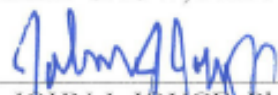ELEMENTS, FANCY AURAS

AN EXPLORATION INTO THE PROCESS, INTENTION AND

AESTHETIC OF INSTALLATION ART

A THESIS

SUBMITTED ON THE TWENTY-NINTH DAY OF JULY 2013

TO THE DEPARTMENT OF MUSIC

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OF

MASTER OF ARTS

BY

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I. Intention

The piece, "Elements, Fancy Auras" is an exploration in the medium of installation art

that draws on trends in this field as well as in contemporary music. This involvement

allowed it to take on the organic vs technological environmental relation in a very direct

way. The creation of an isolated environment makes it possible to control multiple

senses in a calculated way to portray a complex feeling.

Aesthetically, "Elements, Fancy Auras" works within this framework and celebrates an

anthropomorphization of one of the foundations of the natural world.   Having lived in

several different climates, I've been able to experience weather and environment as a vast

and incredibly diverse entity. Constant changes in all types of weather have an incredible

impact on daily life and community. Local weather, which more clearly affects our lives

and interactions as well as solar and space weather, which (though millions of miles away

from any humans) can drastically affect major trends and dynamics of weather on Earth

can easily be overlooked with our attention to the smaller details in our personal

lives. These large scale weather occurances definitely create the isolated environment

that is Earth, so I have imagined these phenomena as a creation of a much smaller scale

installation through the lens of human perception. Certainly weather events are out of the

control of any specific individual and occur regardless of our intention, but as a

collective, human interaction can be a powerful force. The effect these events may have

on one's personal life, however, is absolutely individual (to a degree) and can even affect

the perception and mood an environment has on similarly placed individuals (as we all

become part of that environment). Similarly, "Elements, Fancy Auras" allows a degree of control from any observer in the environment in the speed and intensity of the storm, but not in the inevitability of it. Additionally, their movements around the area affect the experience for them slightly, as well as any other individuals inside the environment at the same time.

"Elements, Fancy Auras" is more than an environment and communicates with its inhabitants on a physical level. From this vantage point, general patterns and shapes of the natural environment are represented in an abstracted, synthesized form. It is an environment in which participants are not only given a degree of control in its current state, but also analyzed in order to indirectly affect change in its evolution. More specifically, "Elements, Fancy Auras" takes sights and sounds from various examples of weather on Earth and merges them with both precomposed as well as live generated music and projections, then expands them into room sized auras that an audience is invited to participate in.

In order to achieve the aforementioned exploration, "Elements, Fancy Auras" has been composed with several key elements that combine to create a specific visual and aural aesthetic reflective of the description above. First, a physical ceiling structure that consists of hanging paper supported by mounted carriages, which allows for movement was constructed. This constitutes the focal point of the piece. Speakers placed around the exhibit contribute sonically as well as kinetically to the installation. The carriage has a pulley system that allows direct physical movement of the paper, and a mounted

projector, as well as a convex mirror mounted in the room, contributes to the creation of the changing visual aesthetic imagined across the ceiling. Next, a technical array of piezoelectric sensors provides the system with feedback on the paper vibrations and room occupancy. This data further drives the direction of the experience of the exhibit. Finally, there is a patch written in the program Pure Data that determines the visual output from the projector and the aural outputs into the speakers based on all the data received from the sensor array. The sounds and visuals are carefully composed to create an experience that evolves from changes and movements throughout the system and interacts with its audience.

Finally, to enhance the visual immersion in the piece, reflected light from a single source that illuminates the space simply with the color and shade and image changing along with the sound through the framework of each cycle was added with a security mirror underneath the structure. The use of sensors to invite audience participation also comprises an important aesthetic element. The piece is always moving and changing, even without an audience, but its interaction with people noticeably changes the environment as our own interactions with any environment clearly affect each other.
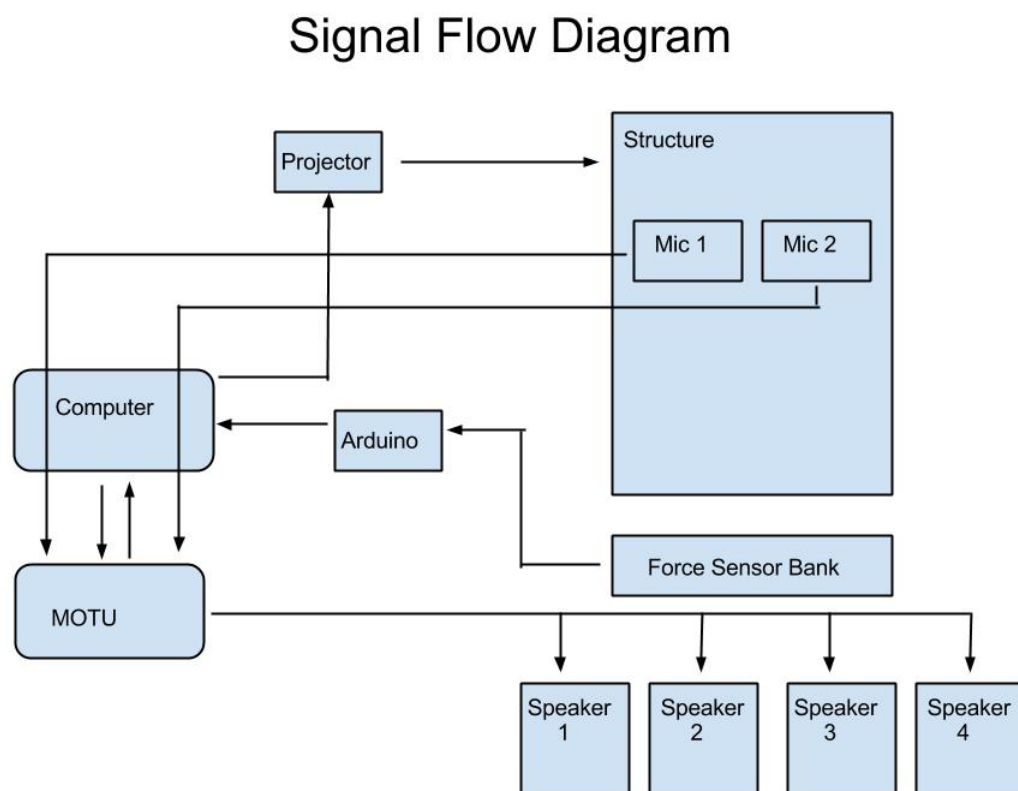
II. Technical Description

The specific aesthetic structure of the piece is made up of several moods that characterize the progression of a storm within the environment. There are quite a few components that combine to create the effect of "Elements, Fancy Auras." Visually, there is an

evolving organic base image that is projected onto the physical ceiling structure that continuously moves throughout the experience with simple, geometric shapes that move and flash around it in an interactive way based on audience communication through sensors. Sonically, there are more complex elements involved. First, there are two contact microphones that have been physically attached to the paper composing the structure which pick up any vibrations the sculpture experiences in its movement (particularly with the motion created by observers pulling the hanging strings in the room). This movement not only has a visual reaction as mentioned earlier, but also creates and captures the sounds that the paper makes. Those sounds can be heard in their original form, as well as feeding into several other mechanisms, the first of which is just filtering and delay on the raw sound. This signal is also analyzed and broken down into the strongest frequencies (and their relative amplitudes) that combine to create the complex sounds that we all hear, and that information is relayed into a couple of places to further involve the experience. One of these instances is with a selection of weather inspired classical music that was predetermined (the particular inspirations dictating which piece was used in which moment of the experience) and played back, but with the live recorded sounds of the paper shaping the particular frequencies allowed to pass through in a vocoder. With these two (pre-recorded and live created) sounds combined, a new type of sound emerges, and is sent through a filter/delay chain as well before being sent out to all of the speakers. Finally, the amplitude of the incoming (dry) signal is also recorded and sent to be used along with the array of sensors. Next, more modern, recognizable (pop) songs that were also weather inspired add another dimension to the sound in both a direct and subtle way. In a similar manner to the way in which the

selections for the vocoder were determined, the particular sample used at any given time is specific to the point in the entire experience. These samples go directly into another filter/delay chain and their levels oscillate in and out of the web of sounds throughout the experience. Additionally, the samples are analyzed for their harmonic content similar to the analysis of the audio from the paper, but instead of using that information to shape the direction of a separate sound, the information is sent to a bank of oscillators which are used to create chords that evolve alongside this sample at a predetermined rate, density and octave (again based on the overarching structural moment). The last sonic component utilized was a set of more organic weather sounds that are found, more naturally and directly, in the process of an actual physically occurring storm. These types of sounds are used in two ways, the first of which is in a very direct, interactive way through the floor sensors placed around the room. The other being in the creation of an overall atmosphere with longer samples that passively envelope the room. These sensors consist of a bank of force sensitive sensors that are used as triggers: whenever an observer steps on one, the information they collect is routed through an Arduino, and into the computer. The effect is that, in addition to the flash of color created with the projections, a weather sound reflective of the moment of the storm the observer is caught in when they trigger the event is played in one of the speakers surrounding the installation. The amplitude of the incoming signal mentioned earlier also affects that of the triggered sound, so more interaction with one element of the piece allows stronger effects in the sounds produced by another. Finally, a precomposed background of these specifically weather sounds sets the basic mood on which each part of the storm is staged.
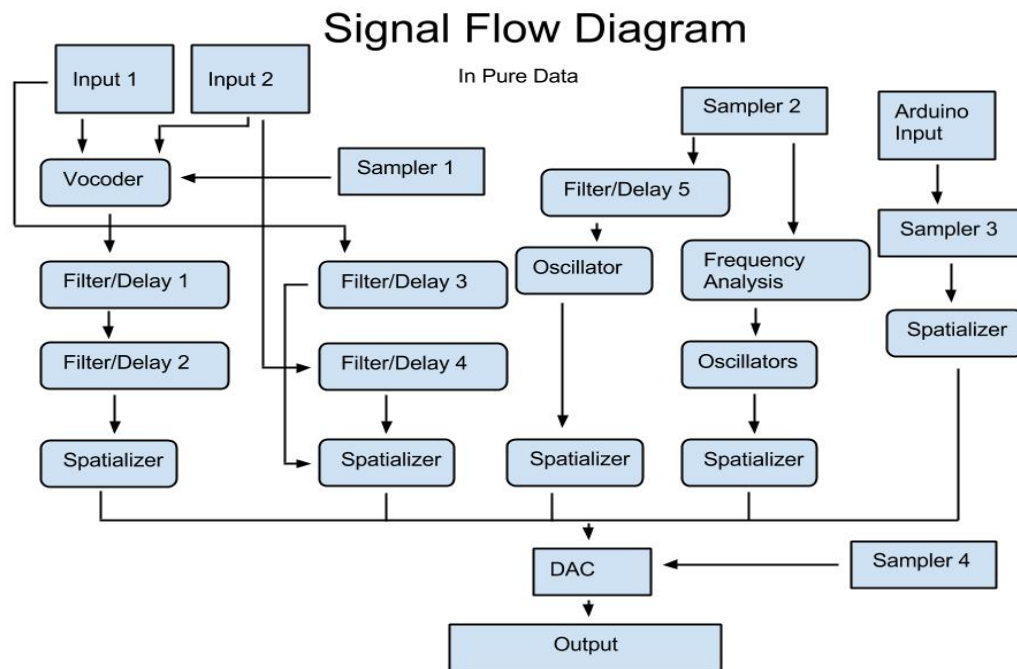
The precomposed, overarching mood structure is the framework of the progression of the storm. In order to create this imagined framework, five preconceived "moods" characterized by parameters set on each of the aforementioned layers fade between each other in a specific predetermined order (all in Pure Data). There is an initial input required to begin the experience, which then carries on in a loop with the time between each world determined by either a set time period (if there is no activity within the room) or the achievement of a certain level of activity within the room if the contact microphones attached to the physical structure are being moved by the audience.

Chart 1

Signal Flow Diagram

		Structure
Projector	→	
		Mic 1 Mic 2
Computer	Arduino	
MOTU		Force Sensor Bank
		Speaker 1 Speaker 2 Speaker 3 Speaker 4

The flow of information in the circuits moves from the physical structures around the room in this fashion.

Chart 2

Signal Flow Diagram
In Pure Data

| Input 1 | Input 2 |

| Sampler 2 | Arduino Input |

| Vocoder |

| Sampler 1 |

| Filter/Delay 5 |

| Filter/Delay 1 | | Filter/Delay 3 | Oscillator | Frequency Analysis | Sampler 3 |

| Filter/Delay 2 | | Filter/Delay 4 | | Oscillators | Spatializer |

| Spatializer | | Spatializer | Spatializer | Spatializer |

| DAC | Sampler 4 |

| Output |

The flow of information within the computer, in the software Pure Data has been programmed to move through these components to create the sonic portion of the piece.

Below are examples of screen shots of the actual program I created for this project, the first for the sound capabilities and the second for the images.
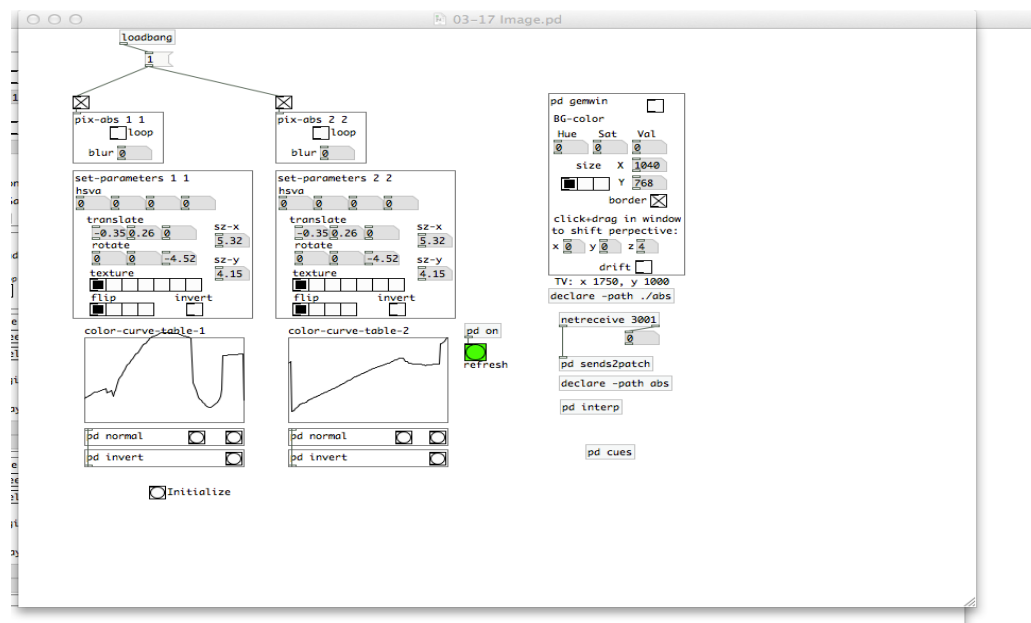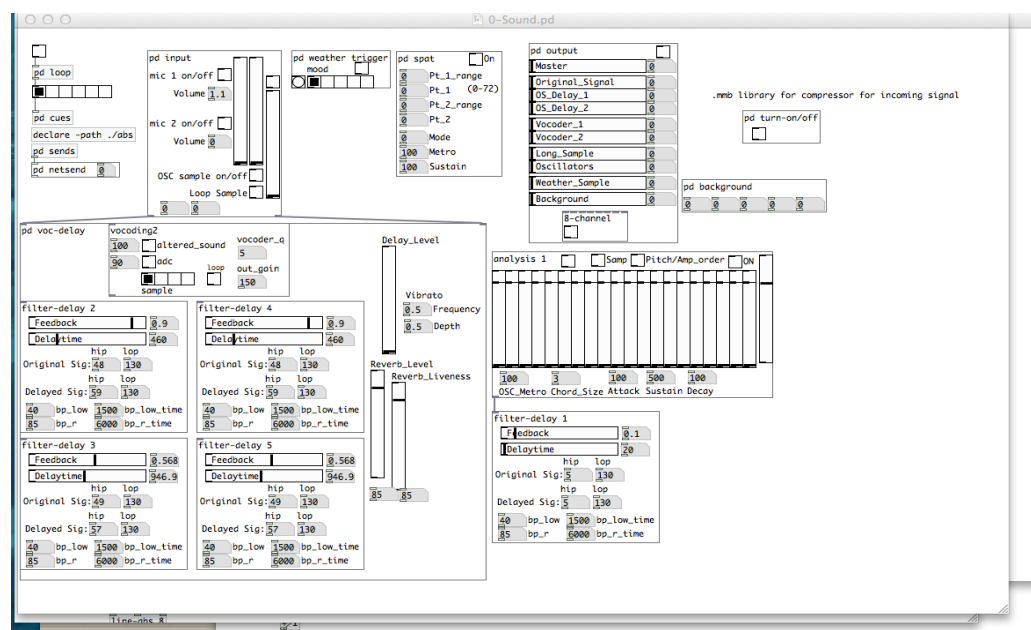
Illustration 1

Illustration 2

III. Audience Reaction

The primary initial reaction of the audience was to become very absorbed in the experience once they realized the effect they had on the exhibit. Initially, I thought that making the most direct connection with the force sensors less direct would be most effective by hiding them on the floor. However, I found that a lot of the connection to the piece and the realization of its interactive properties was lost when it was difficult to tell that a specific footstep was what triggered a reaction. It became clear that that direct connection was necessary to initiate a communicative relationship between the viewer and the piece and further immerse them in the experience to discover the subtler properties and more complex and less direct audience-dependent interactions. The large sculptural physical object also played a large part in isolating the space as a whole, especially with the subtly changing visuals. The obvious visual reaction to the manipulation of the sensors also had a distinctly perceptible effect on pulling the viewers into the experience because that visual connection made those effects so much more clear to someone who wasn't aware of the technical intricacies of the project. Many viewers even chose to lie down in the middle of the room and allow the sights and sounds to just surround them. I also found that explaining some of the sources of the layers of sound helped listeners who did not know a lot about electroacoustic music to unfold all the pieces of the puzzle a little more easily and further immerse themselves into the sound world as well as the visuals. The exhibit, as a whole, became a bit of a playground on opening night with people wandering around to find the sensors and pulling (far too vigorously) the hanging strings.

IV. Relationship to Other Work

Installation art turned a corner from earlier forms in the 1990's as a form of extended
sculpture that developed through the introduction and use of modern technology with the
objective of immersing an audience within a piece through multimedia and
interactivity. According to Clare Bishop and Graham Coulter-Smith, the fundamental
features of installation art are "first, the aspiration to create a more direct involvement
between the viewer and the work of art; second, the observation that installation art
presents the viewer with fragments that must be explored and assembled in a manner that
'activates' the viewer; and, third, the expanded sculptural[1] tactic of deconstructing the
traditional concept of the precious work of art via the use of found objects and
materials"[2]. Immersing a viewer in a gallery space that has been transformed into a very
specific environment according to the artists' purpose and view very clearly encourages a
very direct involvement with a work of art. 'Activating' this viewer through interactive
pieces present in this environment allows the viewer a much more personal exploration of
these elements of the entire work. This makes the whole understanding of the work, by
the audience, fairly variable with its dependence suddenly on factors including personal
life experience. Finally, a viewer can intuitively understand an installation as a sort of
extended sculpture, but in order for an installation to create an isolated environment in a
gallery space, less traditional 'high' art tools are often used in the form of found objects
and materials. Objects placed in an installation must carry a certain ephemeral or
contextual meaning created or provided by the artist in order to contribute to this artist's

view s/he creates within the installation space. This allows a meaning to be constructed through the combination of these fragments.

Many artists have created works involving natural phenomena to quantitatively guide particular parameters in a temporally based artwork to allow viewers to experience a piece of their own life in a new way. Mark Fell used Brownian motion, for example, in his piece Scale-Structure-Synthesis to direct the types and movements of sounds in a surround sound environment; FOUND art collective used larger scale natural characteristics in Three Pieces such as humidity, temperature and animal movement to affect more traditional musical parameters such as tempo and density of sound of traditional acoustic instruments. Furthermore, these projects (as well as many others) serve to create an isolated world where one can experience a daily, average process in a multisensory, imaginative environment. On the other hand, Avi Asheknazi and Marion Lean created their project, Organ Alpha, through more qualitative measurements of nature. They transformed an imagination of a physical human organ into a discussion of perception and culture based on personal dreams of ourselves across a broad spectrum of people. This artwork became an amalgamation of human influence and perception of their natural surroundings.

There were several other works that I found specifically inspiring in shaping my own perception of the genre as well as how I wanted to utilize my own resources in shaping my project. Their use of technology, nature, space and vision collaborated to expand my

vision of art and method, especially with respect to communication between modern

technology and nature. Below I present a brief description of these pieces.

1. Three Pieces – Found art collective (Ziggy Campbell and Simon Kirby)

"Three Pieces is designed as a collaboration between robots, traditional instruments and

living things"[3] which all combine to become the specific components that are its

namesake. The installation was housed in the Victorian Palm House of the Royal

Botanic Garden of Edinburgh, as part of the Dialogues of Wind and Bamboo exhibition

in the summer of 2008. These two symbols (wind and bamboo) inspired this event in

creating works centered on the connection between plants and people. Wind and bamboo

represent change and traditional Chinese culture as well as constant renewal,

respectively, and represented the central themes present in the cyclical journey

experienced by viewers. Three Pieces was a representation of the modern technological

world, and the beginning of the cycle that artist and organizer Kimho Ip hoped to return

to at the end as well after viewing the 'ideal' from traditional Chinese culture seen

through the other pieces in the exhibit. The other installation present in this exhibit

meant to represent the 'ideal' portion of this relationship and journey was the sculpture

Natural Progression by Susie Brown. Natural Progression explored the lifecycle of the

integral plant, bamboo, and "highlight[ed] the need for a symbiotic relationship between

people and our biological habitat"[4]. Brown's sculpture consisted of 600 black bamboo

shoots colored and arranged into a stage for dancers and musicians. Finally, the return to

'reality' allowed the audience to "bring a memory of the 'ideal' to reconnect us with an

understanding of nature in the 'reality' of the modern world"[4]. The Victorian Palm

House was an ideal location for Three Pieces to immerse its audience in the modern dialogue between humans, nature and tradition as it is the highest glass palm house in the UK and thus becomes an isolated spot full of lush plant life and a representation of untouched nature. Three Pieces subtly uses technology by hiding physical signs of it throughout the plant life, and only making the traditional Chinese dulcimer viewable. The auditory response to change in the Palm House was more striking, however, allowing a noticeable interactive element of the installation that clearly indicated the modern technology at work. The final product created a timeless immersion in nature, culture and community.

2. Organ Alpha – Avi Asheknazi and Marion Lean

Organ Alpha is an exploration into "the body's phenomena through rhythm and sound and by linking emotional feeling to physical article"[5]. This installation serves to expand upon perceived human associations with and around our physical being by creating a physical world for us to kinetically interact with. This work allows an audience to enter an unknowable landscape of untouchable phenomena in an unexpected way. The sights, sounds and feel of Asheknazi and Lean's created environment all come from actual imagined feelings of their form by a variety of third party observers. The artists did a survey to better understand how to undertake such a task before getting to work on Organ Alpha, and used the results to play with viewer expectations and all them all to come to a greater understanding of themselves and their society in the process.

The installation is a large-scale representation of a human stomach, and as such, it

changes state from hungry to satisfied (among others along the way) in the manner the actual organ might. The physical changes the room makes that creates any specific state are where the imagined responses enter. Color changes represent the physical state of the stomach, but a glowing ambiance changes with dependence on the movement and residence of an audience. Surround sound movement represents the movement of other organs that become a part of the installation's world upon entrance into the exhibit as well, creating an isolated immersion into the artist's view. Familiar objects that contextually provide their existence in the project allow visitors to grasp other fragments without explanation on their journey, such as stethoscopes placed around the area that give further insight into other's perceptions of the traits of a physical body. Being a relatively small space (only around 4 or 5 people can enter at any time), Organ Alpha offers an intimate experience for viewers in close confinement. "The project is the work of Israeli-born, UK-based media artist Avi Ashkenazi and Scottish textile designer Marion Lean, for their MA at Goldsmiths"[6] and is part of an ongoing series of works exploring biological interaction with relation to music. The project and its imaginers also represents a collaboration between sonic and textile art in installation and even inspired a set of latex wearable designs to accompany the initial physical installation.

3. Scale-Structure-Synthesis – Mark Fell and Jonathan Howse

Mark Fell is a multidisciplinary artist living and working in Sheffield, UK who is particularly interested in new technologies in sound and visual media and bringing together various media into an interactive space of experimental art and computer science. In this particular collaboration, Fell utilizes the knowledge base of

neuroscientist Jonathan Howse in order to create a sonic representation of "the dance

of... nanostructures"[7]. Though Fell is a visually-trained artist, for this particular project

he delves into sonic art with a wish to create "non-representational" music in the same

way an abstract artist might"[7]. Using a fairly simple mapping system, Fell takes video of

Brownian Motion from a high powered microscope watching polystyrene particles

suspended in fluid and creates sounds based on the space and movement of each

particle. Brownian Motion is the movement of particles suspended in fluid that seem to

be random but depend on the movement of the microstructure of the fluid

itself. Brownian Motion is the subject of the particle theory model, which is an integral

part of our understanding of the natural world quantitatively and is useful when studying

all types of random interactions from stock market fluctuations to normal

distributions. This structural importance of life is partly the reason Fell decided to utilize

this natural phenomena in his artistic work. The sounds that emerge are meant to elicit a

response of wonder and interest in an unexpected experience rather than any other

specific emotional or mental response. The music is meant to be strange and confusing,

and therefore its specific parameters affected by the particles are not directly

expected. Pitch and timbre of the sounds are what the movement controls, but through

distance any specific particle moves in a period of time and its angle rather than on with a

less subtle xy graph. Additionally, Fell directly maps each of eight particles to eight

separate speakers distanced from one another in a large space with a visual representation

of the particles shown as well, so the sounds can easily be connected to the real world

source. Furthermore, Fell wishes the viewers to experience these movements physically

through their own movement around the exhibit space (the reason for separating the

speakers enough so their sounds do not mix much) rather than displaying the work more traditionally by allowing the movement to occur around the audience as they sit in the center of a circle. The project is part of a large-scale exhibition, Festival of Mind, at the University of Sheffield in September of 2012, which displayed "a number of pairings of science specialists with nonspecialists in the name of public engagement, alongside talks, exhibitions and demonstrations".[8]

4. 200 Prepared DC Motors, 2000 Cardboard Elements – Zimoun

In his large installations, artist Zimoun attempts to create an environment that has been defined by sound. He uses small and simple material like cardboard, cotton balls, wire, DC motors, etc. to create large architectural pieces that encompass a viewer in immersive sound. His kinetic sculptures serve to facilitate interaction between people and their environment and define their own space in a physical, almost life-like manner. Zimoun describes himself as a sound architect, which is very indicative of his motivations and results as an artist. He finds the life and complexity in simplicity and uses drone sounds to create a living presence for his sculptures. His inspiration comes from his observations of lifelike machines and their changes in state. His projects affect these changes through their own movement and sounds. This particular piece resembles a large fort a child might imagine and attempt to construct, as it is massive and intricate in its design and structure. Many of the cardboard pieces have small DC motors attached that spin small heavy lines that splay out in their movements and strike the cardboard in a rhythmic fashion. The sound resulting is a massive cloud of movement and sound that cannot easily be picked apart into its individual pieces. The structure is intricately built and also

very aesthetically pleasing in its form. This large organic form visually represented is easily complemented by the vibrations the motors cause and the wall of sound that consequently emanate. Once inside the structure, the viewer becomes encompassed by it in Zimoun's vision of the life within an inanimate structure.

5. Loud Objects – Kunal Gupta, Tristan Perich, Katie Shima

On the other hand, Loud Objects is not an installation or established, set piece. Rather a group that creates performances through electronics in a dynamic fashion. Loud Objects is a trio consisting of Kunal Gupta, Tristan Perich and Katie Shima and they seek to create sonic explorations through the use of simple electronic components including microchips, audio jacks, wire for example. Their performances do not solely consist of sonic phenomena; they in fact create their own circuits and solder them on stage as a part of the experience and an integral component in the sound as well. They use this method of performance to create very relatable electronic music contextually through these clear visual indicators and simple procedures that produce a unique sound set. In this way, the audience can see them create every musical gesture. The music they generate is created through their own instruments entirely and the sounds are affected unconventionally. They perform atop an overhead projector, as well, which creates an even more immersive environment for the audience.   This type of electronic creation and recreation is interestingly carried out similarly in the artists' other work in particular, 1-Bit Symphony,[9] where he creates an album for distribution untraditionally through his own formed and programmed circuit that really allows the listener to hear it perform its music live (in a sense). These pieces allow an exploration in a common issue in

electronic media, being the line between performance and creation. This group creates sounds that appear to be simple through highly complex technical exploration and an integration of a broad spectrum of ideas. The result is an interesting juxtaposition of hard science and art that allow for a very palatable experience for an audience able to contextualize strange electronic music with easy to recognize "electronic" tools in an artistic setting.

6. Sun Boxes – Craig Colorusso

Sun Boxes is a piece done by Craig Colorusso that creates a soundscape that evolves through time though environmental interaction. This piece is an installation of sorts in that it isolates its audience in a particular space (which can and has changed specific locations) and moves and changes based on local circumstances as well as an individual's position within the project. Sun Boxes is comprised of a large amount (20-25) of speakers placed outside around an area that run completely independently of each other and are powered entirely through solar panels. Each speaker loops guitar note samples of varying length and the result is a Bb chord that evolves continuously based on light levels and timing of the looped samples against each other. Colorusso wanted to utilize his solar power source to create "day" music that very much depends on the day for its creation and peters off as the sun sets, or even through inclement weather and cloud cover. Furthermore, the vast array of sound creates an environment that is just as much dependent on the observer's spatial positioning for their experience. Any particular space or time in the exhibit encapsulates a different evolution of soundscape. The concept of this piece is fairly simple, but the end result is a very dynamic and effective environment

and soundscape. This set up allows an audience to explore sound, noise and silence and the act of listening in their relationships as well as those of space and time or even nature and humanity in urban life. Colorusso even states "the footprint this environment occupies is similar to that of a city: a metropolis; it is a burst of technology in the middle of nature"... "sun boxes interfaces with the environment and collaborates with nature" and "is the perfect combination of technology and nature that create art, an environment, and a metropolis".[10] Our reliance on the sun is even more apparent in this piece shown by the strength, density and even length of it depend very much on local weather as well as global positioning and seasonal changes. The piece is clearly site-specific in its creation, but also general and global in nature, as it can be reinterpreted for any particular place. All of these facets combine to create a unique evolution that never really ends or entirely repeats in a simple and concise manner.

V. Conclusion

Working on this project, I found quite a bit of inspiration in previous works of audio visual intermedia, often in large scale installation works. However I found that much of it displayed a much larger emphasis on the visual component, with the soundscape either much simpler or even entirely dependent upon the former portion. Because of my background, I was much more concerned with the sonic content and wanted the sights associated to be secondary in that they emphasize and create a relatable structure for the project, but do not overwhelm. I found that even less complex layers of visuals can be very effective in communicating some of the sonic elements when used in

combination. The large, organic sculptural structure allowed for a relatively simple type of projection mapping to be utilized to great effect alongside all of the other elements, without muddying them. Some of the most seemingly simple or direct pieces of the puzzle were the most efficient in communicating with the audience.

Using sound to greater effect also allowed a different type of communication with my intended topic than any of the above projects I researched, and it allowed me to interpret the technological and organic relationships more freely. These particular projects were particularly interesting to me for several reasons. First, many of them focus a great deal on very technical subjects or processes. With my technical background in engineering, physics, and mathematics, I found the utilization of these skills in a more artistic way than usual particularly exciting to explore. Looking at projects such as Fell's sonic exploration in Brownian motion, and Zimoun's work with simple DC motors, for example (they all have an element of fairly technical interest) really inspired me to work on some sort of physically technical aspect, which came out with my heavy interest in wiring sensors (which also helped reinforce a very interactive character of the project). Next, I looked a lot at weather inspired pieces. I formed an interest in this subject matter when I interned at the Air Force Research Lab for two summers in my undergraduate work and worked in the Space Weather Center of Excellence on projects specifically focused on solar weather. Having looked so long into physically building large scale projects like antennae, I became very interested in the idea of recreating a world that encompasses events out of human control that are still very much a large part

of life. A piece I composed with a fellow student, Eric Bohannon, called "Weather

Inc." brought me further into this world as well. This piece was a live performance piece

that the two of us performed in a very theatrical way using weather sensors that I

repurposed to control various parameters on an electronic instrument and played together

as anthropomorphizations of the weather and technology. I did find many artists who

were similarly influenced by these topics in their projects. Colorusso's "Sun Boxes" and

Found's " Three Pieces," for example, displayed diverse methods of realizing their own

connections with nature. Finally, I wanted to create a very immersive

environment. Asheknazi's "Organ Alpha" is a very interesting take on this type of

experience, and I very much wanted to take a similar type of experience that they

created. Isolating a new, physically un-experienceable world is something I found highly

involving and interesting. Of course, I wanted to go in a direction much more outside the

human body, but in a similar way, I wanted to create an experience that removes oneself

from his/her daily physical experience.

Having worked on another installation last year with another fellow student, Kara

Murphy ("Vital Organ"), I found this medium to be particularly effective in

communicating with an audience in a very indirect and approachable way. "Vital

Organ" was similarly immersive and interactive, but much more focused on a particular

instrument (the organ) that the audience was invited to step into and experience. With

"Elements, Fancy Auras" I wanted to instead create a large scale instrument from a larger

scale experience that can be manipulated and played, but still holds a strong structure of

itself and the inspiration it represents. "Elements, Fancy Auras" is my interpretation of

my own life experiences and an amalgamation of them all in the context of a greater force

that is the world.

Notes to pages 11-20

IV. Relationship to Other Work

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Biography

Ashley Daniels is from Albuquerque, NM and graduated from Sandia High School in 2007. She attended Tulane University and received a BSE in Engineering Physics with a minor in Mathematics in 2011. She has been heavily involved in solo classical flute performance as well as in various wind and orchestral ensembles since 1996.