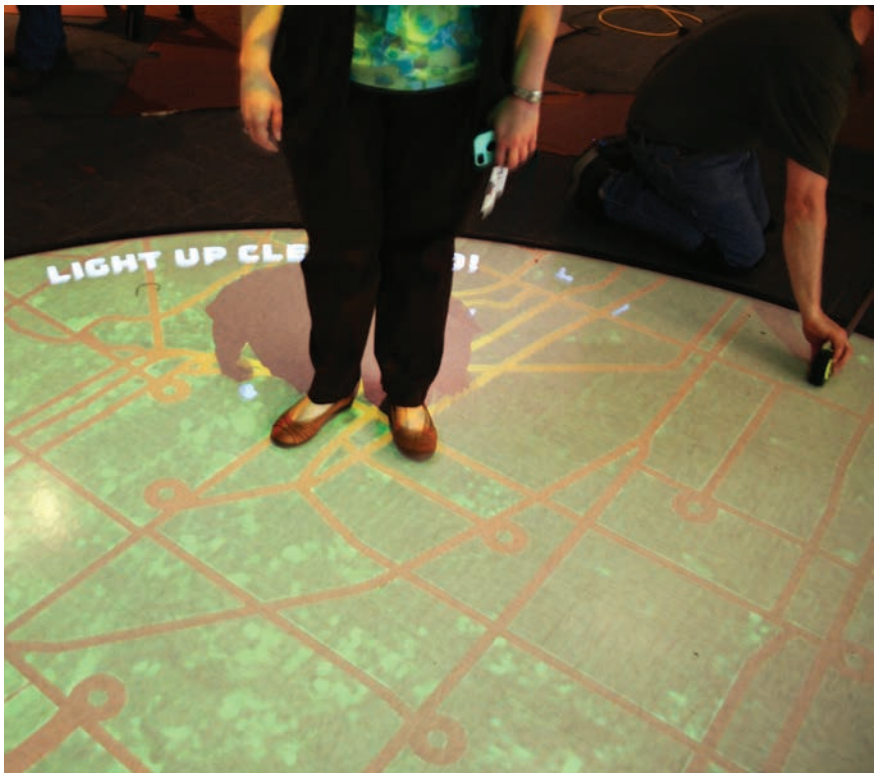
The last mini-crisis occurred an hour (!) before I was to leave for the airport. The menu bar was coming up regardless of how many times I told my program to come to the front and make itself the full screen. Fortunately, my colleague, Greg Sprick, had seen problems like this before. Rather than try to debug the OS X operating system to determine what was causing the Finder Menu to come forward, he recommended using AppleScript magic. This script can bring an application to the front every ten seconds. This worked, and worked fast. I am very fortunate to have co-workers that have seen these kinds of issues before. (This is something I think about when I think about starting my own company one day – don't go it alone!!!) I was all set to head home and the installation looked fantastic.

Conclusion

NASA Glenn is a wonderful addition to my portfolio. But, it is much more. I was able to create a professional and permanent installation with the skills I have developed over my three years at DMI. It successfully addresses all the goals that I strongly feel an interactive piece should have. It is immersive, it is gestural. The participants "experience the computer." They are not immobilized in order to understand or enjoy the piece. It creates a special kind of interaction with every day site-specific experiences. Cell biology, stars in the galaxy, a city map and a picture of Lake Erie. It elevates and magnifies little things in our lives that are actually really big things. It is a great experience to be able to create something of this scale for a large number of people. It beats the pants off of making websites, I can assure you.


Lake: users create a wake as they walk




LIGHT UP CLE


City: users create an electrical pulse throughout city streets


City: users create an electrical pulse throughout city streets

Bodies of Water

Modern plumbing has domesticated a force of nature- or has it? An interactive, immersive installation, Bodies of Water re-contextualizes the average American's interaction with water, typically constrained to faucets and pipes. As a human body is 60% water, the participants may find themselves more fluid than expected.

An Iterative Process....

The design for Bodies evolved over several iterations. My first installation, *Faces*, was a test run at the AMP Gallery in Provincetown. The second was the MassArt thesis walkthrough (working title *Walkthru*), and the most recent is the 3-channel audio-video installation at the MFA Thesis Exhibition at MassArt.

Faces

Faces targeted the audio implementation; since I hadn't done much with generative music, I wanted to try out a few ideas. I experimented with coupling audio with the detection of viewers' faces, thus creating an interesting generative clip of sorts. When the camera system detected a face, a sound would trigger, and continue to play until the face disappeared. The more faces it found, the more layers of audio would play. The idea was cool, but the experience wasn't ideal: quite a few issues surfaced.

The overall problem was the nature of generative music. It was a challenge to create an experience in which a user could clearly grasp the connection between his presence and the sound he heard. Too many layers of sound could prevent identification of a new sound accompanied by a new user;

users could not discern what was happening. Future installations would need to strongly identify a sound with a definitive gesture of the user: entry, exit, or some other kind of movement.

Confusion also resulted from the video presence. When audio and video are both presented, the audience seemed to expect the video to react to them more so than the audio. Also, they expected that the audio element be connected to the video in some direct and tangible way.

Another problem was authorship. The composer, Martha Bourne, knew that creating sounds in the same key would be one way to create a harmonious albeit unformed sound experience. However, yielding control of the composition was not something that was easy, and made the piece unpredictable- there was no assurance of an aesthetic beyond the discrete audio snippets.

Lastly, detecting a person's face can be problematic; the system wants three-quarter or full views of the faces, and is also heavily light dependent. For this body of work (no pun intended), a viewer's facial gestures should be less important than those of her body anyway, so the software should track the skeleton of the body instead.

Walkthru

I demoed an updated prototype for my thesis walkthrough (a gathering of the faculty and students to review works for the spring exhibition show) in the fall. It seemed clear to me that the title would explain everything- the project indicated that the body of the participant was an integral part of the piece. However, to a bunch of 2D and 3D artists, the prototype wasn't clear. They didn't seem to get the gist of the piece. I needed to re-evaluate how an average person might approach an interactive work, and what kind of information they would need to understand this form of art before they even might begin to interact with it.

This was a great lesson, and one that I consider about every time I imagine an interactive artwork.

Thesis Exhibition

Design

As I was to be concurrently completing my thesis and installing my final exhibition of Bodies, constraints of time demanded an efficiency of design. While Bodies is a piece of work that is not yet finished; specific gestural inputs (the strike of an arm causes thunder, or change in color for example) would have to wait for the next installation post-graduation. I decided the best way to elevate the beauty of everyday water – or the water that comes out our faucets and runs down our drains - was to remix and repurpose the video and code I already had. Combining the updated Dear Water video, "The Tide," the technology from Ghosts and from NASA, I was able to the viewer's body to paint a very pleasing aesthetic immersive experience of domesticated water.

BODIES OF WATER THESIS EXHIBITION: Time-tracking"Fresh-Media 2012" installation projected on left wall, updated "The Tide" video projected on the right. *BELOW:* Fluid water and tile projection onto the floor.

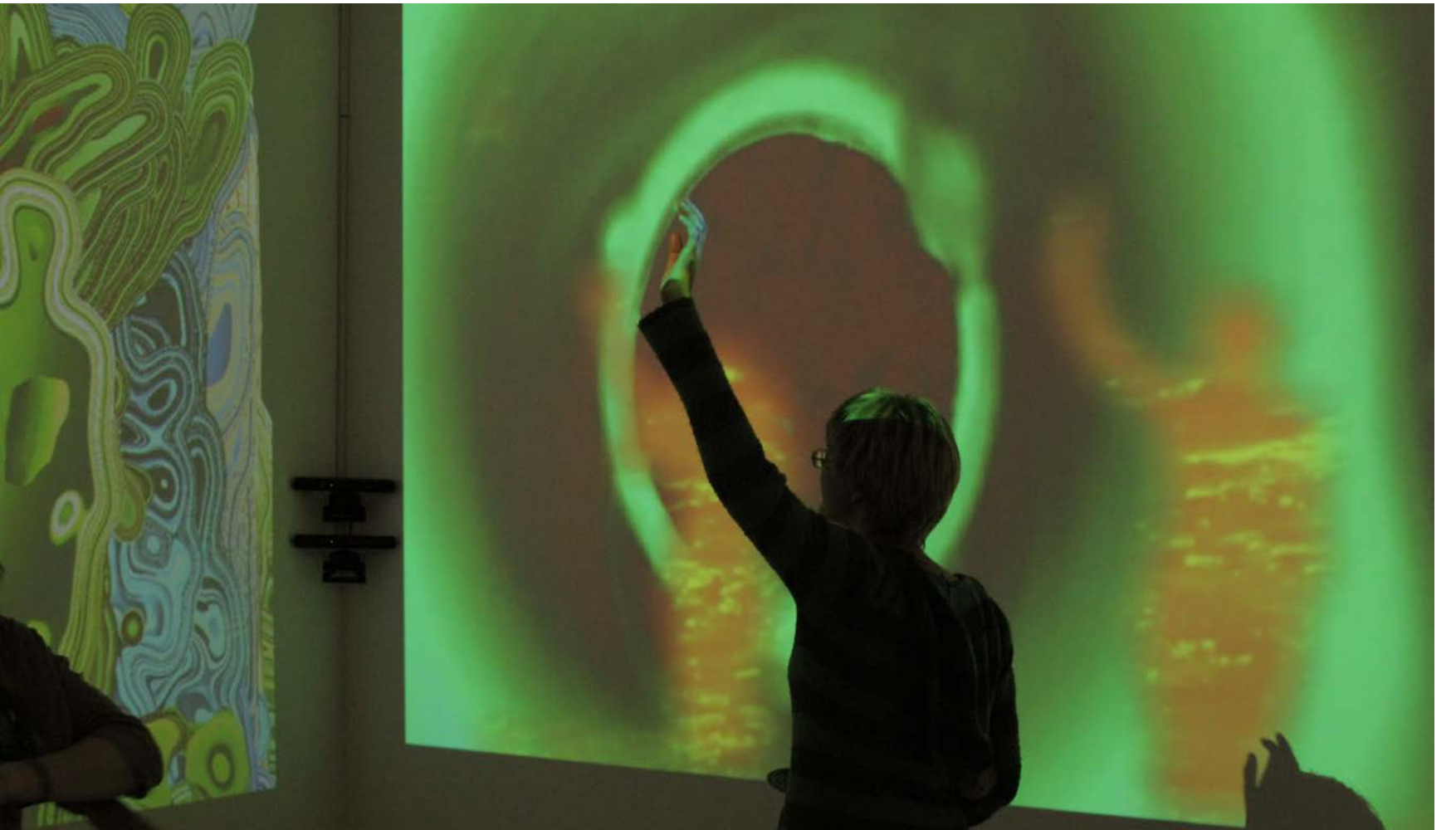
I installed three-channels: two wall projections and one floor projection. It was a serious affair. Three computers, three projectors, three Kinect 3D cameras, and a whole lotta cables. It took two full days to install – and I had to tweak some design decisions along the way.

In my previous discussion about my *Dear Water* installation, I mentioned that people couldn't see the video and therefore the meaning was obscured. This time, I dedicated the entire right wall to an updated version of "The

Image 6

Tide." Next, I wanted to incorporate the participants as individual bodies of water into the video, but I also wanted them to be apart from it. Repurposing my *Ghosts* program, I was able to the users body as a form of water – beach surf. After testing the insertion, I decided the water needed to be a brighter color in order to be seen - either of the same color scheme as the Dear Water video, or complementary. For example, red-figured water was most noticeable and looked best with the green pipe [Image 7]. Knowledge of color dynamics and a painterly eye for color came in handy, although the aesthetic came at a cost – few people realized their figures in the video were literally turned into a body of water.

Image 7



On the left wall, I projected the same *Dear Water: The Way You Move* program from FreshMedia 2012, but with the updated and more colorful “The Tide” video. Because Macs have a scheduling capability, I was able to coordinate the start-up of both machines, so the video and corresponding audio was generally in synch between both walls.

On the floor, I projected a picture of blue bathroom tile. I had originally projected a shot of the ocean, but with the light sparkling off of it, it actually looked more like space. I thought, if I am talking about modern plumbing, why don't I see what happens if I go more literal? The blue tile was a clear winner. As far as the interactivity went, similar to the *NASA installation*, as people walk across the projection, the program warps the image so that it looks like they are walking through water. I bought some reasonably cheap floor vinyl from Home Depot, and turned it upside down to provide a plain white surface providing a much better display than the hardwood floor. Putting a pedestal sink on the side, centered, completed the piece [Image 6].

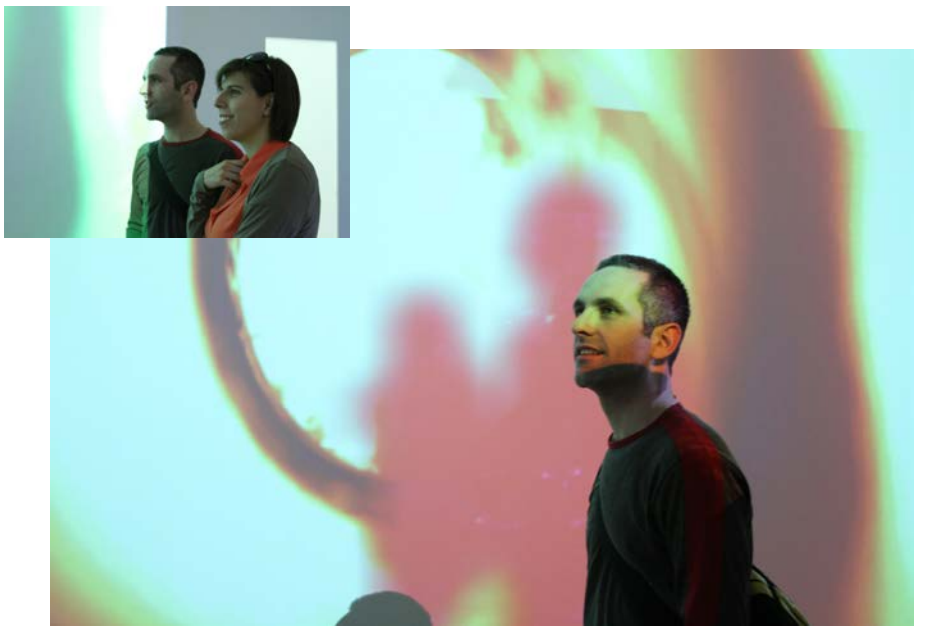
Results

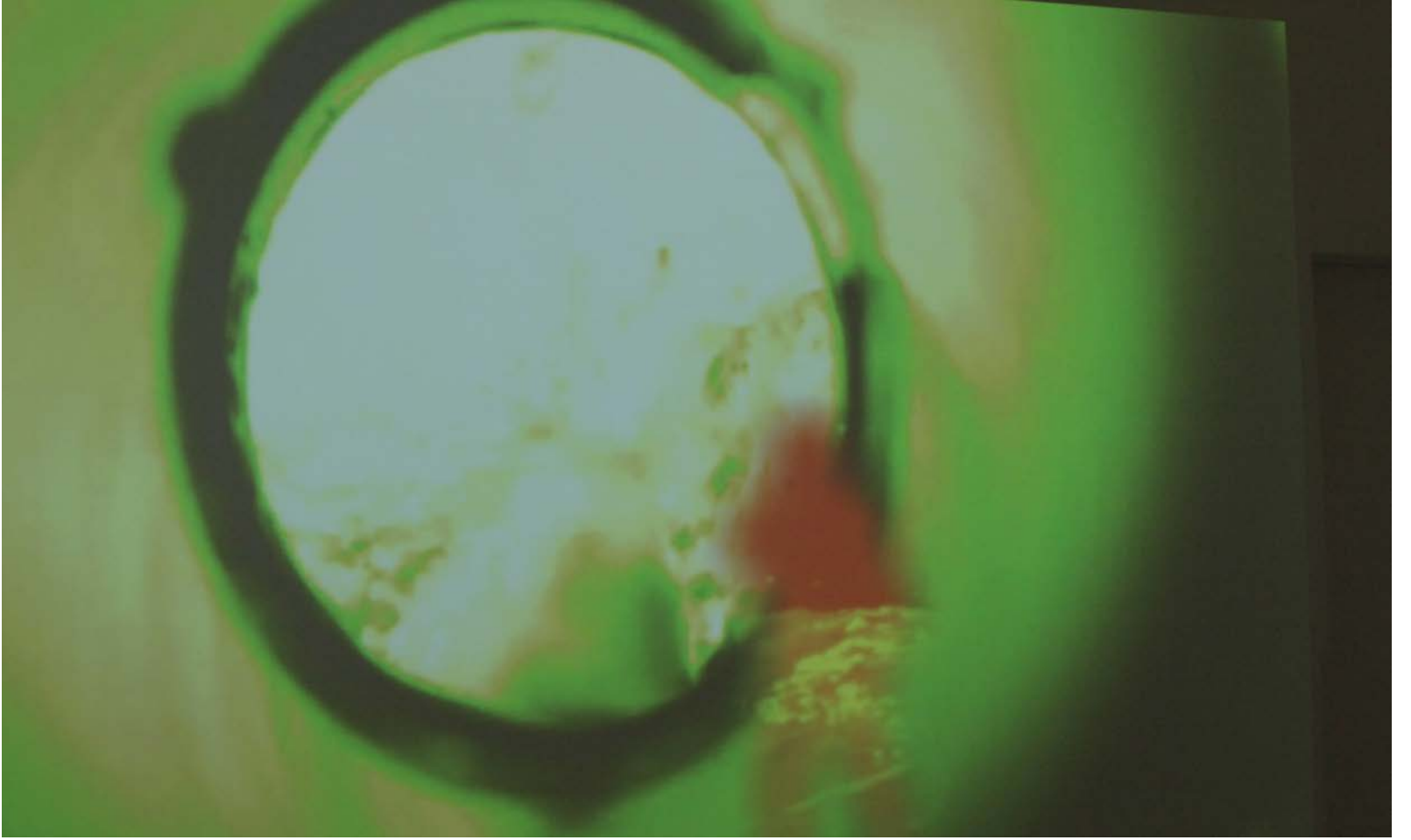
The exhibition was a rousing success! It was so interesting to see how people interacted with the various pieces, and I was extremely pleased that people seemed to comprehend the import of my statement.

At first, most folks would hang around the perimeter of the floor projection, situated at the entry to the room. I am not sure if they were hesitating, thinking perhaps they couldn't walk on it (despite the fact there were already scuff marks on the vinyl!), or if they were just preferred to watch (I think had the entire show been an interactive show, people would have felt more free to just jump in). Of course, there were enterprising individuals that did anyway. Overall, it was a remarkably beautiful, calming experience, people would stand there for quite a while not even looking up at the wall projections. Someone quipped "why did I just go to the trouble to renovate my bathroom? I could have just projected the new floor I wanted!"

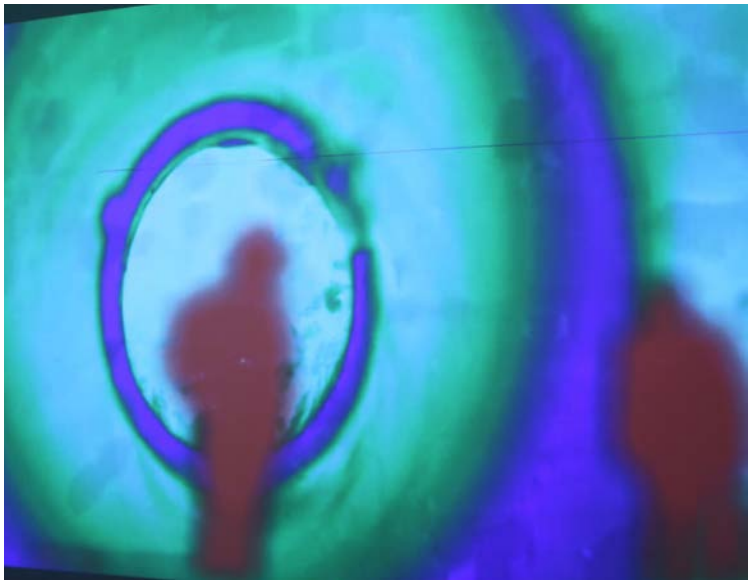
Once they did look up, they were drawn immediately to the left projection, the *Dear Water* piece (again, some prodding was necessary if there was no one else interacting with the piece- observers standing outside of the Kinect camera's scope would think it was just a regular video). People were instantly drawn to creating their own designs. There was one person who pirouetted his way through the space. He said "I've been getting into my body and exploring performative pieces. I really dig this – I can use the whole space and it tracks my movements." There was another fellow that was on crutches. He was able to make full use of the "canvas" to create the design he wanted. Some folks thought the change of color was interactive – they were moving closer and further away from the projection to see what happened. I told them I thought that was a great idea. "Next time!" I said.

I was also very pleased with the projection on the right wall. Scaled ten feet by eight feet, users could not help but "experience" what the computer could do for them in





the intuitive and gestural way Myron Krueger emphasized. "The Tide" was fully viewable and its meaning was very accessible. As one of my participants noted, the circular void appeared as its own entity. Viewers entered the void, but they were foreign – they were separate – almost like invaders. Unfortunately, few seemed to realize the foreign bodies inserted into the video were bodies of water – the red, green, orange colors rather than a bright obvious blue made that difficult. But, as I mentioned, I sacrificed the literal for the aesthetic. It was more important to me for the user to realize they were being inserted into the piece, and for it to be beautiful, than to literally render them as bright blue "bodies of water." It is my hope that the title, and the gestural demands of the piece, as well as the summary I provided will cause the participant to infer what *Bodies Of Water* truly means.



Conclusions

As *NASA* and *Ghosts* were successes in their own right, through science and through history, I feel that *Bodies of Water* was my truly artful piece. I was able to digitally represent a precious substance, water, in an aesthetic and meaningful way. Most of us in the fully developed world think little about civil engineering: the expense and the effort that goes into providing us with clean, potable water.



Final Conclusions

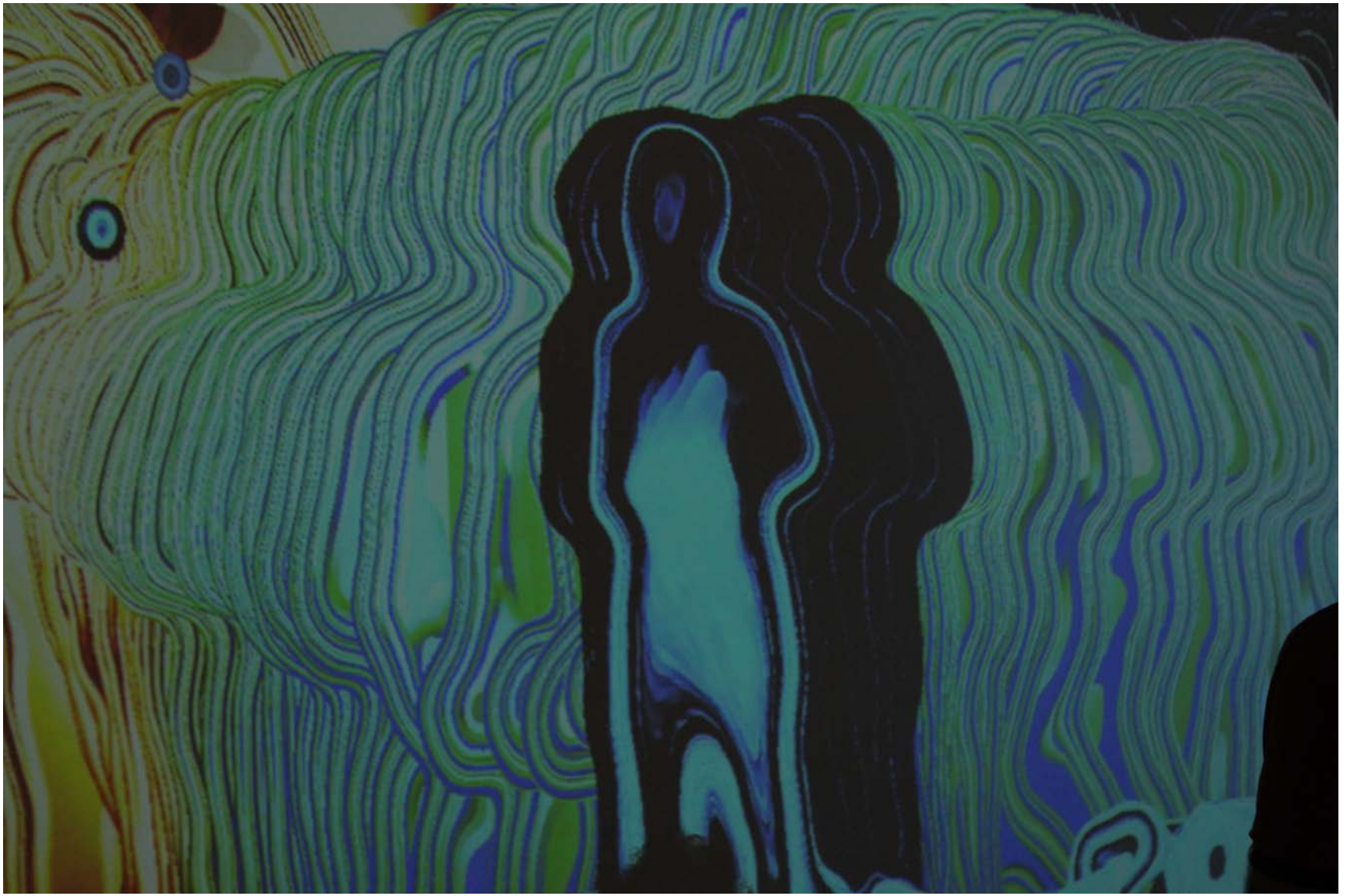
With five major installations under my belt, an ongoing consulting gig, and several projects to be continued beyond my graduate work, I am glad I went back to school. I am no longer completely bound to my desk coding corporate website after website. I have learned to create entirely new kinds of interactive experiences and get paid for it! These experiences are typically fun, immersive, gestural, aesthetically appealing, perhaps unusual, sometimes informative, and often reflexive.

During my time at the DMI, I have learned how to construct successful interactive experiences involving my tools of choice: digital video and algorithm. With my first piece, *Neighbors*, I created a prototype of an interactive narrative. I quickly came to understand the challenges one faces when designing causal relationships. Having not yet learned how to create a system that was truly dynamic, it became clear that in order to make *Neighbors* a true two-way conversation, I would have to create an enormous database and taxonomy of possible cause/effect scenarios. The system could then build an



experience for each individual participant. This is was not something particular appealing to me. Building some kind of pre-scripted *Second Life* universe wasn't really what I wanted to do in my graduate studies. I wanted to make beautiful, dynamic experiences that have the power to transform how people think about their everyday lives.

With *Smiley 1.0*, I hit on something very important. I discovered that the flexible algorithms that can preserve the complexity of a user's expression (rather than modulate or constrain it) create successful dynamic experiences. Piggybacking on the creativity of the human user leverages his capacity for unscripted spontaneity, which is for the most part better than anything a machine can simulate. With Smiley, I used something as ordinary but as varied as facial expressions to highlight the special power human non-verbal communication. As there are innumerable human expressions, gestural interfaces provide a fantastic canvas with which mirror back the beauty of human emotion.



Gestures then became a significant point of departure in my projects. *Dear Water, Ghosts, NASA* and *Bodies* all contain strong elements of gestural interaction, or what I like to call gestural dynamics. My projects utilize gestural dynamics not only because I desired to create gestural and immersive interfaces but also because the physical body of the participant is absolutely necessary to the statement of the piece. It is reflexive in that way. Rather than explicitly providing the user with a pre-defined narrative, I choose to insert the user into an experience, and when she realizes her effect on the system, she may or may not create a narrative of her own - it is up to her.

The *Ghosts* installation is the most overt mirror of the user's image and behavior, but it was necessary because the piece itself is about the mortality of the participants. The live footage superimposed over vintage footage creates a unique compression and expression of time. When dealing with time, I found that the installations were most successful when site-specific, or connected to a particular place or space that could almost implicitly span time.

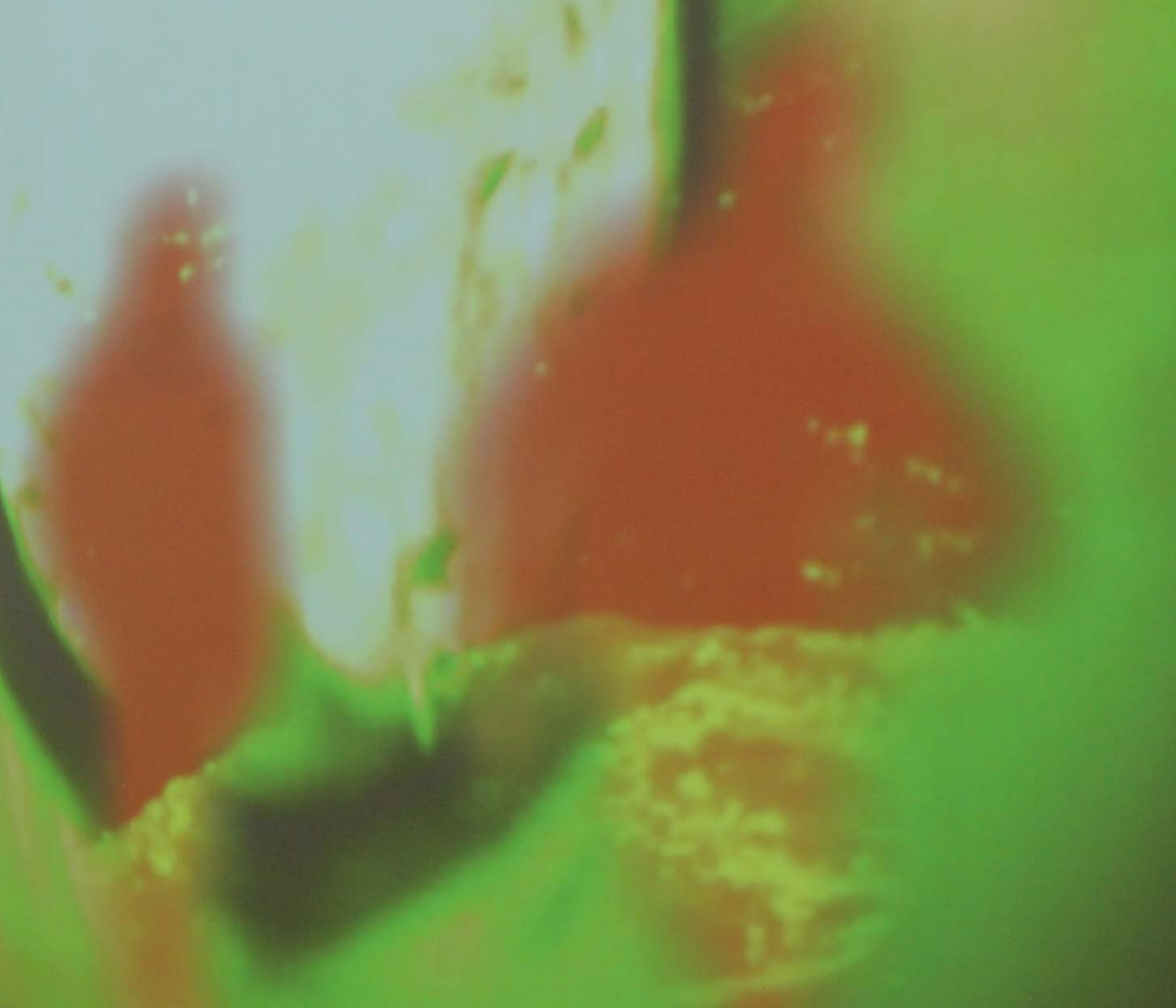
Dear Water: The Way You Move leverages both the participant's body as well as the participant's specific movements. Because he is 60% water, the installation is a de facto statement about the way he himself moves. His body becomes the canvas for "The Tide" video, and his motion over time creates entirely new compositions. The enterprising participant uses his body as a brush, painting the entire canvas with expressive gestures. This is a great example of a dynamic conversation between a gestural-based system and the user.

As habituated spectators, we need an experience that is going to break us out of our spectatorship. Since I use video to create my content, I really need to create a different kind of viewership apart from TV, gaming and theatre going. Gestural, immersive installations can do that. Scale is therefore intrinsically important. With *Bodies* projected at well over 9 feet high (much larger than most people's wide-screen TVs), every user was inserted into something that was much larger than she was. While the first two *Ghosts* installation were limited in scale, the upcoming *Ghosts of Twin Cities* projections will be giant – perhaps as large as twenty feet wide. This will propel *Ghosts* up to the level of immersion I was able to create with Bodies.

I have found that creating art with digital media harnesses the power of digital devices and digital data that I can launch a compelling conversation that would not happen otherwise. I do not believe I could say what I wanted to say with my projects without a system that takes advantage of digital video with flexible, adaptable algorithms.

Digital video and animation free us to use all sorts of visual metaphors. We can create interactions that are very specific and therefore particularly meaningful to an audience. Combined with a dynamic interactive capability, these possibilities open a wide realm of participatory experiences that can effect a change in perspective of the everyday.

Going forward, I intend to explore ways to navigate archives of digital video and data. I want to contribute in some form to the analysis and consumption of the past that will inform the present and the future. I also feel strongly about the consumption of our natural resources, water being the current focus. I look forward to creating aesthetic, inspiring systems that manifest the power to transform an everyday experience into a novel one.



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