

# Experiential Extensions

By:

Edward S. Johnston

Post-Baccalaureate Certificate in Fine Arts, Maryland Institute College of Art, 2005

Master of Education, University of Notre Dame, 2004

Bachelor of Arts in Sociology, University of Notre Dame, 2002

Thesis Submitted in Partial Fulfillment of the Requirements of the Degree of  
Master of Fine Arts

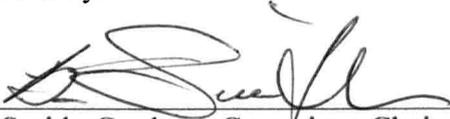
School of Art & Design

University of Michigan

Ann Arbor, Michigan

*Date of submission:* April 24, 2008

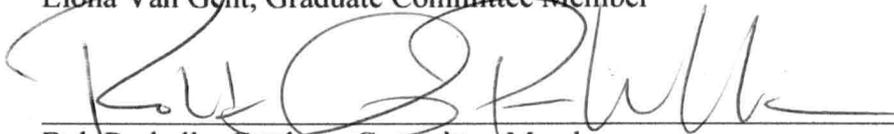
Approved by:



Brad Smith, Graduate Committee Chair, Associate Dean for Graduate Education



Elona Van Gent, Graduate Committee Member



Bob Pachella, Graduate Committee Member



Adam Hoppe, Graduate Committee Member



Bryan Rogers, Dean, School of Art and Design

Date Degree Conferred: April 2008

## **ABSTRACT**

This thesis examines the work of the artist Edward S. Johnston in relation to the notion of re-enchanting human experience. The thesis begins with a philosophical basis for understanding enchantment and disenchantment with respect to the filters of time perception and space perception. This is followed by an exploration of reasons for re-enchantment and the creative work of a variety of artists who have established responses to disenchantment. Johnston then describes, presents, and discusses his creative works that aim to re-enchant human experience through a complex, conscious engagement with technology, perception, and the environment.

Keywords: art, digital, animation, sculpture, photography, three-dimensional, image, virtual reality, perception, time, space, fabrication, contemporary.

Written thesis and documentation of creative work © 2008 Edward S. Johnston.  
All Rights Reserved.

## ACKNOWLEDGEMENTS

Brad Smith, Elona Van Gent, Adam Hoppe, and Bob Pachella have been an incredible team in guiding me on this thesis.

The faculty, staff, and fellow graduate students of the School of Art & Design have provided essential criticism, support, and an inspiring environment within which to learn and create.

The UM3D lab and Duderstadt Center staff have helped me tremendously in regards to preparing, installing, and documenting my thesis exhibition.

I would like to thank my family and friends for all of their support in this endeavor.

Lastly, I would like to thank my fiancé Robin Messina for being the incredible, patient person that she is.

## TABLE OF CONTENTS

Abstract	1
Acknowledgements	3
Table of Contents	4
Introduction	5
Context for Re-enchantment	5
Enchantment and disenchantment	5
Time Perception	6
Standardized measurement of duration	6
The imposed global system of Standard Time Zones	8
Protensity	9
Space Perception	10
The biological mechanisms of space perception	10
The developmental process of space perception	10
The social standardization of space	11
Reasons for Re-enchantment	11
Creative Practices of Re-enchantment	13
Uta Barth	13
Cubism	14
Giuseppe Penone	15
Rachel Whiteread	16
Guy Debord's Dérive	17
Richard Long	18
Geoffrey Mann	19
Joachim Sauter and Dirk Lüsebrink	20
Creative Work	21
Discussion	48
Conclusion	50

## INTRODUCTION

Walls, windshields, televisions, laptops, cellular phones, digital cameras... contemporary life consists of screens. Some are made for looking at and touching, others for looking through and capturing, and still others for denying looking. Each of these screens is a filter through which an individual processes information and experiences reality (Taylor 200).

These technological filters influence the development of cognitive systems that simplify a complex world. While a newborn squirms in uncertain surroundings, he finds comfort in the familiar and eventually formulates filters of his world, including his notions of space and time (Taylor 206). The opportunity to be in constant synchrony with the rest of the world is presented to him continuously through the standardized durations of time found in various clocks and other machines around the world. The automobile, train, and airplane are modes by which he might experience and perceive space.

With these various filters, an individual can narrow down and rationalize what he needs in everyday life. As Max Weber notes, the rationalizing of one's experience can lead to a "disenchanted cultural condition," a condition of experiencing reality with no mystery, no excitement, and no meaning (Koshul 2). This thesis confronts the question: How can the filters of time perception and space perception be used to shift one's consciousness away from disenchantment to re-enchantment? My response is a hybrid practice of 3D art combining focused walking, digital imaging, 3D animation, and computer-aided design and fabrication.

## CONTEXT FOR RE-ENCHANTMENT

### Enchantment and disenchantment

The notion of re-enchantment finds its roots in sociology and philosophy. The sociological theorist Max Weber explores the idea of humanity living in either enchanted or disenchanted cultural conditions. Weber points out that experiencing the mysterious is something that is constant when in a cultural condition of enchantment. In summarizing Weber's arguments, the author Basit Koshul notes "...[For] individuals living in the enchanted cultural condition...supernatural power permeates the natural world and it is very real...the relationship between 'supernatural' charisma and the 'natural' empirical world can be described as one of complete symbiosis" (Koshul 9).

On the other side, there is the disenchanted cultural condition. Koshul again summarizes Weber's argument by highlighting the two principles guiding an individual in this condition. These are that [1] "there are no mysterious incalculable forces that come into play" in empirical reality and [2] "one can, in principle, master all things by calculation" (qtd. in Koshul 9). Weber argues that in this disenchanted condition, humanity does not need to interact with "mysterious" powers; humanity satisfies all of its needs through "rational and technical means" (Koshul 9). Continuing Weber's argument, Koshul states, "...[History] has been a process of the progressive rationalization of human thought and action – a process that [Weber] called the 'disenchantment of the world.' ...Disenchantment of the world brings with it meaninglessness... as the value

through which the universe is viewed and as the value that ultimately determines human existence in the universe” (qtd. in Koshul: 2). Existence within the disenchanting cultural condition is void of mystery and meaning.

This notion of disenchantment is also noted in existentialist philosophy. In his book *Irrational Man: The Study of Existentialist Philosophy*, William Barrett states:

Every step forward in mechanical technique is a step in the direction of abstraction. This capacity for living easily and familiarly at an extraordinary level of abstraction is the source of modern [humanity’s] power. With it [humanity] has transformed the planet, annihilated space, and trebled the world’s population. But it is also a power which has, like everything human, its negative side, in the desolating sense of rootlessness, vacuity, and the lack of concrete feeling that assails modern [humanity] in [its] moments of real anxiety (31).

This “extraordinary level of abstraction” manifests itself both technologically and cognitively. As Mark C. Taylor notes in his *Moment of Complexity: Emerging Network Culture*, “The patterns through which experience is filtered and information processed operate at different levels and through multiple media. As one proceeds from sensation and perception through cognition and conception to reflection and speculation, there is a movement from the concrete to the abstract” (Taylor 207). Two filters through which disenchantment can take place are time perception and space perception.

## **Time Perception**

The relationship of time perception to this notion of a disenchanting cultural condition is an important one. Within this thesis, time perception is defined as the process of attaining awareness or understanding of time. While there are many technological and cognitive aspects to the filter of time perception, the two technological aspects explored below in relationship to disenchantment are [1] the standardized measurement of duration and [2] the imposed global system of Standard Time Zones. The cognitive aspect of time perception that will be discussed in relationship to disenchantment is [3] protensity, the subjective experience of time. When this thesis refers to “time perception” as a filter of human experience, it includes these three components together.

### ***Standardized measurement of duration***

As far back as 30,000 years ago, humanity was recording time. About that time, Ice Age European hunters found the moon’s phases significant. It is hypothesized that they dug lines and holes in bones according to the moon’s phases in order to mark the passage of days. About 4,000 BCE, huge stones were erected to apparently keep track of lunar eclipses and solstices at what is known today as Stonehenge. As seen on the next page, a Babylonian tablet from 87 BCE records the arrival of what is known today as Halley’s comet (Fig. 1). Since then, records of almost every appearance of Halley’s comet have been kept (Langone 73). As early as the first century BCE, Syrian sandstone sundials were used to track the movement of the sun’s shadow across marked increments as seen in Figure 2 (Langone 78). These artifacts expose humanity’s interest in recording

the occurrence of events through mark-making systems to decipher the events, deem them as significant, and to measure time in discrete amounts, or durations.



**Figure 1.** Babylonian tablet recording the arrival of Halley's comet.



**Figure 2.** Syrian sandstone sundial.

Continuing this fascination with recording events, mechanical clocks were created to measure duration within the past 750 years.

Langone defines a mechanical clock as “a clock regulated by machine movements uniform enough to give a close approximation of time” (107). He notes that there is some evidence that monks in a monastery in Dunstable, England created a mechanical clock in 1283 CE using a system that involved falling weights (107). It is reputed that in 1583 CE Galileo Galilei was sitting in a cathedral in Pisa where a bronze lamp swinging back and forth on a long chain attracted his attention. Regardless of the distance traveled by the lamp, Galileo observed that each swing of the lamp from one end of its arc to the other took the same amount of time when compared to his heartbeat. He had discovered the pendulum (Langone 109). This marks a distinct fascination of humanity in finding ways to mechanically standardize the measurement of duration.

A contemporary standard in recording durations of time is the use of a quartz crystal. A quartz crystal takes vibrations induced under pressure by an alternating current or battery and converts them into pulses of current. These pulses beat at 32,768 times a second. They are used to turn the hands of a clock or “advance the liquid crystal numerals in a modern digital watch” (Langone 162).

Today, the standardized measuring of durations can be found in the pockets of people around the world. Whether it is a watch with a quartz crystal or a cellular phone with a satellite linked to a satellite with access to a quartz crystal clock, or some other standardized measuring system, people carry devices to stay in synchrony with the rest of the world. The levels of abstraction involved in establishing this as a standard measurement of duration are often too laborious for an individual to ponder or understand on an everyday basis. It often becomes a technical aspect of human experience that is both culturally and individually accepted as concrete in perceiving time.



## The imposed global system of Standard Time Zones

The use of standardized measurements of duration by individuals on a global scale is coupled by another aspect of regulating time: the imposed system of Standard Time Zones.

Before the 19<sup>th</sup> century CE, time was synchronized on a local level. People would look up in the sky and check when the sun was directly overhead. Or, they might look towards a tower in the town to see when a “time ball” dropped at “solar noon.” This is what is known as solar time. However, as railways developed, and numerous trains began sharing the same tracks, accidents would occur due to the inconsistencies in how time was recorded. There were also difficulties with how the duration of a solar day varied depending on one’s latitude. To compound the difficulty, the time when the sun is overhead shifts as one traverses longitudinally (Langone 143).

In the late 19<sup>th</sup> century CE, a group of American railroad officials gathered to form an organization that became known as the General Time Convention. They selected a former engineer, William Frederick Allen, to create a system of standard times. Rather than using the 24 evenly spaced meridians to establish time zones, he based his zones on a number of factors including “geography, economics, cities, and general habits of the populace.” On October 11<sup>th</sup>, 1883 CE, the General Time Convention adopted Allen’s plan as Standard Railway Time. It split the 48 contiguous states into four standard time zones: Eastern Standard, Central Standard, Mountain Standard, and Pacific Standard times (Langone 145). In the following year, forty-one delegates representing twenty-five nations at the International Meridian Conference responded and divided the world into 24 time zones, each 15 degrees longitude wide. The system of Standard Time Zones was accepted (International Meridian Conference). Figure 3 depicts the Standard Time Zone map updated in 2001.

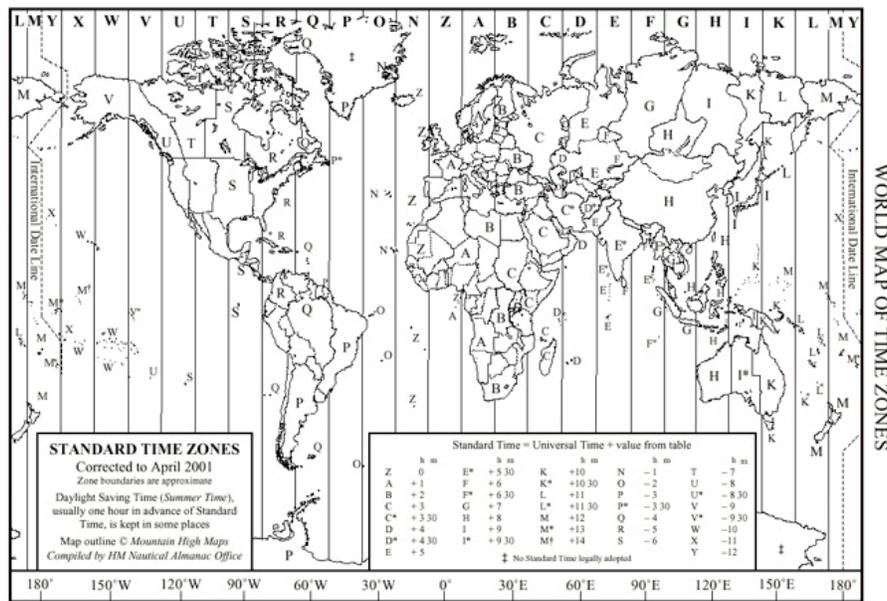


Figure 3. Map of Standard Time Zones (updated 2001).

The coupling of the standardized measurement of duration with this accepted system of Standard Time Zones boggles the mind. The practicality of their combined usage in regards to travel and convenience is clear. Their combined usage has become integrated into many economic and social relations on local and global levels. With the influence of these two aspects of time perception, time is commonly understood as something that is regulated, expected, and concrete. Time can become demystified by these two conventions.

### ***Protensity***

The third potentially disenchanting aspect of time perception that this thesis addresses is protensity. In his book Sensation and Perception, Harvey Schiffman defines protensity as “the subjective experience of time as distinguished from clock or physical time” (520). Protensity is “the duration of which one is aware” (491).

Schiffman examines two main explanations for protensity, a biological basis and a cognitive basis. Under the biological basis, he notes that the patterns of activity that recur daily, circadian rhythms, are regulated through the retina of the eye and its connection with other parts of the brain (492). This led to Dr. Hudson Hoagland’s hypothesis:

...[There] is a biological clock in the brain that regulates the body’s rate of metabolism, which, in turn, affects perception of the passage of time (Schiffman 493).

This notion of circadian rhythms within a biological clock has the potential to disenchant, because it strengthens the notion of standardized time as something that is concrete.

The cognitive basis of protensity posits that this subjective experience of time is “a derived product of mental activity based on the nature and extent of the cognitive processing performed during a given interval of time” (Schiffman 494). Schiffman summarizes Dr. Robert Ornstein’s information-storage size theory:

The basic premise of [information-storage size] theory is that the amount of information picked up consciously and stored in memory determines the perceived length of time...time experience is derived or constructed from the storage of cognitive events...stimulus factors such as the number and complexity of events occurring during a span of time, along with the efficiency of coding and storage of the events, affect the amount of information that must be processed (494).

The influences of the standardized measurement of duration and Standard Time Zones on protensity can be disenchanting; they can bring standardizing elements into one’s subjective experience of duration. Circadian rhythms can provide further support for the concreteness of the standardized measurement of duration and Standard Time Zones in the demands to keep those rhythms balanced for well-being. The combined influence of these three aspects can render time perception a disenchanting filter of human experience.

## Space Perception

Another human experience that becomes rationalized is one's perception of space. Space perception in this thesis is defined as the process of attaining awareness or understanding of space. There are three aspects to this filter that this thesis will highlight: [1] the biological mechanisms of space perception, [2] the developmental process of space perception, and [3] the social standardization of space.

### *The biological mechanisms of space perception*

Uncovering the biological mechanisms by which space perception takes place can play a part in disenchantment. The process by which data is taken in from one's surroundings through the biological machinery of the eye has been scientifically explained exhaustively (Schiffman 47). The mysteriousness of one's perception of space can dwindle when considering the biological mechanisms through which space perception occurs.

### *The developmental process of space perception*

Space perception is acquired through a developmental process from infancy to adulthood involving biological mechanisms and cognition. While a newborn starts his life quite uncertain of his surroundings, his biological mechanisms develop at a rapid pace to deal with this uncertainty. As Schiffman notes:

During the first month of life, infants [visually] fixate on a single element... 4-month-old infants scan *both* internal and external elements... We can conclude... the human newborn will initially select and focus on a few features of a visual pattern and then progress to more informative, integrative scanning, enabling the perception of global forms (Schiffman 295).

Everyday, the infant takes in new stimuli, processes it, and discards what is unneeded. Around the age of 2 months, he begins to employ memory and build an understanding of his surroundings. This initial understanding becomes a filter, which the infant applies to new experiences. As the infant's filter becomes more developed, he begins to prefer certain stimuli to others. As Elkins states in his book The Object Stares Back:

Our eyes prefer practically any object to a borderless scatter of points... If a building is half hidden by the branches of a tree, we literally see it in fragments: subtract the tree and you would have a floating collection of irregular building pieces. But the eye completes the puzzle and sees the building whole. Psychoneurologists call the phenomenon subjective contour completion, and it helps explain how we can routinely see a single building instead of disjunct pieces. Elkins states that, on a deeper level, subject contour completion answers to a desire for wholeness over dissection and form over shapelessness (Elkins 125).

A rationale for the reason that people organize and group information in a certain way is explained in part by the law of Pragnanz, which was introduced by Dr. Max Wertheimer. Richard Zakia explains:

We tend to organize our world so that we can cope with it. We search for stability, meaning, balance, security, and so on. We feel more comfortable when what we are looking at can be comprehended or experienced. If too much information is presented at one time, we either filter out some of it or simplify it by grouping or ‘chunking’ it. If there is insufficient information, we add to it to form closure and maintain meaning. We strive to reduce tension and stress to obtain stability and equilibrium” (Zakia 63-64).

As an individual develops, perceiving the space around oneself can become commonplace. The relevance of questioning one’s perception of space can become less important in relation to other needs. Furthermore, the curiosity about how one visually understands one’s surroundings can become less important.

### ***The social standardization of space***

The rationalization of space perception can be furthered by the social standardizations of space. With maps, urban grids, and standardized units of measurement for distance and volume, our understanding of the world can become fixed. The biological mechanisms and developmental processes involved in space perception combined with the many ways with which society standardizes space make the filter of space perception a potentially disenchanting one.

Time perception and space perception and their potentially disenchanting aspects that I have noted above provide the initial basis for the context of my creative work, where I find a method of re-enchantment within these filters.

### **Reasons for Re-enchantment**

While the rationalizations of one’s perceptions of space and time can be contributing factors to a perpetuating disenchanted cultural condition, there are reasons to suspect that a re-enchanting cultural condition can also be found. Koshul emphasizes an aspect of Weber’s methodology that is often overlooked. “For Weber, all human culture and all human activity that produces culture is made possible by the meaning that human beings confer upon a finite segment of empirical reality” (Koshul 4). We choose the meaning of our experiences. We decide what is significant within those experiences. While we may live in a disenchanted cultural condition, we choose that condition. And the process of that choosing is constantly active whether we are conscious of it or not.

Furthermore, facts are established by humanity. Facts do not exist without us. Susanne Langer in her book *Philosophy in a New Key* argues that a fact is “an intellectually formulated event” (268). She quotes Karl Britton as stating, “...[It] is only for thinking minds that there is structure in nature...A world without minds is a world without structure, without relations and qualities, without facts” (qtd. Langer: 268). A fact is dependent upon human minds existing and exchanging.

In *What is Existentialism?*, Barrett opens a conversation between two philosophers. In this conversation he brings up the “fallacy of misplaced concreteness” (14). He has his character state that it is “the fallacy of taking the abstract as concrete...of overlooking the degree of abstraction that may be involved in taking certain matters of fact as concrete” (14). We often overlook the factors that are causing us to view something as concrete; and that overlooking is where the disenchanting cultural condition grows.

In overlooking, we do not feel the abstractions involved in establishing a fact. In *Mind: An Essay on Human Feeling*, Langer states, “One may say that some activities, especially nervous ones, above a certain (probably fluctuating) limen of intensity, enter into ‘psychical phase.’ This is the phase of being felt” (8). The abstractions, the filters, often stay below a conscious level and never enter into this phase of being felt.

In the moments that we allow ourselves to be conscious of the degree of abstractions involved in our filtering of information, to feel them, we are able to “unfold” our “schemata,” lift our filters, and be in a condition of re-enchantment – a condition where the “present data” of our surroundings is mysterious and extraordinary. (qtd. Taylor: 206).

In 2005-2006, the Pompidou Center in Paris, France presented an exhibition entitled *Big Bang: Destruction and Creation in the Art of the 20<sup>th</sup> Century*. Among the various themes in the exhibition was “Re-enchantment”:

To describe what is concealed to the eye, make silence speak, liberate taboos, to reactivate a terrain of memory, and believe in new Utopias... Mirrors of revelation or ladders of escape, the processes of re-enchantment are multiple for artists... (Centre Pompidou).

One way of finding re-enchantment is by allowing ourselves to feel the various levels of abstraction involved in our filtering of information. As Langer states in *Mind: An Essay on Human Feeling*:

The real patterns of feeling... how daydreaming weaves in and out of realistic thought, how the feeling of a place, a time of day, an ordinary situation is built up--these felt events, which compose the fabric of mental life, usually pass unobserved, unrecorded and therefore essentially unknown to the average person...They pass unrecorded because they are known without any symbolic mediation, and therefore without conceptual form. We usually have no objectifying images of such experiences to recall and recognize... (Langer 24).

So, how does one go about making these re-enchanting “objectifying images?” In the following pages, I present the work of a variety of creative practitioners who are concerned with re-enchanting human experience through their activation of space perception and time perception. I find inspiration and guidance in these creative practices, and I have developed my own creative methodology for responding to disenchantment in light of them. In the “Discussion” section below, I touch on the influence of these various creative practices and refer back to their significance in re-enchanting human experience.

## Creative Practices of Re-enchantment

### *Uta Barth*

Uta Barth is a contemporary photographer whose works re-enchant human experience by exposing the activeness of space perception and time perception. As noted by the Henry Art Gallery, “By photographing in ordinary anonymous places – in simple rooms, city streets, airports and fields – Barth uses what is natural and unstudied to shift attention away from subject matter, and redirect focus to a consciousness of the processes of perception and the visceral and intellectual pleasures of seeing” (Henry Art Gallery).

Barth’s piece *untitled (02.13)* shown in Figure 4, highlights her interest in making conscious the processes of space perception.

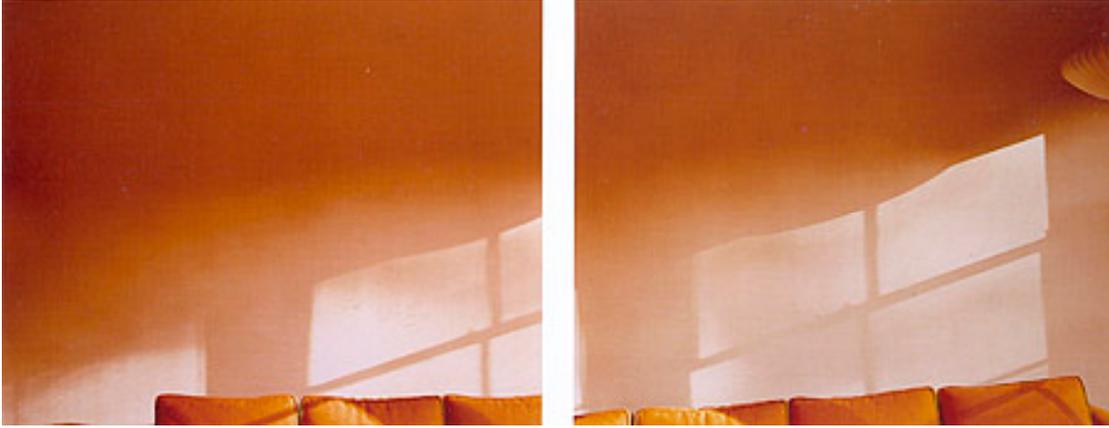


**Figure 4.** Uta Barth, *untitled (02.13)*. 2002. Selected from 4 panels in her book *white blind (bright red)*.

In Barth’s book, *white blind (bright red)*, Jan Tumlir notes, “By purging her pictures of their ostensible subjects, she has sought to redirect our attention to a kind of perceptual noise, that which intrudes all around: in the setting, the outlying objects, the air” (Barth, 2004). This relates to Taylor’s notion of “exformation”:

Exformation...is what is left out as information is formed from noise...Since information is constituted by what it excludes, it inevitably harbors traces of noise...noise does not simply disappear but remains *in* information as a haunting specter (Taylor 203).

Barth’s highlighting of the existence of this perceptual noise, this exformation, is recognition of just one significant aspect of space perception among many. In her photographic piece *...and of time* shown in Figure 5, Barth has taken photographs within her own home to mark as significant both the act of observing and the filters one develops when observing phenomena from within one’s home.



**Figure 5.** Uta Barth, *...and of time*. 2000. from Barth's book *...and of time*.

Timothy Martin states in his essay "House and Extension" included in Barth's book *...and of time*:

The camera is as much like a house as it is like a mind that sees; and, as Bachelard would have it, the mind that sees conceives of itself as being housed, not only within the chamber of the cranium, or the body, but literally, with the house of its earliest experience. That is, the house provides a primary, visible external model by which we may conceive of our own invisible interiors, indeed, our bodies, and therein becomes internalized. It is this internalized box-with-a-view that sets the stage for the notion of camera consciousness and grants its intuitive force (Barth 31).

Uta Barth's works "...begin in the physicality of vision and explore the differences between looking at the world and being conscious of that looking" (Henry Art Gallery). In exploring those differences through photography, Barth re-enchants the human cultural condition by making her viewers recognize the significance of being conscious of how humanity confers meaning on the world. Barth's work has influenced me to continue using photographs as a way of making time and space perception conscious within my own practice.

### **Cubism**

Similar to Barth's photographic works, the processes of Cubism make the filters of time perception and space perception simultaneously active in order to re-enchant human experience. Started by Pablo Picasso and George Braque around the year 1907, the overarching creative process within Cubism is the creation of a composite image of something from several perspectives of looking over time. In regards to time perception, it compresses a series of actions into one, static composition. In considering space perception, the viewer is not provided a correct viewpoint into the image; the viewer is provided a plurality of places to start analyzing the composition to discover fragments of an object or person. In the case of the piece depicted in Figure 6, it is supposedly a guitar player. In looking at the piece, viewers have the potential of becoming conscious of how

they are perceptually trying to understand the composition. The viewers become self-aware. In light of time perception, the composition provides a distinct point of view on the idea of existing in measured time as something that is active and chosen.



**Figure 6.** Pablo Picasso, *The Guitar Player*.  
1910. Oil on canvas.

Cubism emphasizes that our filters of information are dynamic and variable. Arthur Miller states:

[There] is no true shape to an object. Cubism...[requires] one to pick out from nature particular aspects of it... [Cubism amounts] to representing nature from several viewpoints at once. How you measure or view a scene, that is what it is (Miller 208).

Cubism expresses that humanity actively decides what is meaningful in its existence. Humanity establishes the facts of its surroundings through active observing and discerning. Nature can be viewed from multiple viewpoints. Overlooking one's understandings as an interaction of continually developing biological mechanisms and constructed facts is a mode of disenchantment.

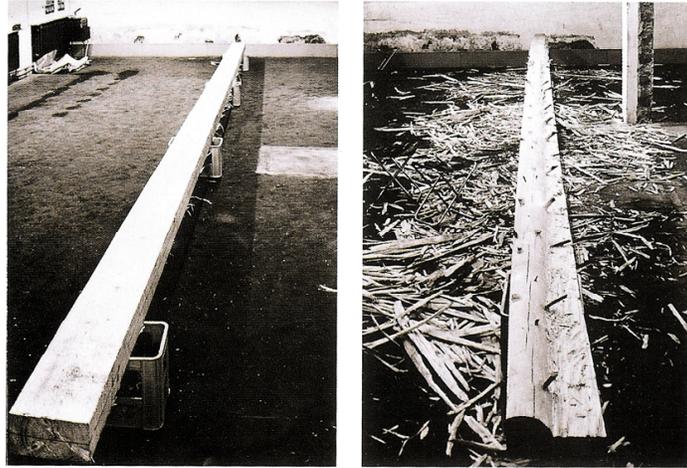
### **Giuseppe Penone**

Another artist who re-enchants the human cultural condition through his activation of the filters of time perception and space perception is Giuseppe Penone. As a performance at Aktionsraum, Munich in 1970, Penone carved out an embedded space from a slab of wood by following the contours of the growth rings (Fig. 7). He exposed nature's embedded marks and forms of growth from the past. What was considered irrelevant, static space became significant, activated space. The existence of standardized



time within the life of the viewer and artist was juxtaposed with other marks of time found in nature. Furthermore, Penone developed a relationship with similar works by carving away the number of rings that equaled his age (Christov-Bakargiev 148).

In performing the carving, Penone was stating that his experience of carving the wood along its rings was significant to human experience. The process of carving the wood in this specific way created an activity that re-enchanted his life experience.



**Figure 7.** Giuseppe Penone. *Albero di 12 metri [Twelve-meter tree]*. 1970. Wood. 1,200 x 30 x 15 cm.

### *Rachel Whiteread*

Another artist who reactivates perceptions of space and time in order to make her viewers conscious of how they relate to the world is Rachel Whiteread. In many of her works, Whiteread generates physical objects out of the empty spaces of rooms, stairwells, and bookshelves (Fig. 8).



**Figure 8.** Rachel Whiteread. *Ghost*. 1990. Plaster on steel frame. 106 x 140 x 125in.

By creating forms out of ordinary spaces, Whiteread's audience is drawn to consider the significance of the spaces in which they have lived or have passed through. Whiteread "liberates us from passivity" by making us conscious of how we use and perceive space and time (Townsend 33).

### **Guy Debord's *Dérive***

Deeming one's consciousness of perceiving time and space as significant is seen in Guy Debord's *Theory of the Dérive*. Debord defines *dérive* as "a technique of rapid passage through varied ambiances...[involving] playful-constructive behavior and awareness of psychogeographical effects...quite different from the classic notions of journey or stroll" (Debord 1). He states:

In a *dérive* one or more persons during a certain period drop their relations, their work and leisure activities, and all their usual motives for movement and action, and let themselves be drawn by the attractions of the terrain and the encounters they find there...from a *dérive* point of view cities have psychogeographical contours, with constant currents, fixed points and vortexes that strongly discourage entry into or exit from certain zones... [The] *dérive* includes both this letting-go and its necessary contradiction: the domination of psychogeographical variations by the knowledge and calculation of their possibilities (Debord 1).

Debord notes in his "Introduction to a Critique of Urban Geography":

*Psychogeography* could set for itself the study of the precise laws and special effects of the geographical environment, consciously organized or not, on the emotions and behavior of individuals. The adjective *psychogeographical*...can thus be applied to the findings arrived at by this type of investigation, to their influence on human feelings, and even more generally to any situation or conduct that seems to reflect the same spirit of discovery (Debord 1).

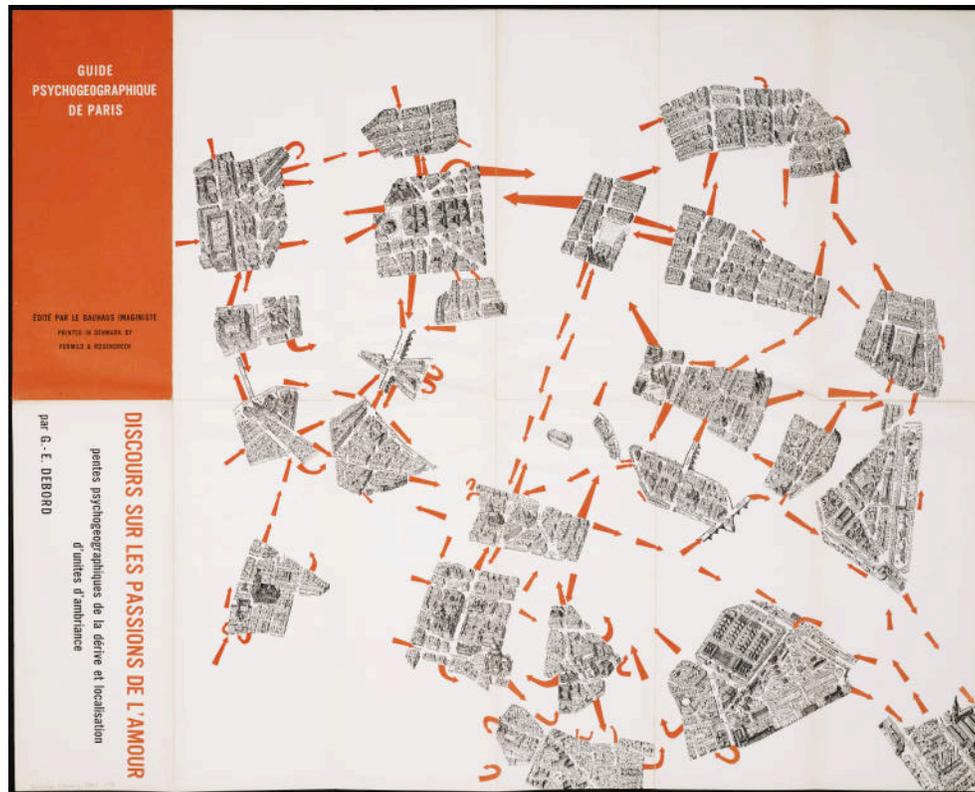


Figure 9. Guy Debord's *Guide Psychogéographique de Paris*. 1957.

This complex activity of *dérive* involves a consciousness of both time perception and space perception through the “rapid passage” and processing of information that is involved. The combined need of “letting-go” and using “knowledge and calculation” exposes the need to consciously look at one’s surroundings in an unconventional way and experience it in an enchanted, yet analytical manner. The psychogeographic maps showcase the need to document one’s experience in order to express the significance of that consciousness to others, to continue the activity, and to remember it (Fig. 9).

### **Richard Long**

A similar emphasis on the importance of concentrated walking and marking down one’s path can be seen in the work of Richard Long (Fig. 10). Long states on his website that his intention in his 1967 piece *A Line Made by Walking* was:

...to make a new art, which was also a new way of walking: walking as art. Each walk followed my own unique, formal route, for an original reason, which was different from other categories of walking, like traveling. Each walk, though not by definition conceptual, realized a particular idea. Thus walking – as art – provided an ideal means for me to explore relationships between time, distance, geography and measurement (Long).



**Figure 10.** Richard Long. *A line made by walking*. 1967.

Maps, photographs, and text are the three ways Long's walks are recorded. Long states, "All these forms feed the imagination, they are the distillation of experience" ([www.richardlong.org](http://www.richardlong.org)). These distillations of experience are what enable Long's audience to be re-enchanted. By recording his use of space and time and displaying it, he activates the filters of space perception and time perception in the viewer.

The need to find objectifying images of the experiences of walking are seen in both Guy Debord's *dérive* and Richard Long's work. Their methods have influenced the way I have approached my work.

### **Geoffrey Mann**

Geoffrey Mann is a product artist who uses digital imaging and computer-based design and fabrication in his creative practice. In his 2005 piece *Attracted to Light* seen in Figure 11, Mann has recorded the path of a moth's motion around a hanging light over time and translated it into a static, physical form (Mann).



**Figure 11.** Geoffrey Mann. *Attracted to Light*. 2005. Nylon.  
From the *Long Exposure* series.

Mann activates the viewer's perceptions of space and time by presenting a static, physical form fabricated using the contours of the moth while in motion over a duration of time. The technique Mann uses of creating contours by connecting the information from images together to make a composite form is a technique that I use in my work and has been used by Joachim Sauter and Dirk Lüsebrink as discussed below.

### ***Joachim Sauter and Dirk Lüsebrink***

Joachim Sauter and Dirk Lüsebrink created the piece *Film Sculpture* in 2007 (Figure 13). *Film Sculpture* involves making static forms from the tracking of a person's viewpoint while in motion through the Martin-Gropius-Bau in Berlin, Germany using a video camera as seen in Figure 12. This was part of a larger project entitled "The Invisible Shape of Things Past" (ART+COM).



**Figure 12.** Sauter and Lüsebrink. *Single frame line-up of a film sequence according to the camera movement (used for Film Sculpture)*. Martin-Gropius-Bau. Berlin. 2007.



**Figure 13.** Sauter and Lüsebrink. *Film Sculpture*. Martin-Gropius-Bau. Berlin. 2007.

As stated on the ART+COM website:

In the project ‘The Invisible Shapes of Things Past’, single frames from a film sequence are lined up in space, according to the camera movement with which they were shot. With a straight tracking shot, e.g., the line-up of single frames will produce a cubic object. The line-up of frames of a pan shot (the camera rotating on an axis) will create a cylindrical object. More complex tracking shots result in complex, abstract but still readable sculptures. The lining up of single frames creates a texture on the object’s surface similar to a slit camera photograph comprehending different moments... With the advent of 3D printers, making it possible to print virtual objects as material objects, these immaterial sculptures left hard drives and screens and are found today in physical space (ART+COM).

Similar to Mann’s *Attracted to Light*, *Film Sculpture* stands as a static form from an aggregate path. In this case, the path is from the pan viewing of a video camera operated by an individual over a recorded duration of time. The form’s shape is unique to the movement of the camera and the individual over time. Not only does this make the viewers conscious of how they perceive time and space, it infiltrates technical abstraction with personal movement; it makes the individual’s movement and choices essential to the creation of the specific form. By creating an objectifying image the individual’s experience, there is the potential of reflecting back on that experience using the form.

## CREATIVE WORK

Inspired by these current and past efforts at re-enchantment, I have engaged in my own creative practice of re-enchantment. With camera in hand, I took a walk within Ann Arbor, Michigan on August 28, 2007. From my apartment at Huron Towers, I walked to and through the Art and Architecture building on North Campus of the University of Michigan. Before that walk, I established a method of what I would do before, during,

and after the walk. My method included the steps described below. I will discuss my rationale for each of the steps and how I carried them out in the “Discussion” section.

### Step 1 - Preparing

Before going on the walk and taking photographs, I decided to digitally select one enclosed region of information from each of the photographs after the walk. I chose to simultaneously capture the photographs and the standardized timestamp when the photograph was taken. I determined that those timestamps would be used to arrange the distance between each of the enclosed regions in virtual space. I also decided that these enclosed regions and the arranged distances between them would be the initial constructs by which virtual surfaces would take on formal characteristics.

### Step 2 – Walking and Photographing

With the above preparation in mind, I went on a walk with a digital camera and captured six digital photographs and their timestamps (Fig. 14).

### Step 3 – Arranging

A.) I imported the digital photographs into Adobe Photoshop.



**Figure 14.** The six digital photographs.

B.) I selected one enclosed region of information from each photograph, saved the contour of each region as a Work Path, and exported the Work Paths from Adobe Photoshop as Adobe Illustrator files. The selected regions can be seen in Figure 15a. A detail of one of the six photographs next to the enclosed region selected from it can be seen in Figure 15b and 15c.



**Figure 15a.** The six digital images with the selected, enclosed regions.



Figure 15b. Detail of one of the six photographs.

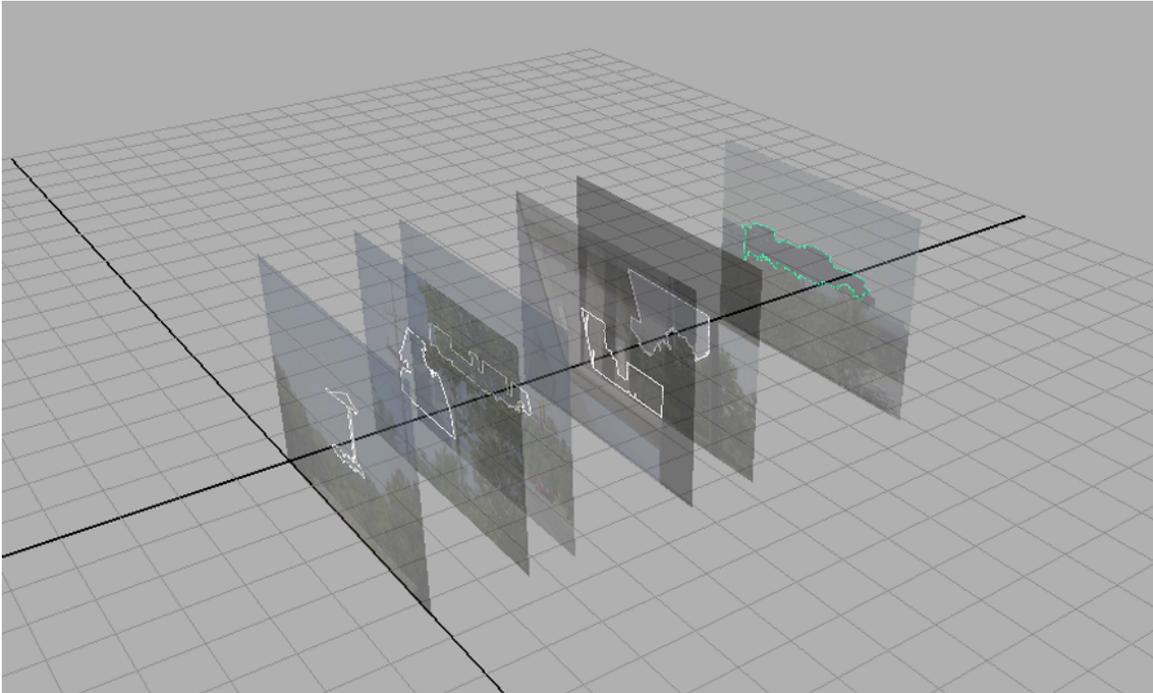


Figure 15c. Detail of the enclosed region selected from the photograph above.



C.) I then opened a New Scene in Autodesk Maya and imported the Adobe Illustrator files on the x – y axis as enclosed “curves.” I created flat, 2D rectangles on the x – y axis, and created one Texture Map for each of the photographs to be assigned to each rectangle. (This enabled the photographs to be manipulated as flat rectangles in virtual space as seen in Figure 16.)

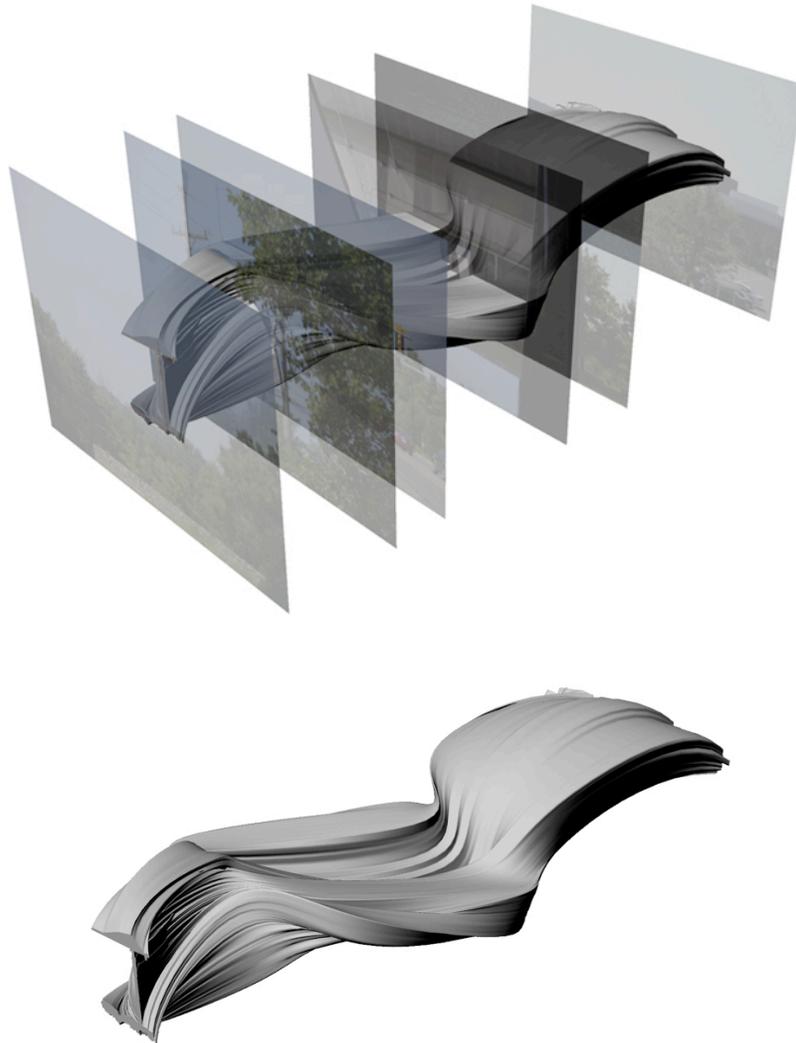
D.) I translated standardized time (seconds) into units of depth along a straight line in the z dimension (depth) based on the amount of time between timestamps. The longer the duration of time, the deeper the distance in z. Initially each set of rectangles and enclosed curves were arranged perpendicular to the z axis according to the timestamp at which the original photographs were taken. I centered the position of the rectangles and enclosed curves on the x-y axis assuming that the origin (0, 0) was the lower left-hand corner of the original photographs.



**Figure 16.** The arrangement of the rectangles (photographs) and enclosed curves in the Autodesk Maya scene. (Autodesk Maya software)

#### Step 4 – Generating

I generated various surfaces, movements, and interactions using the enclosed curves and Autodesk Maya’s palette of tools and operations, including Loft, Extrude, and Bridge (Fig. 17). The arrangement depicted in Figure 16 acted as the beginning setup for all generative iterations. These iterations, exhibited through digital images, animations, and sculptures seen below, make up what I have entitled “*Experiential Extensions 8.28.2007*.” Each generative iteration within *Experiential Extensions 8.28.2007* is entitled “*Variation*.” A portion of *Variation 2 of Experiential Extensions 8.28.2007* is seen in Figure 17 below. As all of the *Variations* in this document are from *Experiential Extensions 8.28.2007*, I refer to them as *Variations* later in this document for sake of brevity.



**Figure 17.** Example of a virtual, 3D form. Top: With photographs. Bottom: Without photographs. Title of this form: *Variation 2 Phase 1 of Experiential Extensions 8.28.2007*.

### Step 5: Animating in Autodesk Maya

I keyframed the various movements and interactions of surfaces in each iteration using Autodesk Maya. I then rendered the animations from Maya as sequences of digital images and used QuickTime Pro and Apple Final Cut Pro to create movie files from the rendered image sequences. One series of these animations can be seen below by clicking on the image in Figure 18 (QuickTime Player is required to view the movie).



**Figure 18.** Animations of Variations 1, 2, 3, and 5 of Experiential Extensions 8.28.2007.  
*Click on the image in order to begin the QuickTime Movie of the animations.*

## Step 6: Digital Fabricating

I selected various surfaces at different frames from the Maya scenes and exported each surface as a virtual reality modeling language (VRML) file. I then imported the VRML files into Materialise Magics software, and prepared the files for fabrication as physical, 3D forms. I used these files and a Z Corp 510 Spectrum 3D printer to create plaster forms. I prepared the forms for exhibition by sealing them with an epoxy resin and painting their surfaces with acrylic paint (Fig. 19). In the case of *Variation 2*, I selected four separate surfaces at different frames from the Maya scene and fabricated them. I entitled each separate form a *Phase* within the same *Variation*. *Variation 2 Phase 1* can be seen in Figure 19 below. All four *Phases* can be seen in Figures 26a and 26b.



**Figure 19.** The physical form of *Variation 2 Phase 1* of *Experiential Extensions 8.28.2007* digitally fabricated from the virtual form depicted in Figure 17.

## Step 7: Exhibiting

The physical forms, animations of the forms in virtual space, and digital prints of the process of creating these forms were presented in my MFA thesis exhibition entitled *Experiential Extensions*. This exhibition occurred in the Duderstadt Gallery in Ann Arbor, Michigan in February 2008. The forms, animations, and prints were arranged in such a way that various stages of the work could be experienced simultaneously.

Figures 20 through 53 below include different views of the exhibition. These views include the exhibited prints, laser-cut regions, and sculptures of *Variations of Experiential Extensions 8.28.2007*. Also, there are views of the three flat-screen monitors on which I displayed the animations of the different *Variations* (Figures 21 and 22). These animations can be watched as QuickTime Movies in Figures 18, 35, and 50. As seen in Figure 18, I grouped certain animations together to accentuate certain relationships between them. So, the animations of *Variations 1, 2, 3, and 5* were exhibited on one screen and shown one after the other on loop. The animations of *Variations 4, 6, 7, and 8* were grouped and displayed in the same way (Figure 35) as were the animations for *Variations 9, 10, and 11* (Figure 50).

The titles I have used for the various components of the exhibition were not used in the exhibition, because the viewer was intended to experience the different portions of the exhibition as all one experience without looking for written descriptions of each work. However, I have included the titles for each component of the exhibition in this document to communicate important ideas about them. There were eleven different *Variations* exhibited in various ways. As discussed above, when more than one form was created from one *Variation*, each form was entitled a *Phase*. When only one physical form was exhibited for each *Variation*, that form was not entitled a *Phase*.

Several views of the exhibition space are shown below first in order to depict how the space was arranged. These are followed by the images and animations of each exhibited *Variation*. I have shown these in the order in which I made them. In the case of *Variations 1, 2, 3 and 5*, please refer back to Figure 18 to see the animations. For the remaining *Variations*, their animations are depicted followed by images of the sculptures.



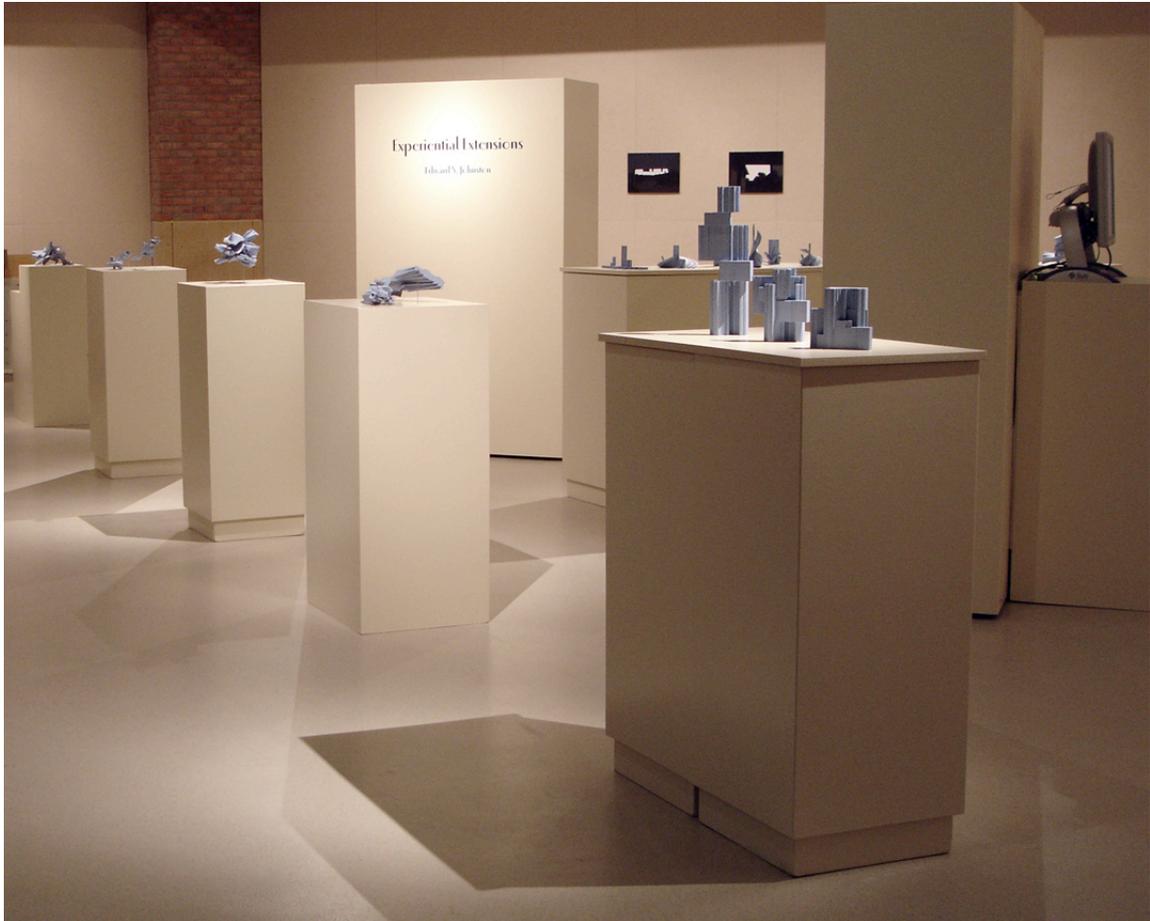
**Figure 20.** View of the installed exhibition.



**Figure 21.** One of three flat-screen monitors showing a series of the animations.



**Figure 22.** Exhibition with digital prints of the original photographs in the background.



**Figure 23.** Exhibition with digital prints depicting the enclosed regions in the background.



**Figure 24.** Exhibition with *Regional Reliefs* in the background.



Figure 25a. Digital prints of the original six photographs (refer back to Fig. 14 and 15).

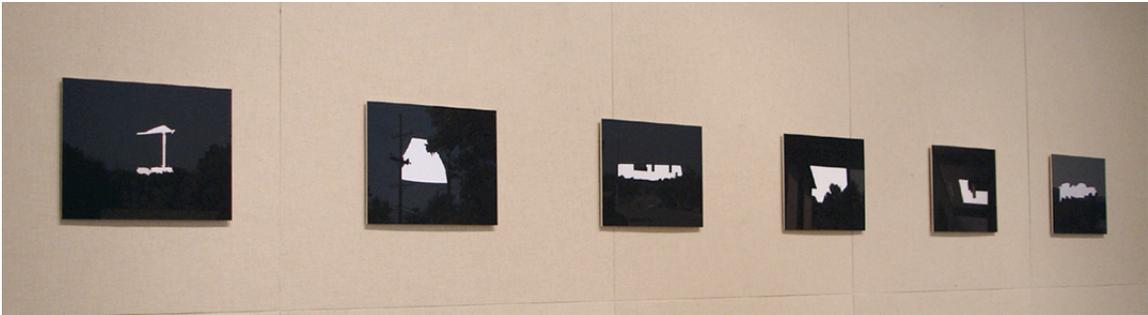


Figure 25b. Digital prints of the six selected regions.

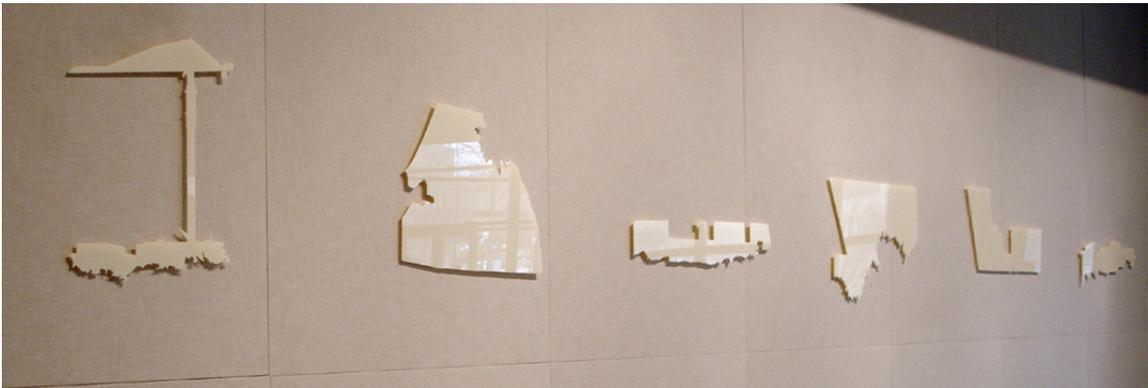
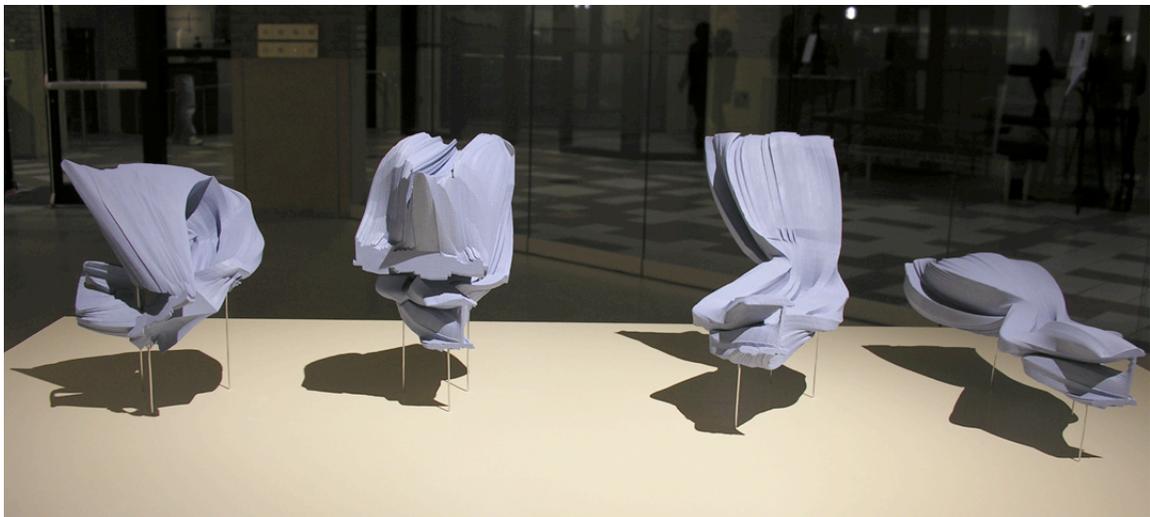


Figure 25c. *Regional Reliefs* (enlarged, laser-cut, cast acrylic versions of the selected regions).

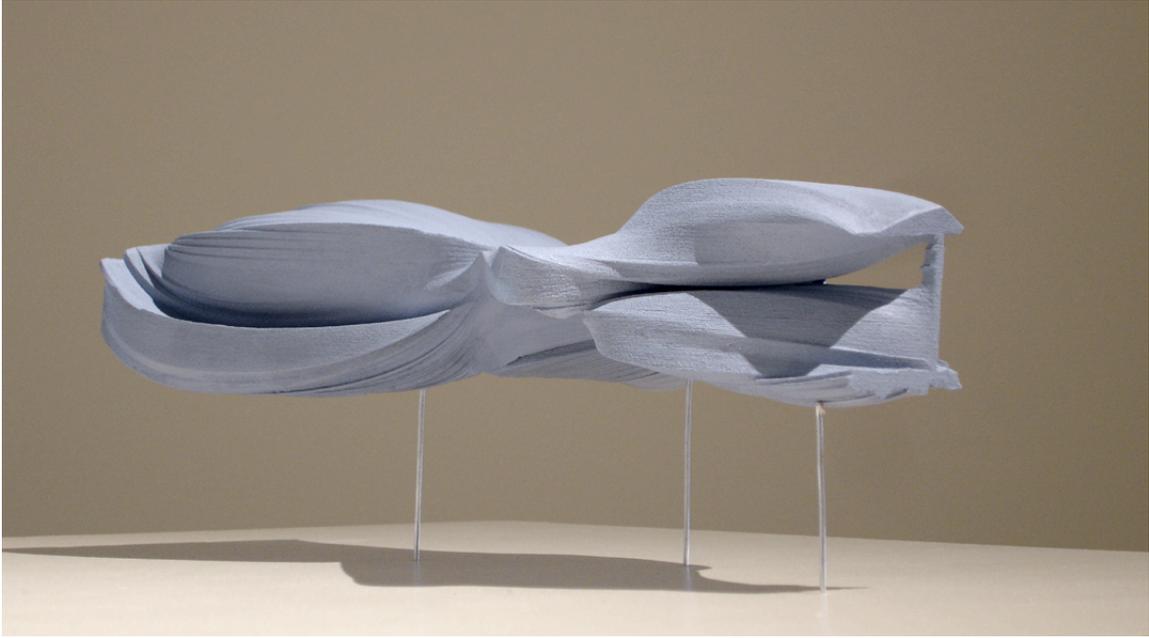




**Figure 26a.** Set of four sculptures of *Variation 2 Phases 1 - 4 of Experiential Extensions* 8.28.2007 (Animation available in Figure 18).



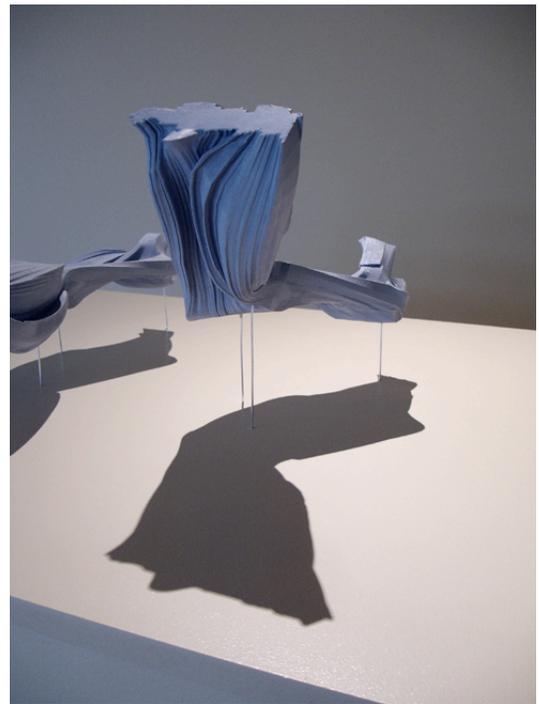
**Figure 26b.** *Variation 2 Phases 1 - 4.*



**Figure 27.** Variation 2 Phase 1.



**Figure 28a.** Variation 2 Phase 2.



**Figure 28b.** Variation 2 Phase 2.



**Figure 29a.** *Variation 2 Phase 3.*



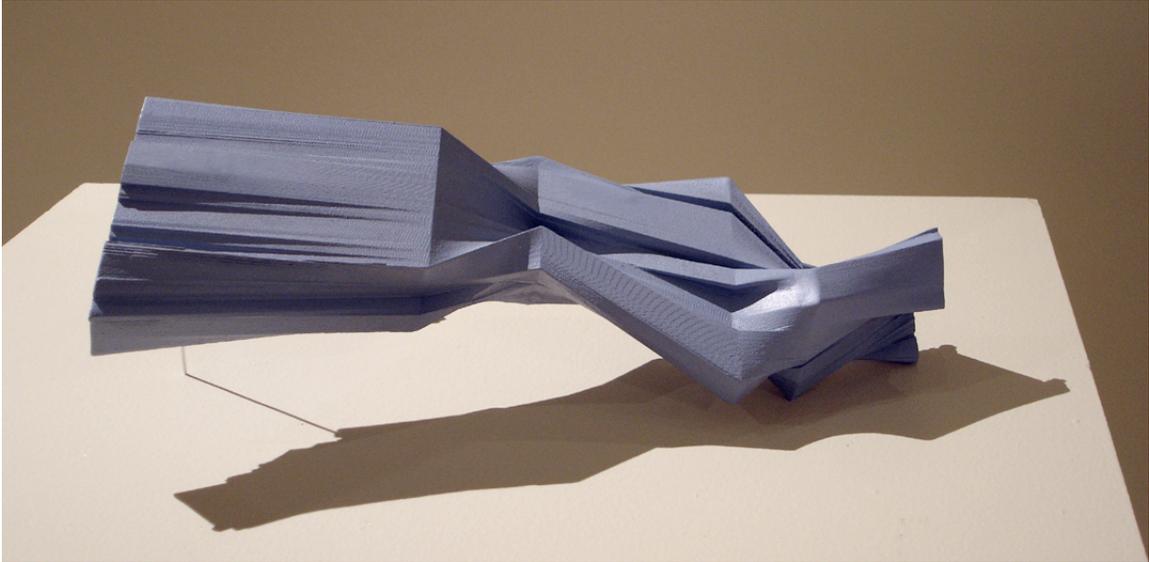
**Figure 29b.** *Variation 2 Phase 3.*



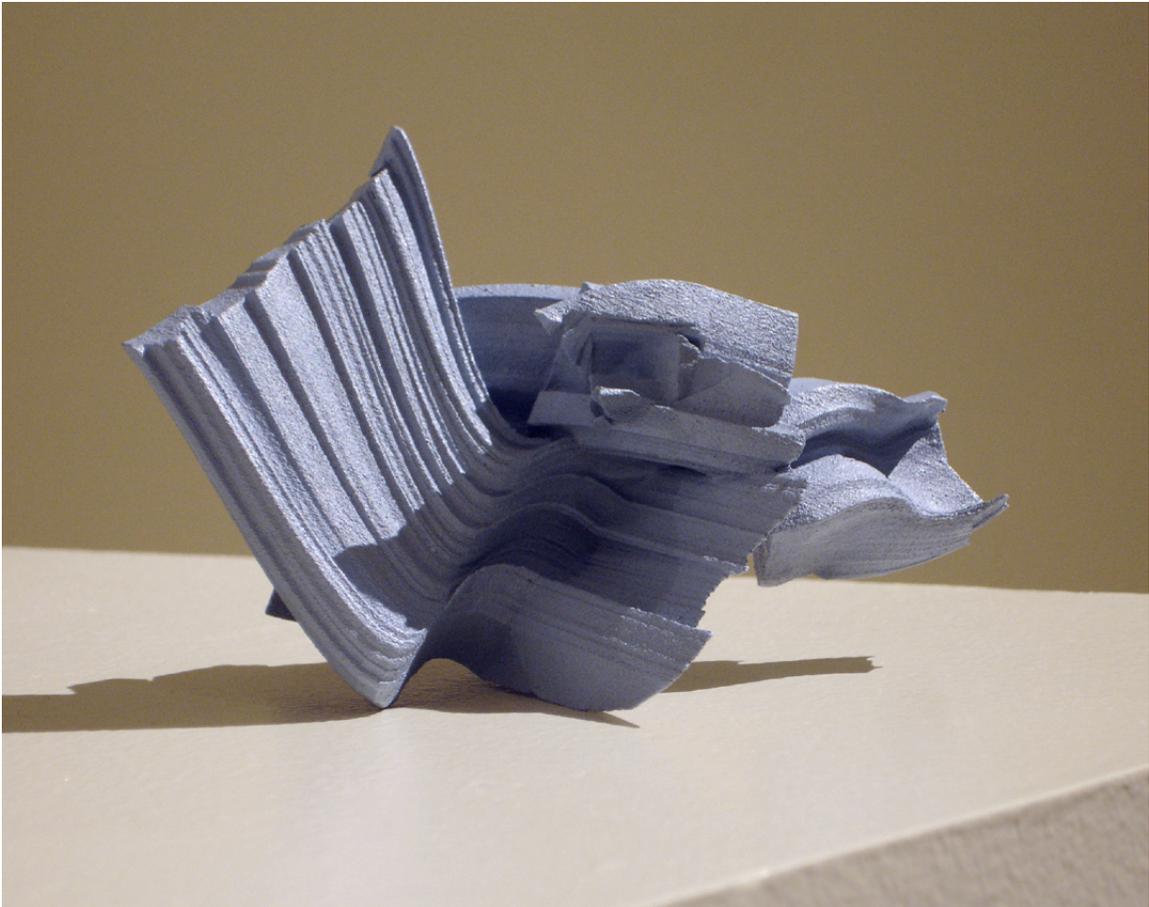
**Figure 30a.** *Variation 2 Phase 4.*



**Figure 30b.** *Variation 2 Phase 4.*



**Figure 31.** *Variation 1* (Animation available in Figure 18).



**Figure 32.** *Variation 3* (Animation available in Figure 18).

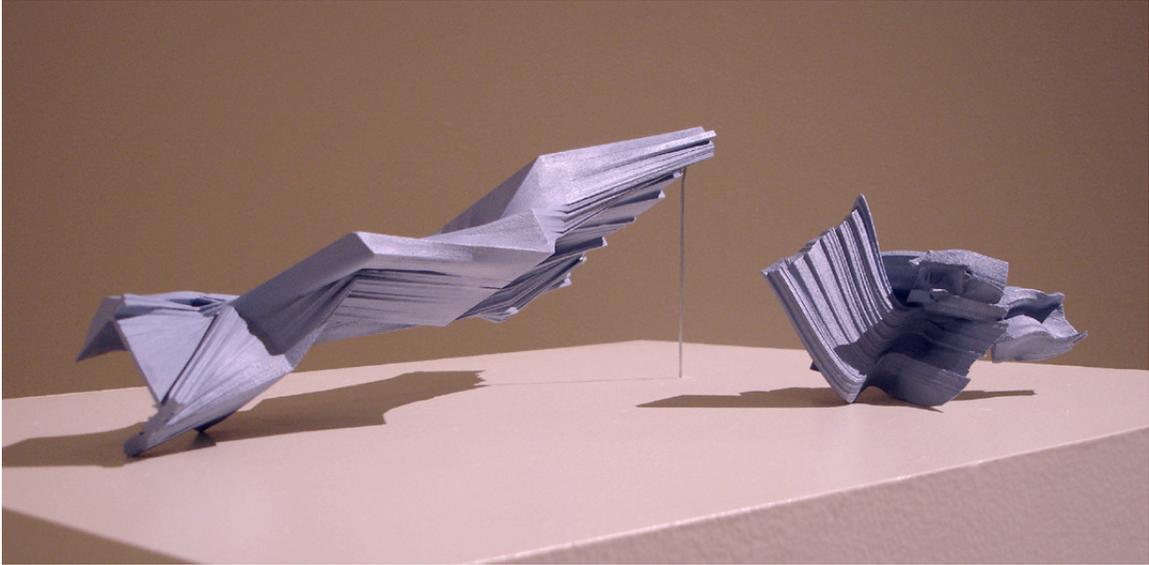


Figure 33. Variation 1 and 3.

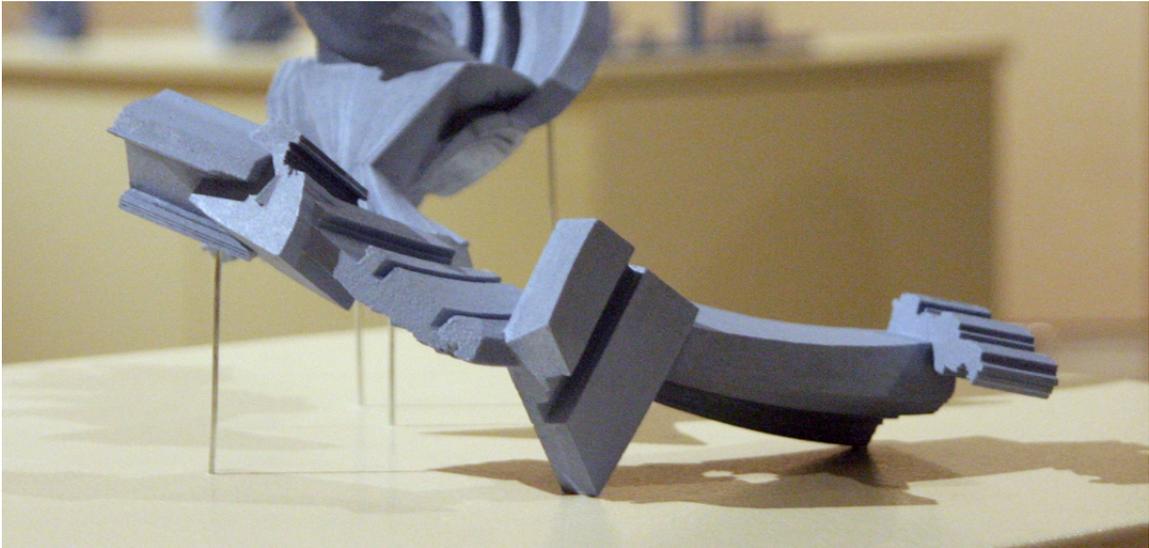
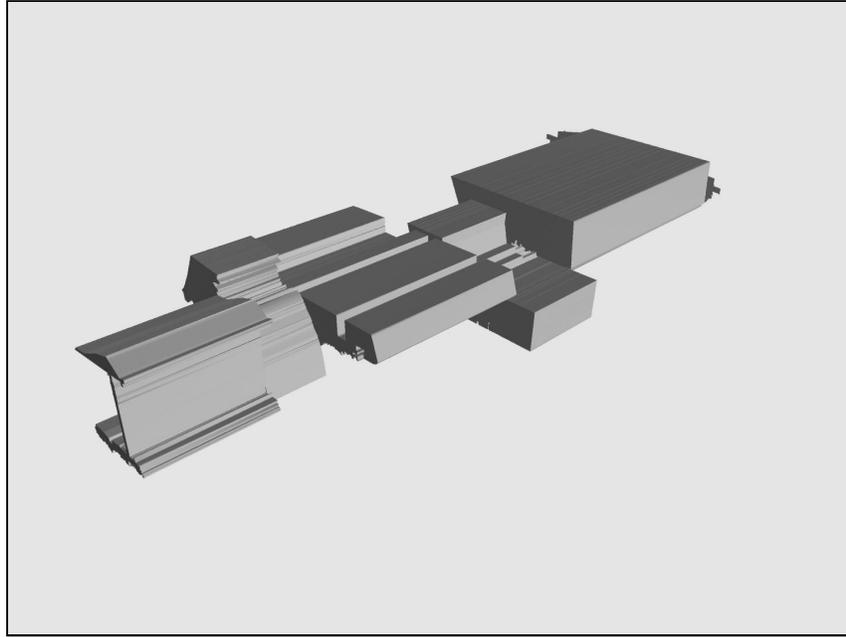
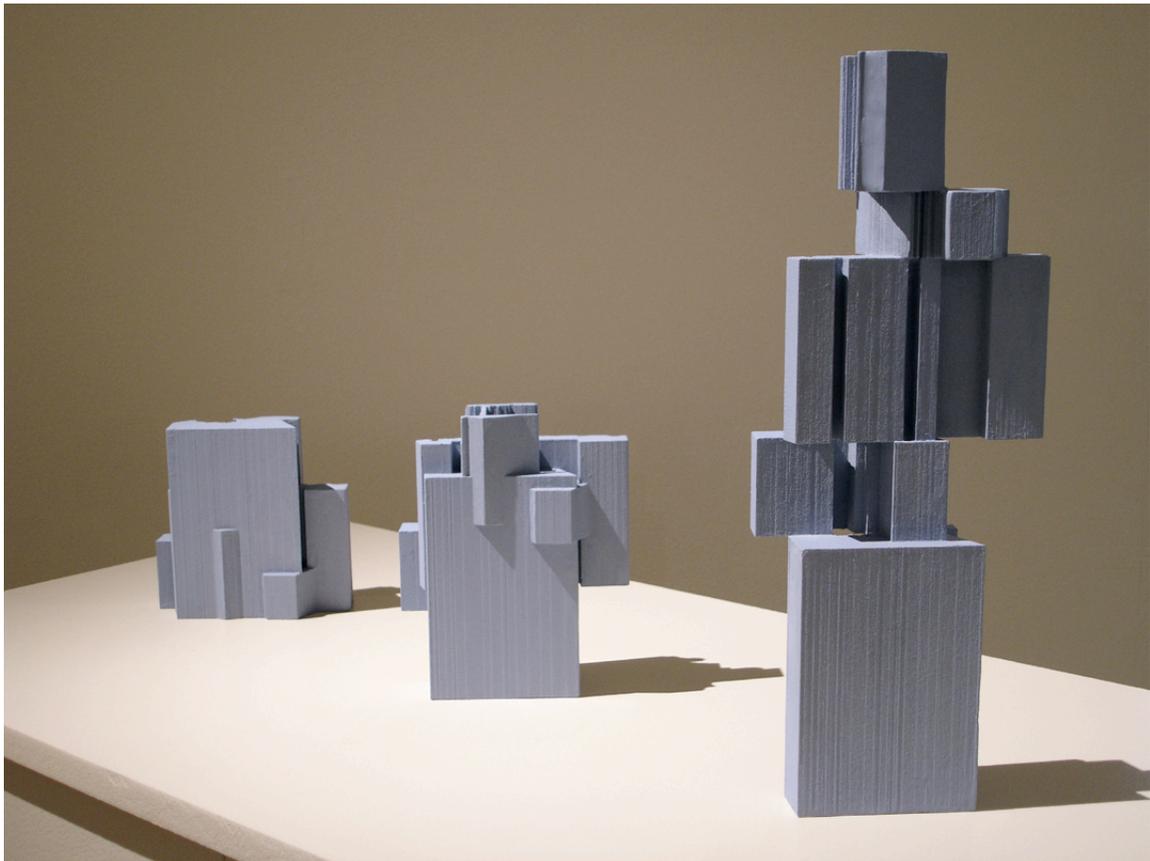


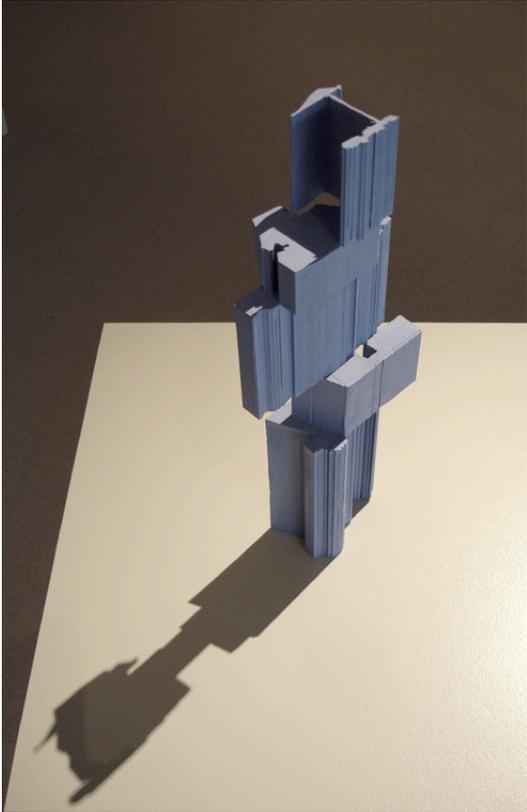
Figure 34. Variation 5 (Animation available in Figure 18).



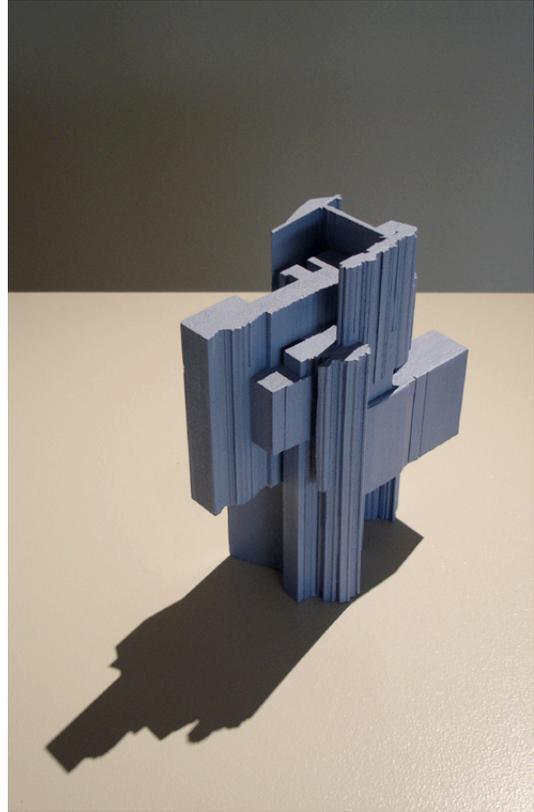
**Figure 35.** Animations of *Variations 4, 6, 7, and 8.*  
Click on the image in order to begin the QuickTime Movie of the animations.



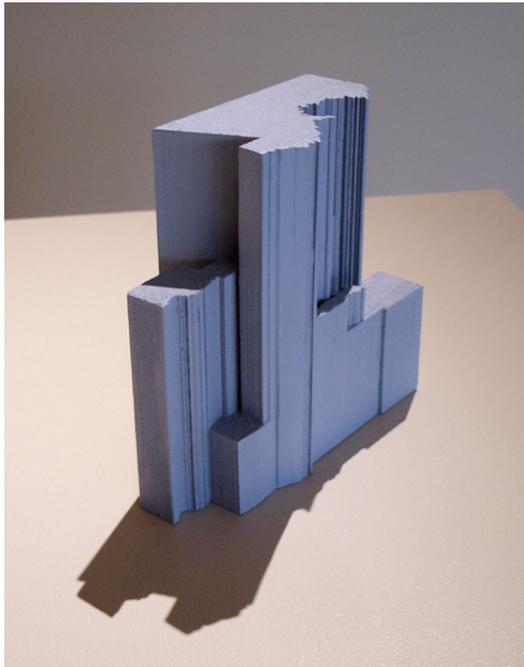
**Figure 36.** *Variation 4 Phases 1 through 3* (Animation available in Figure 35).



**Figure 37a.** Variation 4 Phase 1.



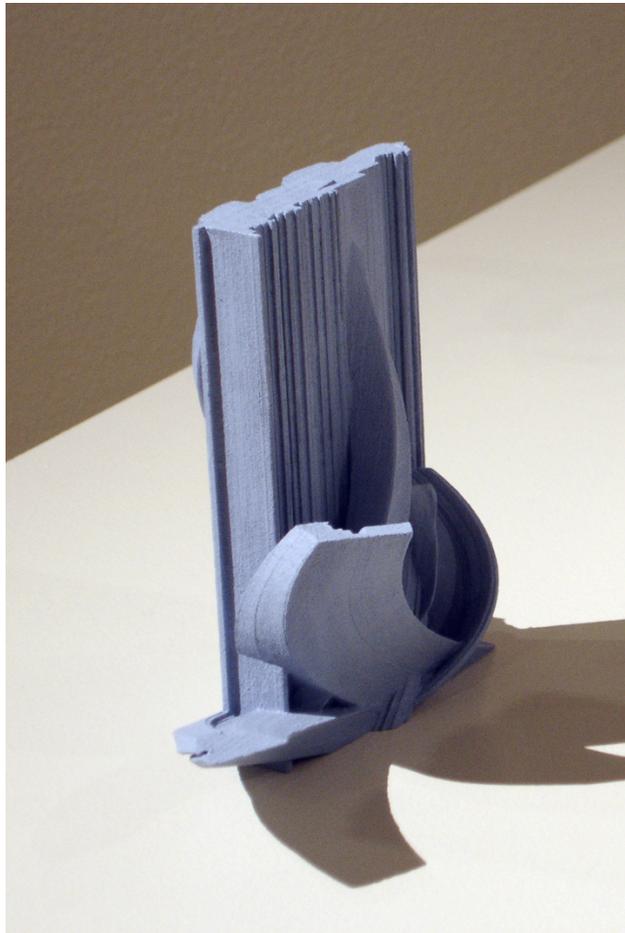
**Figure 37b.** Variation 4 Phase 2.



**Figure 37c.** Variation 4 Phase 3



**Figure 38.** *Variation 6 Phases 1 and 2 and Variation 7 Phases 1 through 4* (Animations available in Figure 35).



**Figure 39.** *Variation 6 Phase 1.*





Figure 40. Variation 6 Phase 2.

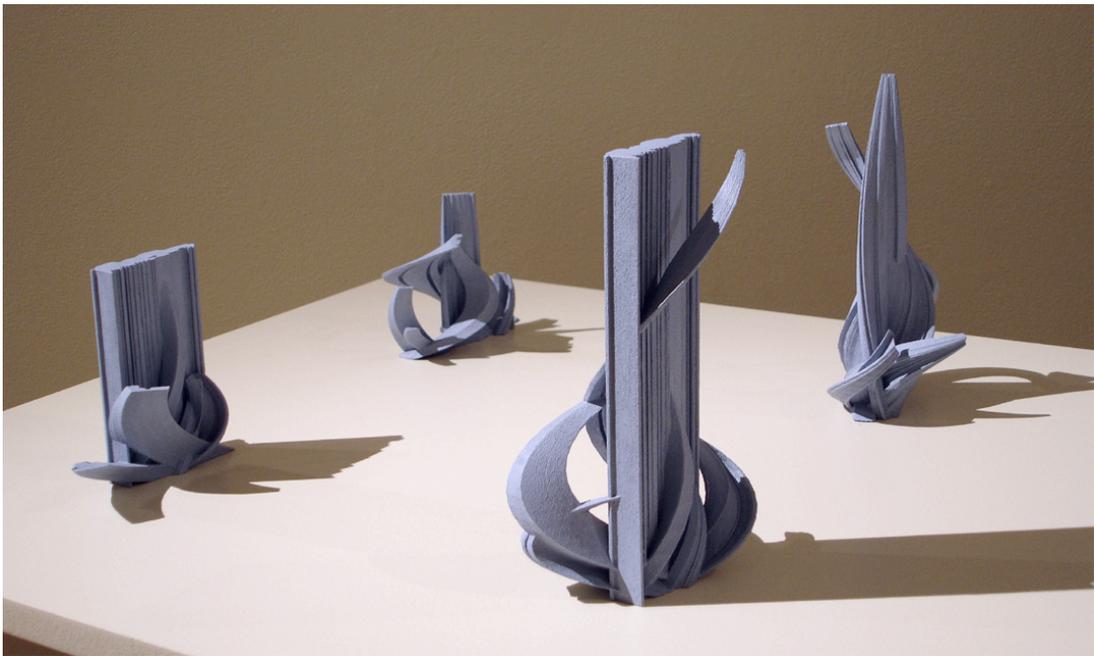


Figure 41. FRONT: Variation 6 Phases 1 and 2. BACK: Variation 7 Phases 1 and 2.

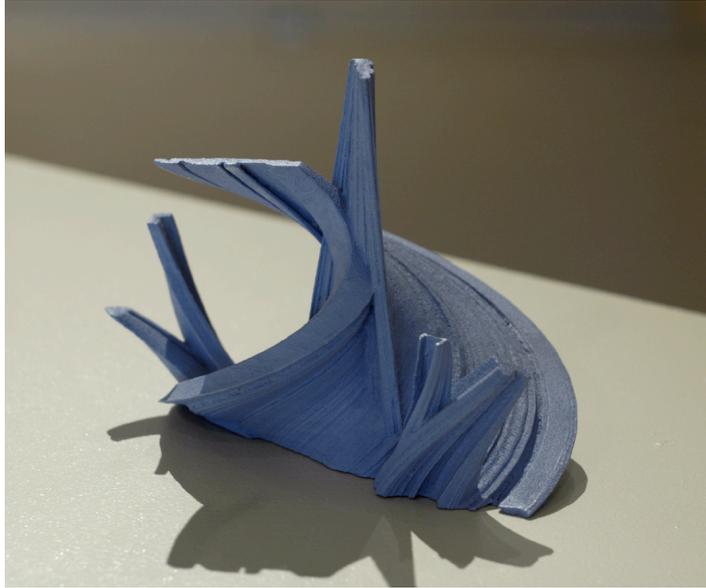


Figure 42. Variation 7 Phase 1.

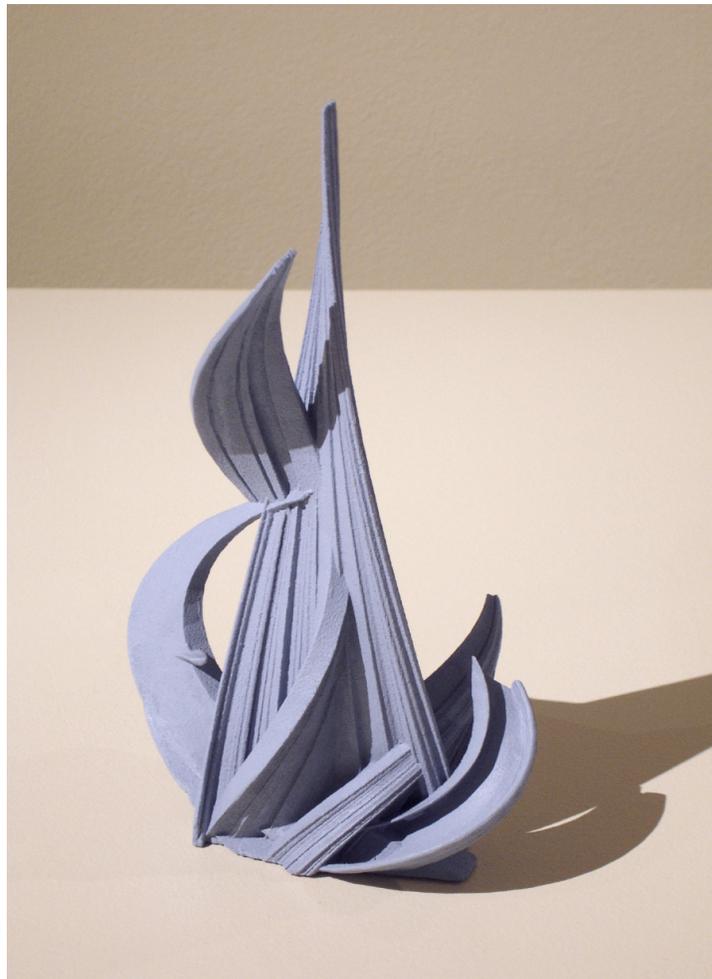


Figure 43. Variation 7 Phase 2.

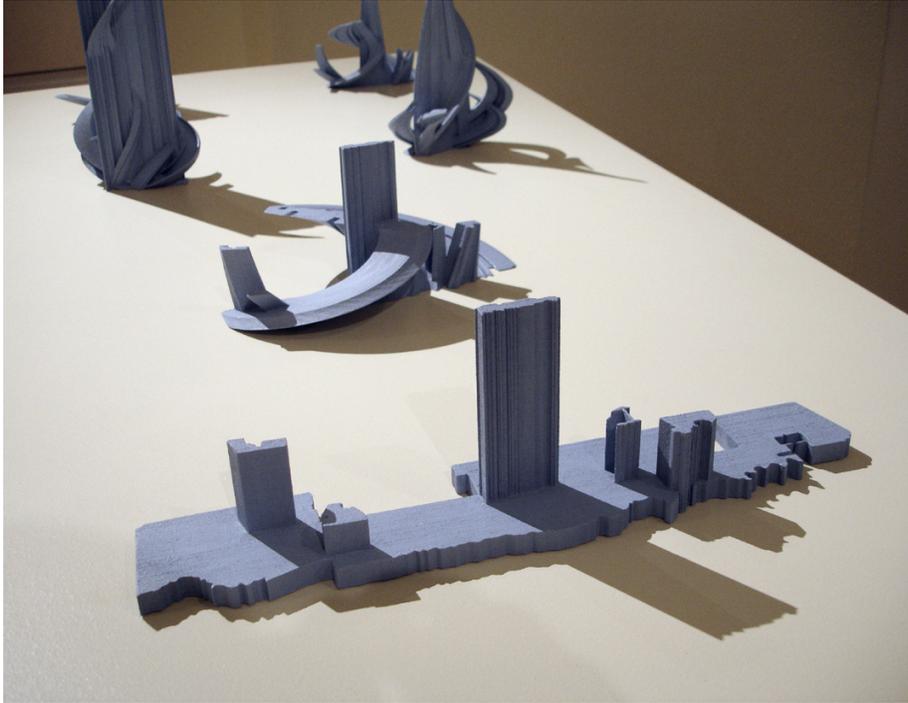


Figure 44. Front: *Variation 7 Phases 3 and 4.*

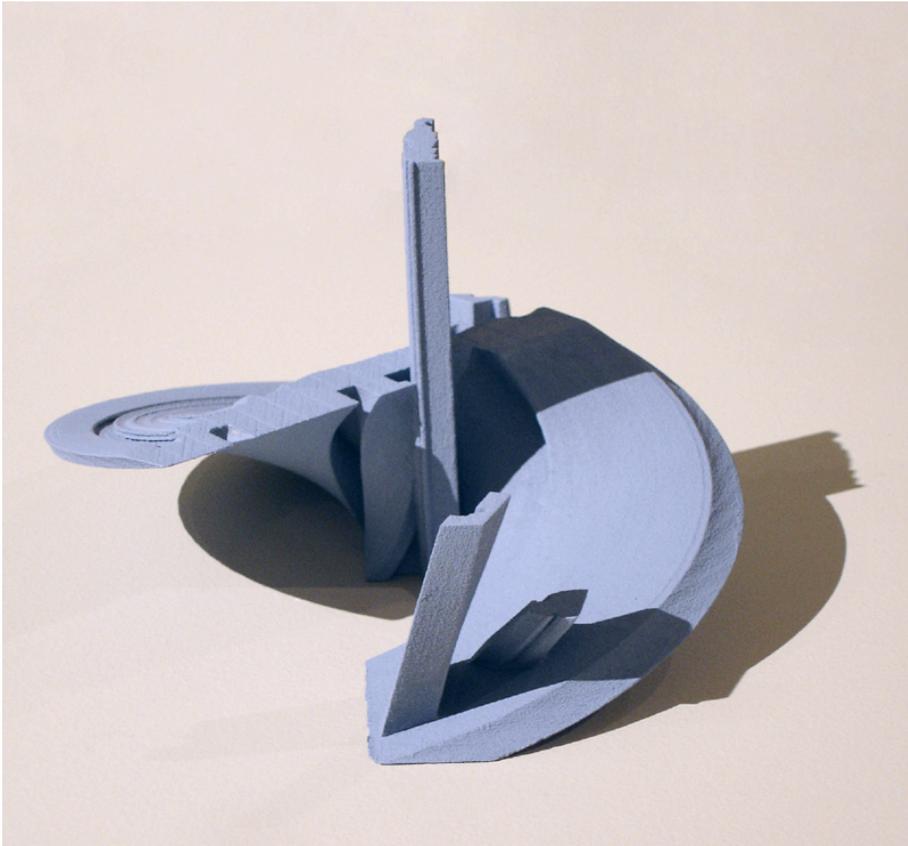


Figure 45. *Variation 7 Phase 3.*

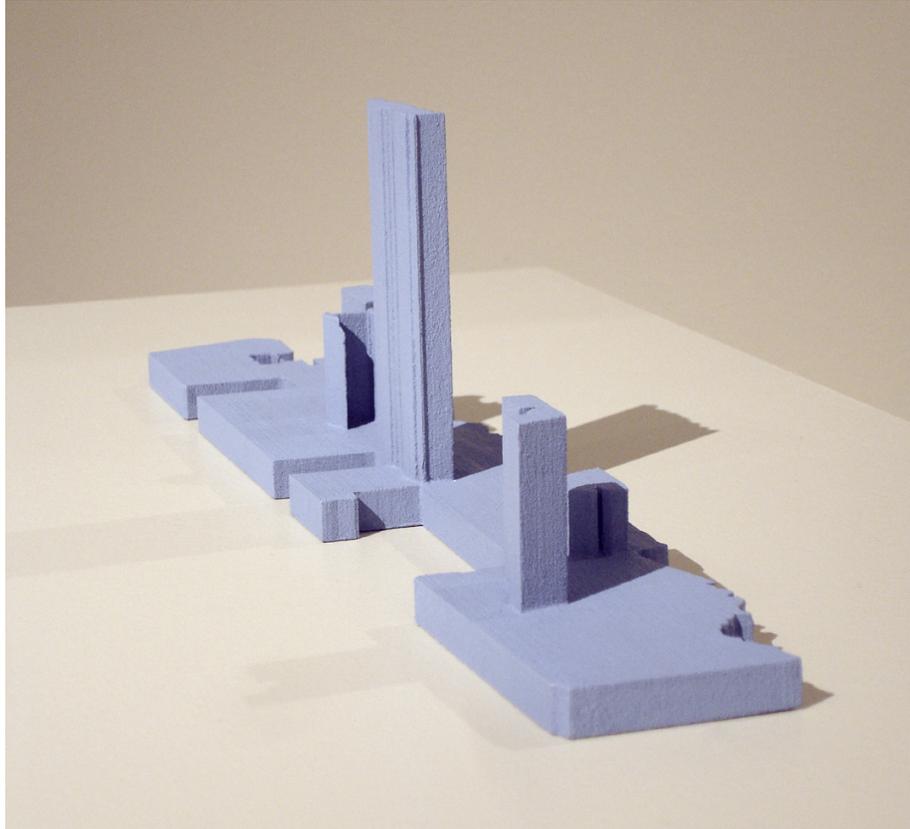


Figure 46. *Variation 7 Phase 4.*

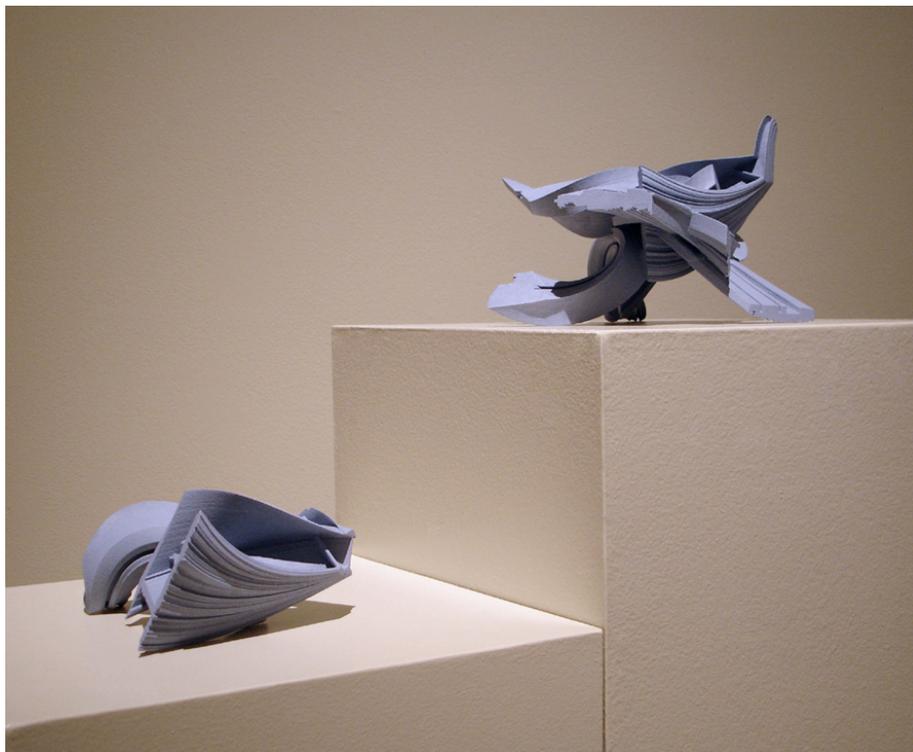


Figure 47. *Variation 8 Phases 1 and 2.* (Animation available in Figure 35).

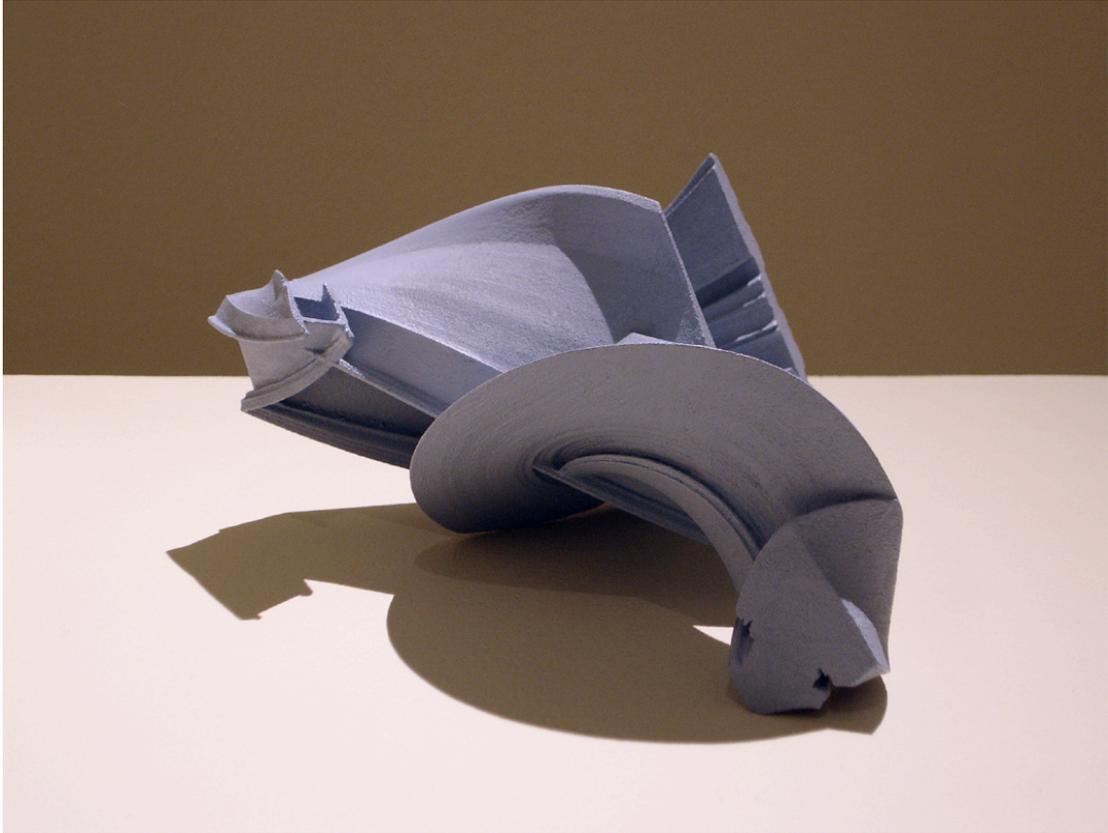


Figure 48. Variation 8 Phase 1.

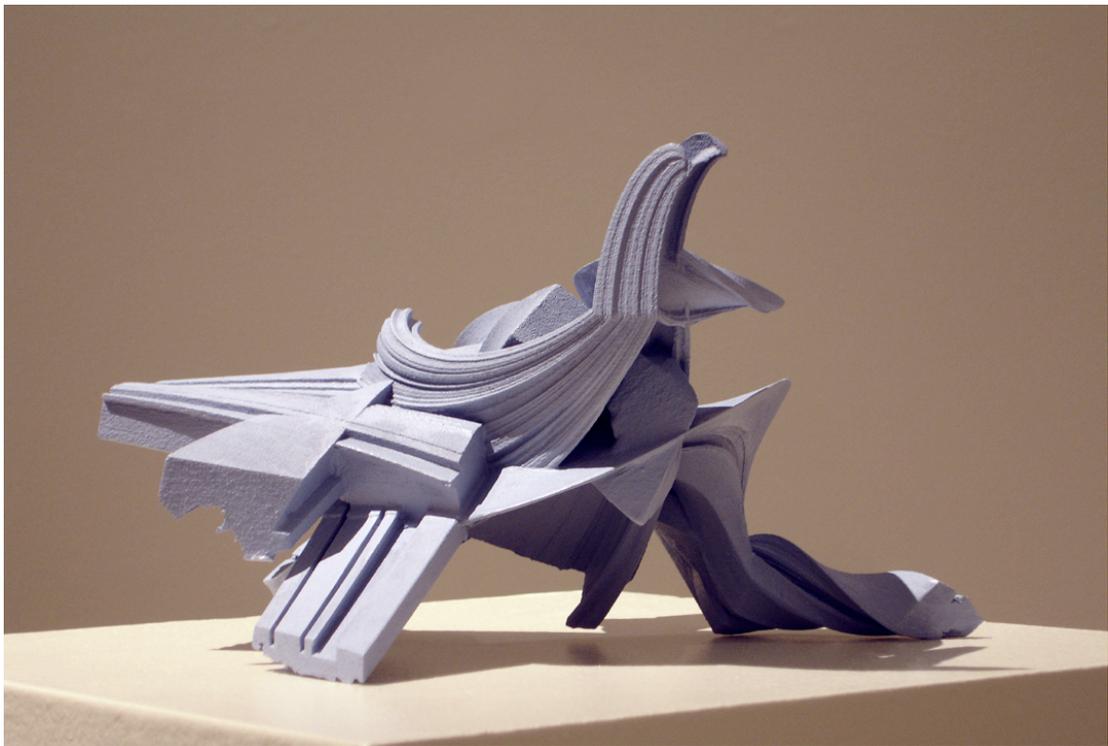
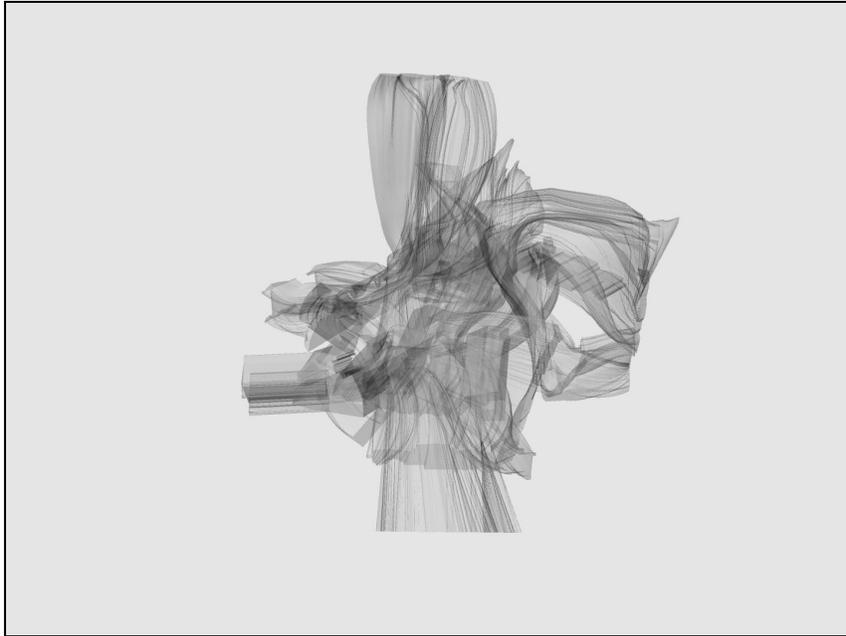


Figure 49. Variation 8 Phase 2.



**Figure 50.** Animations of *Variations 9, 10 and 11*.  
Click on the image in order to begin the Quicktime Movie  
of the animations.



**Figure 51.** *Variation 9*. (Animation available in Figure 50).

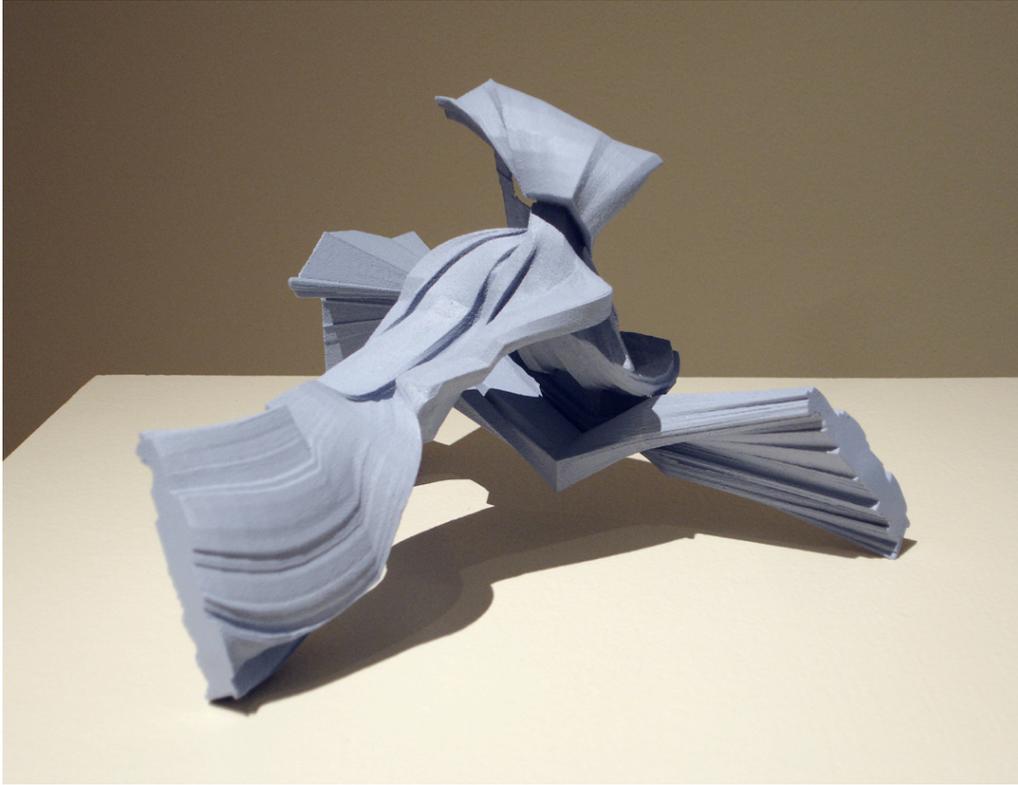


Figure 52a. Variation 10 Composites 1 and 2. (Animation available in Figure 50).

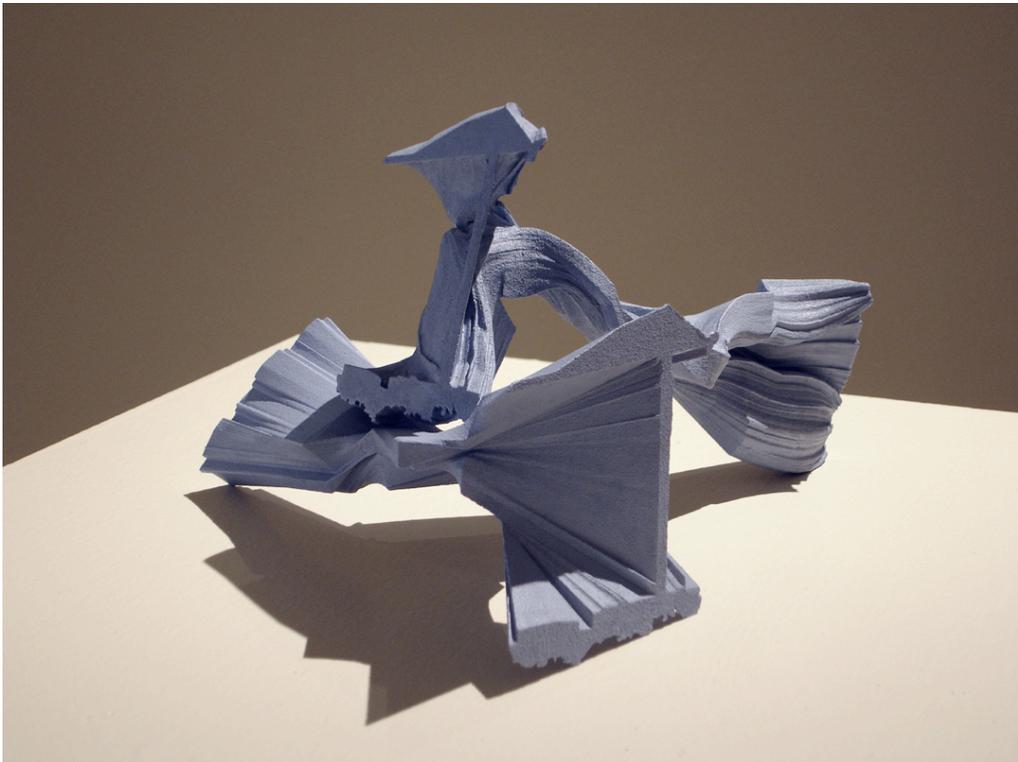


Figure 52b. Variation 10 Composites 1 and 2.



Figure 53. *Variation 11.* (Animation available in Figure 50).



## DISCUSSION

My creative work as described and displayed in detail above, provides one way to find and present re-enchantment within the filters of time perception and space perception.

The preparing and walking portions of my creative process re-enchanted my experiences by activating my perceptions of space and time. The focused walking with a planned method made me conscious of the moments during my walk; my awareness of how I was perceiving duration was constant. This harkens back to Ornstein's information-storage size theory of time perception. The need for a certain kind of awareness while walking relates to both Debord's *dérive* and Richard Long's works.

Photographing was an important component to both recording and finding the extraordinary in my experience. By photographing what is in my ordinary visual landscape as Barth does, I was able to begin drawing attention to the perceptual processes involved in that experience. By being able to record the timestamp whenever I captured a photograph, I was able to consciously choose which moments within the rationalized system of standardized time were significant; my filter of time perception became consciously active and its significance became dependent on my choices. This is similar to Penone's starting point with a slab of wood; his choices to follow a certain contour of the growth rings embedded in the wood established a significant form as did the six photographs that I took of my surroundings. The opportunity to actively explore my surroundings with my vision and pick out specific phenomena with a camera activated my perception of space as well.

Arranging the information in the photographs and creating a virtual space with that information became crucial activities in establishing a mode by which I could make an objectified image of my experience. Digitally selecting enclosed regions from each of the photographs furthered my conscious perception; it enabled me to reflect on what had drawn me to that visual phenomenon and collect a symbol to represent that significance. Barth's *untitled (02.13)* from white bright (red blind) depicted in Figure 4 reflects this notion of manipulating a photograph to highlight a visual phenomenon that brings attention to space perception.

Having this set of collected, visual symbols with digital timestamps enabled me to arrange them into an initial setup in virtual space. Similar to Mann's *Attracted to Light* and Sauter's and Lüsebrink's *Film Sculpture*, I created a rationalized arrangement of images in virtual space. However, I did not accept my initial arrangement as the only significant form. By having an objectifying image of my experience in this initial, virtual arrangement, I was now able to explore a range of felt experiences about my walk that happened while being conscious of my perceptions of time and space.

This exploring happened in my interacting with that initial, virtual setup using the tools and environment of AutoDesk Maya. The large palette of tools in Maya provided many choices and enabled me to create *Variations* from the initial, virtual setup. Establishing particular moments of perceived, ordinary phenomena as significant was intended throughout the iterations. Furthermore, these acts of generating and animating gave me the opportunity to formally explore felt experiences about existence. These experiences included pondering on the different ways I consider time and space as fluid or discrete and expressing those notions through the use of curvilinear and rectilinear

contours and the morphing and contorting of them. This can be seen particularly in the relationships between *Variation 1*, *Variation 2*, and *Variation 3* (Figures 26-33). One's perception of time can be experienced as smooth, rigid, and fragmented. The shifting between these experiences can be subtle sometimes and quite apparent at other times. This harkens back to the animation of *Variation 3* in Figure 18.

Within the exhibition, there were instances where I placed sculptures on the same pedestal (Figure 33). I wanted to emphasize the relationships between these forms with the viewer. The viewer's experience of the moving forms in the animations juxtaposed to the two static forms on the pedestal begin a conversation about decompressing and then recompressing one's filters for understanding the world. Different filters of experiencing the same empirical reality are quite possible between two people. Different filters can also occur within one person.

In generating the form of *Variation 11*, I took several forms from previous *Variations* and combined them into one composite form (Figure 53). Here I was accentuating the notion that each of the *Variations* in my creative process is an objectifying image of my felt experience, and is made possible through the initial arrangement of symbols from that experience. In essence, they were enabling me to extend my experience of past events. While each of the individual *Variations* was extending that experience, they cognitively merge into one mental space for *Variation 11*. I installed this piece at the center of the exhibition space in order to highlight its significance.

As was seen in Mann's *Attracted to Light*, and Sauter's and Lüsebrink's *Film Sculpture*, the notion of a series of durations, relating to the perception of time and the perception of space can be compressed into a static, physical event using technology. My own fabricated static forms embody information from both time perception and space perception and demonstrate how these dimensions can be expressed simultaneously.

There were a multitude of felt experiences that happened for me in creating each of the *Variations*. By expressing those felt experiences with the framework I constructed, I was able to emphasize that the constitutive elements of perceived time and space are facts. Intellectually formulated events happening in everyday, ordinary moments are integral parts of time perception and space perception. Both have been conceptualized and established among human beings as filters and thus enter into the systems of society. While time and space may be fundamental parts of our physical world, we shape how we are conscious of them. Cubism expresses this notion in its use of multiple perspectives from which to recognize an object. *Variation 1 of Experiential Extensions 8.28.2007* expresses this notion on its own. However, the creation of subsequent *Variations* accentuated that time perception and space perception are indeed malleable.

I provided visuals of different stages of my process in this exhibition, to let the viewers explore the exhibition space and come to their own conclusion about how the work came to be. This active involvement through the space makes the viewer conscious of the juxtaposition of time and space in my creative process. The embedding of standardized time in the arrangement of various photographs is intended to activate the viewer's notion of duration. Furthermore, the arrangement of screens displaying the animated, virtual objects in the proximity of the static, physical forms further activates the viewer's perception of space and time. All of this is done with the intention of

enabling the viewers to be conscious of how they relate to the world and thus become re-enchanted.

In her book The Reenchantment of Art, Suzi Gablik talks of a “new paradigm” of re-enchantment:

The emerging new paradigm reflects a will to *participate* socially: a central aspect of new paradigm thinking involves a significant shift from *objects* to *relationships*... Whereas the aesthetic perspective oriented us to the making of objects, the ecological perspective connects art to its integrative role in the larger whole and the web of relationships in which art exists (7).

While Gablik’s view of re-enchantment specifically calls for a shift from objects, it does not negate that importance of using aesthetics. Rather, it places emphasis on the social responsibility of artists and the rejection of the “subjective individualism of modernity” (Gablik 8-9).

There are many opportunities ahead in continuing this work. One opportunity is to find ways to re-enchant that are more social and more participatory. Experiments with ambitious scale variations and the use of novel materials also represent opportunities for future work. While I found a fabrication process that worked for this thesis, the use of materials like glass, plastics, wood, and metal would further the conversation about the solid and ethereal nature of perceiving time and space.

## CONCLUSION

Everyday life in contemporary society involves the use of filters to process information. Some means of filtering are technological, and others are cognitive. These filters can become so ingrained in our being that we accept them as concrete.

Standardized durations of time defined by mechanized clocks and Standard Time Zones accepted by society can create an overbearing notion of time as concrete. Our subjective experiences of the passage of time are often deemed irrelevant within this context of efficiency. The biological bases of protensity and space perception strengthen the potential concreteness of both perceptions.

When these filters become concrete in one’s living, one enters into a “disenchanted cultural condition” where all of one’s “needs” are met through technical and rational means. An individual no longer views the world as enchanted, as filled with mystery and excitement.

Nevertheless, an important aspect of all of this is often overlooked. Humanity establishes meaning. Facts are intellectually formulated events. We have the opportunity of making ourselves conscious of our filters of information, and this is where re-enchantment resides.

I have explored several creative practices, including my own, that re-enchant human experience by making the viewer conscious of perceiving time and space. This written thesis and MFA exhibition were created to share the re-enchanted condition with the reader and the viewer.

My creative work for this thesis paradoxically involved establishing a rationalized method, a filter, for creating and exploring a symbolic representation of my experience. This symbolic representation brought together an awareness of my perceptions of space and time. This awareness was made possible by an arrangement of filtered perceptions in a virtual, three-dimensional space. By creating this arrangement, I showed that my perceptions of space and time are active, conceptualized filters, and that they are dependent upon my choices. Furthermore, I used this symbolic arrangement to explore and present a range of felt experiences that happened in my awareness of these filters. It is in this conscious engagement with experience that I find and present re-enchantment.

## IMAGE REFERENCES

Figure 1. British Museum. Image of Babylonian tablet. The Mystery of Time. By Langone, John. Washington, DC: National Geographic Society, 2000. 73.

Figure 2. Lessing, Erich. Art Resource, NY. Image of Syrian sundial. The Mystery of Time. By Langone, John. Washington, DC: National Geographic Society, 2000. 78.

Figure 3. Standard Time Zones. Map. Mountain High Maps. 1 April 2008  
<<http://www.travel-images.com/time-zones.html>>.

Figure 4. Barth, Uta. untitled (02.13). 2002. white blind (bright red) By Uta Barth. Sante Fe, SITE: 2004.

Figure 5. Barth, Uta. ...and of time. 2000. ...and of time. By Uta Barth. Uta Barth: 2000. (commissioned by the J. Paul Getty Museum, Los Angeles.)

Figure 6. Picasso, Pablo. The Guitar Player. 1910. Musee National d'Art Moderne, Centre Georges Pompidou, Paris. Abstract Art and Artists. 1 April 2008  
<[http://abstractart.20m.com/The\\_Guitar\\_Player.html](http://abstractart.20m.com/The_Guitar_Player.html)>.

Figure 7. Penone, Giuseppe. Albero di 12 metri [Twelve-meter tree]. 1970. Arte Povera. By Carolyn Christov-Bakargiev. Hong Kong: Phaidon Press Limited, 1999.

Figure 8. Rachel Whiteread. Ghost. 1990. The Art of Rachel Whiteread. Edited by Chris Townsend. London: Thames & Hudson, 2004.

Figure 9. Guy Debord. Guide Psychogeographique de Paris: Discours Sur Les Passions D'Amour. 1957. 20 April 2008  
<<http://www.artnet.com/artwork/424578169/424291566/guide-psychogeographique-de-paris-discours-sur-les-passions-damour.html>>.

Figure 10. Richard Long. A line made by walking. 1967. 20 April 2008  
<<http://www.richardlong.org/sculptures/1.html>>.

Figure 11. Mann, Geoffrey. Attracted to Light. 2005. 18 April 2008  
<<http://www.mrmann.co.uk/>>.

Figure 12. Sauter and Lüsebrink. Single frame line-up of a film sequence according to the camera movement (used for *Film Sculpture*). 2007.  
<[http://www.artcom.de/index.php?option=com\\_acprojects&page=5&id=26&Itemid=115&details=&imageRequestToggle=0&lang=en&selectedimage=>](http://www.artcom.de/index.php?option=com_acprojects&page=5&id=26&Itemid=115&details=&imageRequestToggle=0&lang=en&selectedimage=>)>.

Figure 13. Sauter and Lüsebrink. Film Sculpture. 2007.  
<[http://www.artcom.de/index.php?option=com\\_acprojects&page=5&id=26&Itemid=115&details=&imageRequestToggle=0&lang=en&selectedimage=>](http://www.artcom.de/index.php?option=com_acprojects&page=5&id=26&Itemid=115&details=&imageRequestToggle=0&lang=en&selectedimage=>)>.

Figures 14 – 53. Images and animations of Edward Johnston. Some images courtesy of Brad Smith, John Marshall, and Josh Landau.

## REFERENCES

ART+COM, *The Invisible Shapes of Things Past (1995 – 2007): From Pixel to Voxel – The Generated “Film Sculpture.” An Art Project by Joachim Sauter and Dirk Lüsebrink.* 14 April 2008 <[http://www.artcom.de/index.php?option=com\\_acprojects&page=6&id=26&Itemid=115&details=&lang=en](http://www.artcom.de/index.php?option=com_acprojects&page=6&id=26&Itemid=115&details=&lang=en)>.

ART+COM. 14 April 2008 <[http://www.artcom.de/index.php?option=com\\_acprojects&page=6&id=26&Itemid=115&details=&lang=en](http://www.artcom.de/index.php?option=com_acprojects&page=6&id=26&Itemid=115&details=&lang=en)>.

Barrett, William. *Irrational Man: A Study in Existential Philosophy.* New York: Doubleday, 1958.

Barrett, William. *What is Existentialism?*. New York: Partisan Review, 1947.

Barth, Uta. *white blind (bright red)* Sante Fe: SITE, 2004.

Barth, Uta. *...and of time.* Uta Barth, 2000. (commissioned by the J. Paul Getty Museum, Los Angeles.)

Centre Pompidou. “Direction de la communication, Dossier De Presse: Big Bang.” 13 April 2008 <[http://www.centrepompidou.fr/Pompidou/Communication.nsf/docs/IDF5CA8540A71365B8C125701B0053720A/\\$File/1dpbigbangANG.pdf](http://www.centrepompidou.fr/Pompidou/Communication.nsf/docs/IDF5CA8540A71365B8C125701B0053720A/$File/1dpbigbangANG.pdf)>.

Christov-Bakargiev, Carolyn. *Arte Povera.* Hong Kong: Phaidon Press Limited, 1999.

Debord, Guy. “Introduction to a Critique of Urban Geography.” *Les Lèvres Nues.* #6 (1955). 07 March 2008 <[http://library.nothingness.org/articles/SI/en/display\\_printable/2](http://library.nothingness.org/articles/SI/en/display_printable/2)>.

Debord, Guy. “Theory of the Dérive.” *Internationale Situationniste.* #2 (1958). 07 March 2008 <[http://library.nothingness.org/articles/SI/en/display\\_printable/314](http://library.nothingness.org/articles/SI/en/display_printable/314)>.

Elkins, James. *The Object Stares Back: On The Nature of Seeing.* New York: Harcourt, Inc., 1997.

Gablik, Suzi. *The Reenchantment of Art.* New York: Thames and Hudson Inc., 1991.

Henry Art Gallery, “Uta Barth: In Between Places.” Traditional Fine Art Online, Inc., 2006. 1 April 2008 <<http://www.tfaoi.com/aa/2aa/2aa239.htm>>.

International Meridian Conference. Washington, DC: Gibson Bros., 1884.

Koshul, Basit B. Postmodern Significance of Max Weber's Legacy. New York: Palgrave MacMillan, 2005.

Langer, Susanne. Philosophy in a New Key: A Study in the Symbolism of Reason, Rite, and Art. Cambridge: Harvard University Press, 1993. (Seventeenth printing)

Langer, Susanne. Mind: An Essay on Human Feeling. Baltimore: Johns Hopkins University Press, 1988.

Langone, John. The Mystery of Time. Washington, DC: National Geographic Society, 2000.

Long, Richard. Website. 20 April 2008 <<http://www.richardlong.org/>>.

Mann, Geoffrey. Website. 18 April 2008 <<http://www.mrmann.co.uk/>>.

Miller, Arthur I. Einstein, Picasso: Space, Time, and the Beauty that Causes Havoc. New York: Basic Books, 2001.

Schiffman, Harvey R. Sensation and Perception: An Integrated Approach. 5<sup>th</sup> Ed. New York: John Wiley & Sons, Inc., 2000.

Taylor, Mark C. The Moment of Complexity: Emerging Network Culture. Chicago: University of Chicago, 2001.

Townsend, Chris. The Art of Rachel Whiteread. London: Thames & Hudson, 2004.

Zakia, Richard. Perception and Imaging. Boston: Focal Press, 2002.