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7 An Interactive Installation: Explorations In The Digital, The Spiritual, And The Uncanny

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7: AN INTERACTIVE INSTALLATION;
EXPLORATIONS IN THE DIGITAL,
THE SPIRITUAL, AND THE UNCANNY

by

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ABSTRACT

This thesis explores the application of digital technologies in the creation of visionary or transformative artwork. The installation emphasizes number, color, symmetry, and the human form to create symbolic compositions patterned after ancient archetypes. Background research was done to inform the work through studies of the principles of visionary and transformative artwork as practiced by Ernst Fuchs, De Es Schwertberger, and Alex Grey. Connections between art and spirituality as explained by Kandinsky were studied to augment these principles.

The sequence of artwork within the installation is comprised of both digital paintings and interactive triptych panels. To convey a sense of the mystical or sacred, the Rothko Chapel was used to inform the installation and serve as an artistic precedent. As the interactive work is created using realistically-modeled, computer generated characters, special consideration was given to understanding the "uncanny valley" and its potential effect in the interpretation of the installation. Interactivity is achieved through the use of ultrasonic sensors and Arduino prototyping boards.

Dedicated to my uncle and grandfather,

two educators on whose path I follow.

I hope this finds them on the astral plane.

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LIST OF ACRONYMS AND ABBREVIATIONS

CG   Computer Generated

IP   Internet Protocol

LCD   Liquid Crystal Display

TCP   Transfer Control Protocol

XML   Extensible Markup Language

CHAPTER 1: INTRODUCTION

Art and technology have always coexisted, inextricably interconnected within the cultures that spawned them. In Paleolithic humans' twilight, before the dawn of history, artists and artisans benefited from the technological advances achieved through trial and error. Thereafter, science progressed indefatigably to realize the utopian visions of artists, authors, and architects. Art and technology are now woven into the fabric of everyday human reality in such profusion that we hardly even take notice. Images are created and reproduced through the mediums created by technical innovation and instantaneously transmitted to every corner of the earth. With such ubiquity of art, film, and music, one would assume the quality of life for all the earth's citizens is steadily rising, allowing for a more democratic access to culture and information. The truth, however, is that the majority of people alive today have never even browsed the internet. In 1960, the richest fifth of the world's population had thirty times the relative income of the world's poorest fifth. As of 1997: seventy-four times as much. Alarming trends such as this seem to defy the utopian vision materializing in the form of interactive entertainment and digital communities.

The reality of a truly digital society is much more complex than mere entertainment and convenience; the implications of such a widespread and fast paced revolution in consumer electronics and computing are just beginning to be understood. Moore's law of computing, that processing power doubles roughly every 18 months, requires most Americans to donate another laptop or monitor to the landfill every two to three years. Although there are initiatives to recycle electronics, most of it occurs through small private companies and the rate of electronic consumption far outstrips their efforts. Peak oil is now an undeniable reality. The electricity in our homes, the plastic in every consumer product we buy, and the fertilizers and pesticides that produce nearly all the food we eat are derived from petroleum or natural gas. The twenty-first century will inevitably serve as a theatre of conquest in which the commercially strongest nations and corporations vie for the remnants of Eden's natural resources.

As humankind moves onward, the dichotomy of technology and art becomes both more commoditized and more convoluted, spanning the globe with instant commerce and entertainment and allowing the privileged to consume ever more goods and resources. As artists we must utilize digital technology as a new modality of artistic creation and expression or face obsolescence.

A venue that lends itself to a recontextualization of popular new media is the fine arts scene. Many art galleries are now open to media of expression previously considered out of place in fine arts settings. With the success of the fluxus and the more recent generative art movement, artistic expression in digital media has gained a place of serious acceptance within the fine art community. At the same time, representative artwork of the human form is regaining widespread acceptance with the success of the visionary and neo/pop-surrealist movements.

While both realistically figurative paintings and digital installations are currently exhibited widely, the depiction of realistic digital characters remains largely unseen outside the entertainment industry. By subverting existing associations between computer generated characters and commercial media, an installation of CG characters and digital paintings could be presented as images to contemplate instead of consume. This revelation provided the kernel from which my subsequent work would grow and drove me to produce 7 as an interactive installation.

CHAPTER 2: BACKGROUND

Visionary Art

Ernst Fuchs, a Viennese Artist, had been developing a painting technique in the 50's by studying

the methods of the Northern European renaissance painters. In order to achieve unique lighting

effects found in works by Durer, Grunewald, and Altdorfer, Fuchs revitalized the painting

method now known as mischtechnik, or "mixed technique". In this technique, successive glazes

of translucent oil paint are applied over highlights painted in egg tempera. (Biography of Ernst

Fuchs, n.d.)

Fuchs continued with contemporaries and disciples to produce what became known as Phantastic

Realism. This movement, while largely at odds with the contemporary art scene of the time,

continued undeterred by its lack of recognition within the fine arts community.

Phantastic Realism in turn spawned what has become known as Visionary Art. A distinction

must be drawn for clarification. The term "Visionary Art" has been loosely applied to a number

of artists and has come to mean one of two things in art parlance. First, the Visionary Art

descended from Phantastic Realism is a style marked by an emphasis on human transformation,

mysticism, and a classic formalism in style similar to the Phantastic Realists (often employing

the same mischtechnik.

The term "Visionary Artist" has also been used to describe many "Outsider Artists", or non-

formally trained artists, whose art deals with spiritual themes. This is not the "Visionary Art" I

reference in my thesis and will instead use the term popularized by a student of Fuchs and

premier Visionary Artist, De Es Schwertberger.

<div align="center">Transformative Art</div>

Schwertberger prefers the term "Transformative Art" as it more accurately describes the intent

and function of art in the visionary movement. In his essay "That Art" (2005) he writes:

> "Transformation in art = transformative art. Transformation is the key concept for the
> understanding of the current world-condition. Transformation is the process of
> fundamental change from the "old world" to the "new world". Transformation is a
> process of continual creation, the flow of evolution. Transformation moves
> consciousness, through liberation, growth, expansion, self-realisation and transmission of
> the energy of transformation.

> "Transformative art is a mirror of and an instrument for transformation. It is the
> expression and transmission of the energy of transformation. Transformative art
> transports awareness beyond the limitations of old belief systems-it transforms.

<div align="center">5</div>

"transformative art:

1. reveals the limitations of the "old world"
2. leads back to the source and real values of life
3. tunes into the harmonic order and full potential of the whole
4. expresses new possibilities, new ideals, new reality models and the self-image of the new man

"TRANSFORMATIVE ART CREATES IMPACT THROUGH THE BALANCED PRESENCE OF IDEA AND BEAUTY, MYSTERY AND MEANING. IT TOUCHES, INSPIRES AND ENERGIZES THE WHOLE BEING.

"Note: transformative art developed independently at the same time as many modern and postmodern "isms". It stands in sharp contrast to pure formalism as well as pure photorealism. In its methods it basically continues the traditions of the old masters yet applies it to the subjects of our time. It integrates and brings into focus artistic phenomena that have been labeled mystic, spiritual, transcendental, metaphysical , symbolistic, manneristic, visionary, surreal, fantastic, fantastic-realistic, magic realistic, psychedelic, psychic, consciousness, cosmic, science fiction, space, new age, and so on... art. (Schwertberger)

Alex Grey, a contemporary and widely popular figure in the Visionary or Transformative art movement, creates artwork that would be seen as solidly "Transformative" by the definition laid out by Schwertberger. In his book on art criticism and philosophy, The Mission of Art, Grey describes the essence of transformative art as compared to conventional art, touching on the ideas of one of the most overtly spiritual artists of the 20th century:

Conventional art is the expression of the self or the world as it is now. Kandinsky referred to such art as a child of its time. Transcendental (i.e. transformative) art expresses something you are not yet but that you can become. Kandinsky called this art the mother of the future. That's why you feel better after producing or viewing it. Transformative art expresses something beyond where you are. It demands that you recognize your higher nature and alter your life accordingly. (Grey, 1998)

Art as Spiritual Practice

Wasily Kandinsky, as appropriately referenced by Grey, is often considered one of the most outspoken artists on spirituality in the 20th century. In his seminal work <u>Concerning the Spiritual in Art,</u> Kandinsky speaks to the "inner need" of an artist to create as an innate spiritual imperative:

> The inner need is built up of three mystical elements: (1) Every artist, as a creator, has something in him which calls for expression (this is the element of personality). (2) Every artist, as child of his age, is impelled to express the spirit of his age (this is the element of style)--dictated by the period and particular country to which the artist belongs (it is doubtful how long the latter distinction will continue to exist). (3) Every artist, as a servant of art, has to help the cause of art (this is the element of pure artistry, which is constant in all ages and among all nationalities). (Kandinsky, 1910)

I believe Kandinsky to be prophetic in this passage, due in part to his prescient observation that style is becoming less defined by region or nationality as the human community continues to globalize. In the same work, Kandinsky discusses the more practical aspects of the evocation of

the spiritual in art. Specifically, Kandinsky focuses on the effect of color on the psychology and

spirit of the viewer:

> Generally speaking, colour is a power which directly influences the soul. Colour is the keyboard, the eyes are the hammers, the soul is the piano with many strings. The artist is the hand which plays, touching one key or another, to cause vibrations in the soul.

> IT IS EVIDENT THEREFORE THAT COLOUR HARMONY MUST REST ONLY ON A CORRESPONDING VIBRATION IN THE HUMAN SOUL; (Kandinsky, 1910)

The Rothko Chapel

To create a space that evokes the sacred or mystical, I sought precedents in the canon of western

fine art. An obvious inspiration that incorporates a geometrical arrangement of artwork to be

experienced "in the round" is the last great work of Russian-American abstract expressionist

Mark Rothko.

The Rothko Chapel, located in Houston, TX, was dedicated in 1971 to house a series of large

paintings by Rothko. The artist was given complete control over the planning of the space by

partrons Dominique and John de Menil, but did not live to see the completed installation. The

chapel incorporates fourteen monumental canvases and is arranged geometrically in a space

intended to be used as a non-denominational chapel (Rothko Chapel, 2010).

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The interpretations of the Rothko Chapel are wide ranging and often contradictory, given the

abstract nature of the compositions. William Cain, in an essay on his reaction to the chapel,

noted an initial difficulty in sensing the sublime aspect he expected from the space. Instead he

found, upon hours of contemplation within the chapel, that the true beauty and art of the

experience was just that, the experience of being within the space and the reactions of others

with him. He found that the viewers around him were as critical to the interpretation of the

chapel as the canvases and architectural space (Cain, 2009).

In a poem titled "The Last Sacred Place in North America", poet Stephen Haven speaks of his

experience within the Rothko Chapel:

> ...You cannot say
> Where the tonic lies, whether in some
> Cure of ground or sky, midnight's monolith
> Fletching at each cardinal the susurrus quiver
> Of these dark panels. Your own caesurae,
> Your own circumference,
> Is the shell of a missing animal (Haven, 2009)

While most definitely open to interpretation, I feel Haven's passage speaks of the viewer

becoming a part of the space itself. He speaks as if the space itself, even his own body, loses

boundaries and becomes a singular experience. This is the effect I hope to produce with my own

installation. The quiet contemplation of an encompassing sacred space becomes more than the

subject-object relationship of a traditional gallery viewing. It instead becomes an experience in

which the viewer is absorbed into, and thus becomes a part of, the space created for their

contemplation.

The Uncanny Valley

In attempting to create representative artwork using digital characters, special considerations

must be made concerning a phenomenon termed "The Uncanny Valley". This effect describes

human reactions to realistic human representations in robotics and computer generated imagery.

The origins of "the uncanny" in popular discourse are found in a 1906 paper German doctor

Ernst Anton Jentsch titled "On the Psychology of the Uncanny" (Gellar, 2008). Freud further

clarified these concepts in a 1916 paper on the subject, in which he declares the unheimlich

(literally "un-home-ly" in German) to occur when the psyche encounters something alien in a

familiar context or setting (Gee et al, 2007; Gellar, 2008). He uses the example of a prosthetic

limb that at a distance or brief glance appears normal, but becomes increasingly strange and

unsettling at its differences become apparent.

The term "uncanny valley" was coined in a 1970 paper by Masahiro Mori in which he

hypothesizes that as humanoid robots begin looking more human, minor imperfections in

appearance and behavior would become increasingly unsettling (Mori, 1970). Mori also uses the

example of a realistic prosthetic hand. By shaking this hand, he posits the eerily foreign-yet-

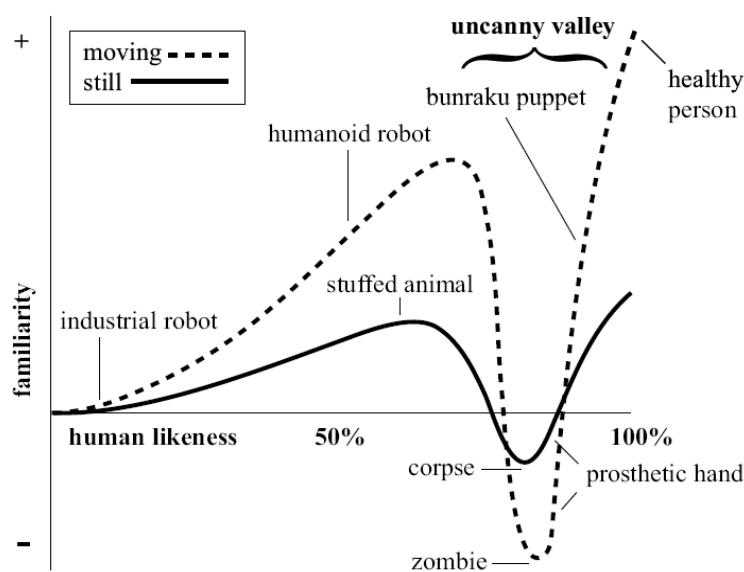familiar sensation would disturb the average person.

Figure 1: The Uncanny Valley (from Mori, 1970)

Mori predicts that the valley is gentler for still images (solid line) than for video (dashed line)

(Fig. 1). This makes intuitive sense as a convincing representation of human movement is often

more complicated to realize than a still image.   The idea is that as humanoid agents approach

human-like realism, minute flaws in appearance and behavior become more obvious and

unsettling to the viewer (Gee et al, 2005)

Numerous authors have postulated the source of these seemingly ingrained reactions to near-

human agents. Many specifically focus on evolutionary and socio-biological adaptations to

explain these phenomena. Specific topics related to these biological responses include, but are in

no way limited to threat avoidance theory (MacDorman et. al. 2009) and terror management

theory, (MacDorman, 2005). The basic idea behind the biological response models is that we

can easily discern subtle imperfections within our own species to maximize survival potential.

This effect is of great importance to the interpretation of this installation as the two interactive

panels are realized using realistic computer generated characters. How these characters are

approached in style and execution will either mitigate the uncanny valley and leave the viewer in

a contemplative state as intended, or will serve disrupt the experience within the installation.

CHAPTER 3: METHODS

Conceptual Evolution

In arranging these panels into a meaningful installation, I have taken cues from the traditions of

sacred geometry as first widely popularized in H.P. Blavatsky's Theosophic treatise, <u>The Secret</u>

<u>Doctrine</u>. The basic idea is the unfolding of form originating with the point and passing through

successively greater orders of geometric complexity. Kandinsky, an ardent follower of

Theosophy, studies these principals in depth in his <u>Concerning the Spiritual in Art</u> (1910).

> As in a great circle, a serpent biting its own tail (the symbol of eternity, of something
> without end) the six colours appear that make up the three main antitheses. And to right
> and left stand the two great possibilities of silence--death and birth. (Kandinsky, 1910)

This representation could be seen as the layout of the finalized installation with the modification

of the white point to the center and the black point as omitted or implied.   To each perimeter

color is ascribed a corresponding representative mythic image (e.g. Ares: Red, Selene: Blue,

Zeus: Yellow, etc.), while the central point is represented by the viewer's singular point of

perception and consciousness. The black point, as antithesis to the white, could be seen as the

void beyond the sanctum of the installation.

The space requirements are quite adaptable to any final format, but in an ideal situation the installation would adhere to the original hexagonal format. In this format the installation would require a relatively square four walled space of 144 to 225 square feet (12' x 12' and 15' x 15' respectively).

Approach

The objective of the installation "7" is to create a space that uses representative computer generated characters and other new media in a manner that evokes the sacred or mystical. My intentions in approaching this project are to explore the possible applications of these new media in the contemporary style of visionary or transformative art. Through experimentation with various configurations of mystical figures and spatial designs, I have created a space that provides for a contemplative experience in which the viewer can directly affect the artwork.

Imagery within the interactive panels is modeled and rendered in Maya. In these compositions, the figure is realized formally within a representational, symbolic narrative. Upon activation, the character and composition shift and intensify in response to a viewer's proximity to the panel.

Subverting the concept "level of detail" in video games, the computer-generated compositions on

two main panels respond to viewers' proximity by shifting to more abstract geometries as they

approach. This effect is intended to serve two purposes. First, I wish to make viewers aware of

the underlying technology and mathematical structures (polygons) used in creating the imagery

they are seeing. Reversing an LOD system to display a lower-resolution topology as the viewer

approaches allows this underlying structure to become apparent. Secondly, the progression to

more abstract geometries as the viewer approaches is meant to intimate the search for truth in

universal archetypes. In this search, as in the composition, the understanding of truths becomes

more abstracted the closer one comes to comprehension. At a distance, the concept has an iconic

and clearly defined structure while upon closer examination, a complex and multi-faceted system

is revealed that underlies this seemingly unified truth.

My conception of the installation has evolved over the course of my investigation. While the

format and concept remain essentially unchanged with six panels arranged around a central point

to yield "7", the center point is now represented within the installation as the viewers singular

point of perception.

Two interactive triptychs consist of vertically mounted LCD screens within wooden framing

intended to evoke a quality of religious design. Complimenting these interactive panels, are

digital paintings framed in similar housings evocative of religious design. In order to achieve

interactivity on the triptychs, I have employed ultrasonic sensors connected to Arduino

prototyping boards.

<u>Arduino</u>

Arduino is an open-source electronics prototyping platform based on flexible, easy-to-use

hardware and software. It's intended for artists, designers, hobbyists, and anyone interested in

creating interactive objects or environments. (Arduino, n.d.)

Arduino can sense the environment by receiving input from a variety of sensors and can affect its

surroundings by controlling lights, motors, and other actuators. The microcontroller on the board

is programmed using the Arduino programming language and the Arduino development

environment (Arduino, n.d.).
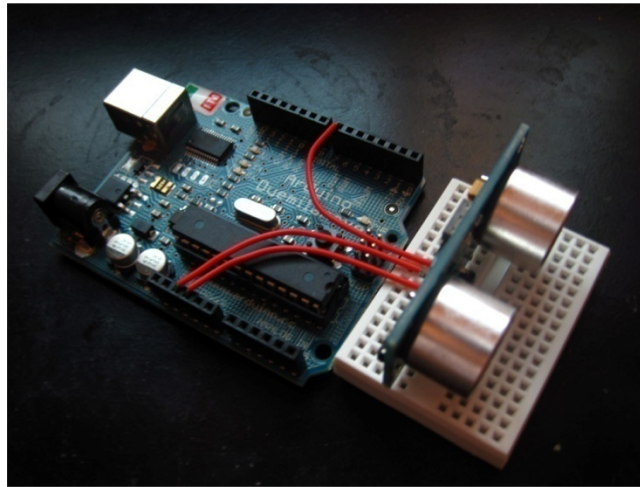
Figure 2: Arduino and Ping Ultrasonic Sensor

In this project, the Arduino is being used to relay distance information from an ultrasonic sensor (Fig. 2). As one of the interactive panels is approached, the Arduino relays this information to a laptop which sends a video signal to the monitor contained within the triptych. Originally, I had configured the Ardiuno to relay distance information through a serial proxy to XML data. This information would then be accessed through a network port in Flash (Fig 3).
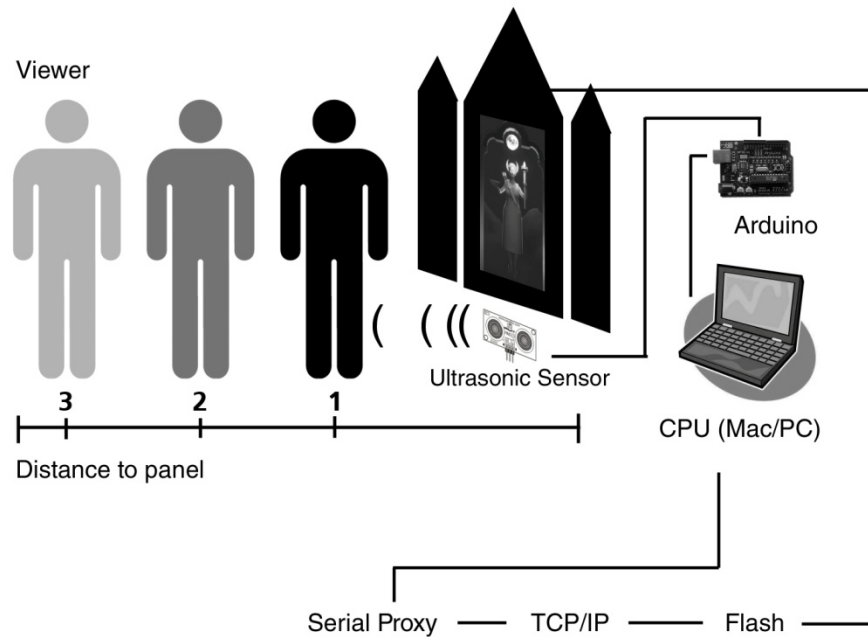
Figure 3: Data Flow

Using network data in Flash proved harder than expected. The Action scripting required

exceeded my limited knowledge of the language. Therefore, I settled on using Processing to

handle serial data directly from the Arduino without the need for a serial proxy. Another

advantage was found in the similarities between the Arduino and Processing environments. The

languages, both simplified versions of Java, are nearly identical. This left essentially one

programming language with which to code and troubleshoot, speeding up development.

Preliminary Experimentation

Figure 4: Norse Athena

In this digital painting (Fig. 4), I explored the composition of a mythic figure within a symbolic

landscape. The figure of Athena has been realized in the form of Brunhilda of Norse mythology.

Here, I experimented with radially symmetrical forms by utilizing a representation of the zodiac

to frame the figure. I decided the asymmetrical, active pose lends itself more to illustrative work

than visionary or transformative art. Symmetrical compositions were settled on to counter this

effect.

Figure 5: Sin and Transcendence

In this composition (Fig. 5), a system of vertical and radial symmetry was employed to achieve a more contemplative or meditative stability frequently used in religious icon painting. This composition was created around the concept of the opposing natures of humankind, the Dionysian/Apollonian duality of virtue and vice.

This style seemed more applicable to the themes of visionary art and felt well suited to the compositions of the finished installation. In creating these images and solidifying the ideas behind them, I constructed a statement of purpose explaining my intentions in creating this interactive installation.

Figure 6: Digital Painting Progression

To create the digital paintings used as part of this installation, I utilized Photoshop, photographs, and a digital tablet. The compositions were built of successive layers of refinement beginning with a textured background plane to give the paintings a depth and organic quality usually found in traditional media. These backgrounds were composited together from photos I had taken of various textured surfaces. In this example (Fig. 6), I used images of concrete and rust stained stucco and color corrected them until I produced the effect I needed. Then a simple sketch was overlaid and tones were blocked out. The painting then went through successive layers of detail and refinement to produce the final image.
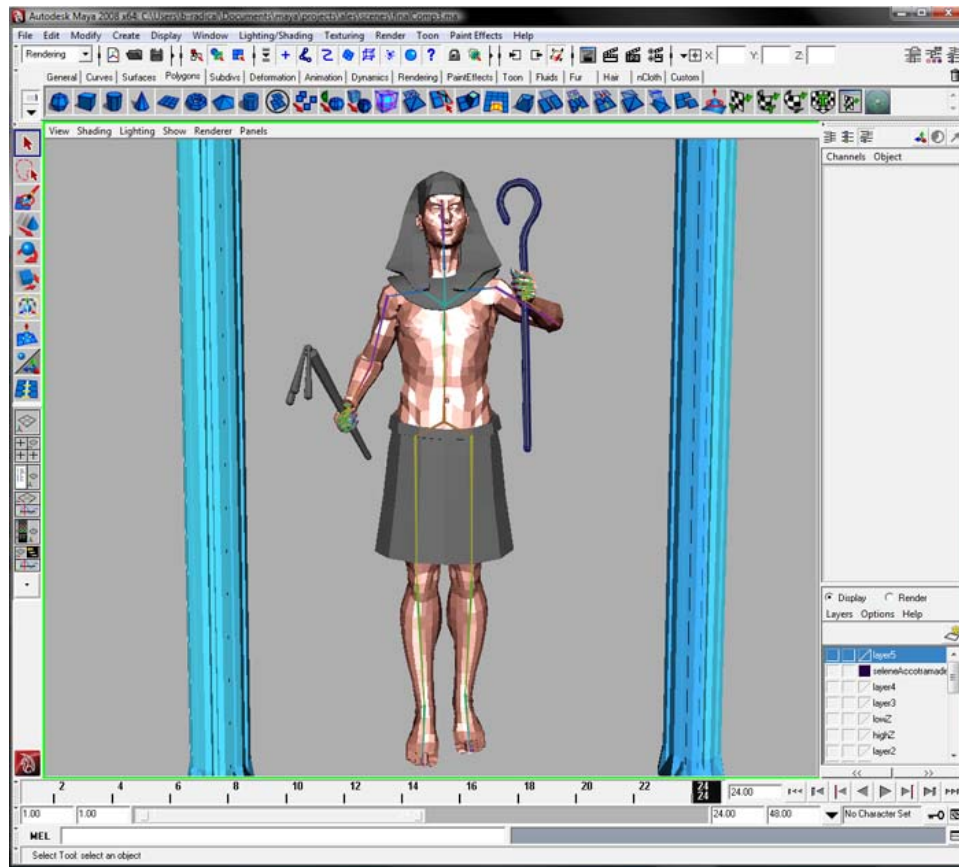
Figure 7: Maya Interface with Ammun Ra Character

The compositions for the interactive triptychs were created in Maya (Fig. 7). Two character

meshes were created using polygonal modeling techniques traditionally employed in the creation

of digital animation and video games. These characters were then fitted with skeletal rigs and

posed. Renders were then made of the characters in both high and low resolution subdivisions to

produce the level of detail effect discussed earlier. The resultant renders were then composited

in After Effects with background elements generated in Photoshop to maintain an aesthetic

coherence with the digital paintings created solely in Photoshop. The transitions were then

animated in After Effects to produce the final compositions.

CHAPTER 4: INSTALLATION

Artist Statement

Magick (as opposed to stage or street "magic") could be defined in many senses as the using of

one's will to modify perceptions of reality. These changes can be short lived, or permanent and

can affect both the practitioner and those with whom he interacts. Much as Picasso espoused in

the early 20th century, I believe the creation of art is a form of magick, akin to shaping one's

consciousness through other visionary techniques. As an artist, I seek to enact positive change in

myself and move those viewing my work to contemplate deeper planes of existence.

The visionary (or Transformative) art movement, which informs my artwork, places emphasis on

the transformation of human awareness through the use of symbolism, symmetry, and number.

The use of the human body to square a circle in Da Vinci's Vitruvian Man could be seen as an

antecedent to these tendencies in Transformative Art. In this famous composition, often referred

to as the "canon of human proportion", Da Vinci uses the geometry to represent the inherent

harmony and symmetry of human proportions. Expanding upon these concepts of mathematical

order between geometry and nature, the installation uses sacred geometry in the representation of

archetypal images and their associated numbers.

Sacred geometric forms such as the Flower of Life pattern are employed frequently in visionary

art because of their symmetrical balance and relation to patterns found in nature. This core

pattern of sacred geometry could be envisioned as any 7 round objects of identical size placed in

the smallest possible configuration. The result is a hexagon, yet one made of seven points: the

heptad.

The number 7 occurs frequently in science, art, mythology, religion, and mysticism. To ancient

people, seven was a number of extreme importance and mystery. The seven planets of ancient

astrological arts ruled the fates of all in most mystery traditions. These were, in order, the Sun,

Moon, Jupiter, Mars, Mercury, Venus, and Saturn. While these seem out of order to

contemporary thought, the numerological significance of each "planet" was derived from its

attributes. For example, the number 2 was associated with complexity, duality, compassion, and

companionship while the number 1 was associated with unity, clarity, confidence, and drive.

There is an ancient hermetical axiom that states "As above, so below." According to this belief,

the universe operates on the same principles from the microcosmic to the macrocosmic, an idea

that modern physicists work tirelessly to prove with the unification of general relativity and

quantum mechanics. To ancient astrologers, this meant the seven planets each ruled a specific

aspect of the human drama or psyche. We see this in many religious allegories such as "The

Seven Deadly Sins and Seven Heavenly Virtues" of Christianity, "The Seven Sages and Seven

Mothers" and "The Seven Chakras" of Hinduism, "The Seven Gates" through which Inanna

passes in Sumerian mythology, "The Seven Heavens and Seven Earths" of Islam, "The Seven

Days of Passover" of Judaism and so on. From Confucians to Mesoamericans, Pagans to

Monotheists, the number seven resounds with power and mystery.

From a modern, rational standpoint, we still see seven in the seven colors of the visible spectrum,

the seven tones of the natural scale, the seven periods of the table of elements, the seven days of

the week and so on.   By consolidating this ancient and modern curiosity into an interactive

installation, I hope to encourage an awareness of the universal presence of symbolic archetypes

in all human affairs.

As votive reliquaries to the ancient planets and divine aspects, my current sequence of work

seeks to convey my searching for and finding universal connections in human archetypes. These

votive reliquaries utilize the immersive dimensionality of computer animation and digital painting to produce an aesthetic that is antiquated and contemporary, electronic and archaic.

Through direct engagement of the interactive triptychs, the viewer transmutes the contained mythic figure into a higher-dimensional manifestation of itself.   I hope that this transmutation of archetype, in turn, awakens an intuitive desire for transcendence in the viewer serving as the first point in this sequence of seven.

Art is personal. Art is universal. Art is transformative.

Art is Magick.

<u>Interactive Triptychs</u>

To create the interactive triptychs, I used character meshes generated in Maya to serve as the archetypal figures contained within. In approaching these compositions, I had to be mindful of the style of representation and the effect on the viewer. To avoid "uncanny" tendencies, as explained earlier, I worked a great deal on melding the CG characters into painterly compositions that complimented the backlit digital paintings with which they are displayed.

Figure 8: Triptych

The interactive triptychs (Fig. 8) in this series face each other across the room with two backlit

votive panels on each adjacent wall. Interactivity is achieved through the use of an Arduino

prototyping board, ultrasonic sensor, and a laptop running Processing. As the viewer approaches

one of these triptychs, the mythical image shifts and abstracts in response to the viewer's

proximity. The side panels of each triptych contain steel tiles that reflect the abstracted image of

the viewer illuminated by the central panel. This effect serves to associate the viewer with the

image as they interact.

Figure 9: II

The first of these triptychs represents Selene, the moon goddess (Fig. 9). Her archetype is often

associated with the number 2 and represents duality, companionship, and complexity. This

number is represented by the symbol of the vesica piscis, which translates to "bladder of a fish"

in Latin. The shape is constructed with two circles of identical radii that intersect in such a way

that the center of each circle lies on the circumference of the other. The intersecting shape was

often used as an aureola, or luminous cloud, to frame Saints in early Christian art. The same

shape, with circumferences continued past the bottom point, becomes the linear fish or symbol of

Christ.

Selene is depicted with a torch, representing the light of the moon, and a bowl, representing

harvest and sustenance. This archetype is often associated with the generative powers as

intimated by the vesica piscis as feminine symbol or coupling of two circles. She is also shown

with a quiver of arrows in reference to Selene's associations with the hunter goddess Artemis or

Diana (Coleman, 2007).

Figure 10: III

The second interactive triptych represents Zeus or Ammun Ra (Fig. 10). This archetype is

associated with the number three as well as hierarchy, rule, and law. As such, both Zeus and

Ammun Ra served as the paternal ruler gods of their respective pantheons. The upright,

equilateral triangle is often associated with the masculine aspect as opposed to the inverted

triangle being a common symbol of the feminine. The triangle also draws visual parallels to the

pyramid, often associated with the concept of hierarchy because of its organization of smaller

levels stacked above larger ones, with one pyramidal stone atop them all. This visually implies a

hierarchy ruled from the top, or capstone.

I have decided to depict the ruler archetype as a Egyptian Pharaoh in reference to the Ammun Ra

deity as well as the aforementioned visual associations between the triangle and pyramid. The

figure is shown with the symbols of the pharaoh in Egyptian art: the cane and flail. Both are

allusions to the tending of a flock, over which the deity-incarnate rules. The cane serves as a

symbol of leadership and guidance and shows the Pharaoh to be a shepherd of his subjects. The

flail serves as a reminder that loyalty and obedience can also be obtained through force and

coercion (Coleman, 2007).

Figure 11: Votive Panel

To complete the sequence of work, digital paintings are displayed in similar peaked housings to

draw symbolic visual parallels between the work and the votive and religious artwork that

informs the design (Fig. 11).

The first of these paintings represents Ares as War personified (Fig. 12). In this sequence, the

warrior archetype is associated with the number four and the harsh rigidity of the square. The

number four seems rigid and aggressive while the ninety degree angles of the square convey an

uncompromising structure: utilitarian, rigid, and uniform.

Figure 12: IV

The color red is naturally evocative with passion and violence as well as its common association

with the planet Mars. The warrior's symbolic icons are depicted as the sword, for passion and

violence, and the shield, for duty and security. Ares, as the warrior archetype, is represented as a

Greco-Roman soldier to draw parallels to the dominance of the war archetype in the late Greek

and Roman empires.

Figure 13: V

The figure of Hermes-Trismegistus, the archetypal scientist, is shown in the next composition in

the sequence (Fig. 13). The number attributed to Hermes is 5 for the five senses used in the

empirical modes in which this archetype operates. When upright, the pentacle, or five-pointed

star, represents the dedication of these senses to the cultivation of the soul and intellect. When

pointed downward, the star becomes a pentagram, synonymous with deception and the lower

nature (Coleman, 2007). The icons displayed with the scientist archetype are the compass, for

empiricism and reason, and the caduceus, a rod with serpents intertwined. The caduceus is often

mistaken for the rod of Asclepius, the universal symbol of medicine. Instead, the caduceus as

represented with Hermes is symbolic of commerce and discourse (Coleman, 2007).

Hermes is naturally associated with the planet Mercury, his Roman counterpart, and due to the

planet's speed through the sky represents the speed of thought. Thoth, Hermes' Egyptian

counterpart, is often credited for the etymology of the word "thought" and the color cyan, in

which Hermes is depicted, is a cerebral color and felt well suited to a mythic figure

representative of intellect. This archetype felt naturally associated with the era of the

Renaissance during which a renewed importance was placed on both commerce and empiricism,

and as such, Hermes is depicted in the garb of a Renaissance scholar or alchemist.

Figure 14: VI

The next in the sequence of mythical archetypes is Isis or Venus (Fig. 14). 6 serves as the

numerical association with Venus as a mediation of opposites. The six pointed star, or

hexagram, can be seen as an upright and inverted triangle in balance. These two symbols, often

representative of masculine and feminine respectively, combine to represent Isis or Venus as a

compassionate teacher, healer and counselor (Coleman, 2007).

The icons in the composition also represent this concept of balance. She is shown with the

scales, an obvious symbol of balance and harmony, and the ankh, a symbol of life and

regeneration (Coleman, 2007). The color green feels balancing and harmonious, and as such,

suits this archetype well. Green is also evocative of nature, the ultimate archetype of balance.

The personification of this archetype is depicted veiled as a reference to Isis, but dressed in

Victorian clothing. I meant this as a direct reference to H.P. Blavatsky mentioned earlier. This,

along with the Egyptian symbolism, represents the opening of the western mind to non-western

ideas during the latter part of the nineteenth century. In this way, this archetype can be seen as a

mediation of culture as well.

Figure 15: VII

The final archetype in the sequence represents the archetypal figure of Saturn (Fig. 15). The

number attributed to Saturn is 7 as it is the final number in the sequence and the outermost planet

in ancient thought. Saturn is shown with the scythe, representing the act of harvest as a symbolic

death, and the hour-glass, representative of the passage of time and the cycling of ages

(Coleman, 2007).

Saturn symbolism can be seen in the contemporary archetypes of father time and the figure of

death. As such, I decided the archetype should be represented in twentieth-century military garb

to reinforce the idea of death and the passing of an era. The word "Saturn" is appropriately

associated with Saturday (Saturn-day), the Sabbath or seventh day during which the Judeo-

Christian creator rested (Coleman, 2007). Because of this and the archetype's associations,

Saturn completes the sequence and serves as a point of finality or rest.

Figure 16: Installation before opening

The installation was exhibited in a semi-private opening at Gallery 500 in UCF's Center for

Emerging Media. The space proved ideal as three false walls were available to close in to the

exact dimensions required. The interactive triptychs were displayed above plinths which housed

the ultrasonic sensors, Arduino boards, and laptops. The show was conducted with fellow MFA

candidate Adam Lenz displaying real-time video work set to electronic music.

The exhibition provided a relaxed atmosphere in which the work could be discussed and

contemplated. I found that the installation evoked a number of questions and interpretations, but

viewer reactions were generally in line with what I had hoped for. I noted that viewers became

much more engaged in and receptive of the installation once the intent was explained in person.

This leads me to believe I should display extensive textual background to preface and explain the

intent of the installation on its next showing.

Figure 17: Installation during the exhibition

CHAPTER 5: EVALUATION & FUTURE

The journey of creating this installation from concept to fruition was both incredibly rewarding and extremely challenging. Overall, I would say the installation I have created realizes the goals I set out from the beginning: the artwork evokes a sense of the sacred and mystical while actively engaging viewers through interactive participation.

That said, I did encounter a number of obstacles in creating this installation. The amount of time and effort necessary to properly construct, paint, and finish the triptychs and votive panels was considerable and underestimated. While I learned a great deal about carpentry, I felt the time would have been better utilized in the further refinement of the artwork and code.

Programming also turned out to be a considerable challenge. The method I first pursued in routing Arduino serial information through a serial proxy to Flash proved problematic. The learning curve involved in properly implementing the Action Script necessary to handle the serial/xml data was outside my capabilities for this project.

I feel the switch to Processing allowed me the comfort of working in one basic coding environment and language, as Arduino utilizes a nearly identical programming language.

However, I found the Processing environment has its own set of problems. Namely erroneous

serial data that differed from Arduino's monitored output and a slow frame rate. With more

practice in the Arduino and Processing environments I feel I will be able to greatly refine

interactivity and the platform in the creation of future works of art.

Exhibiting an informational display on the installation at the 2010 Graduate Research Forum, I

received excellent feedback from faculty and other graduate students of various disciplines. One

concern was the difficulty in constructing the installation, a point I addressed earlier. This

proved prophetic as I found it very difficult to achieve the desired look and finish of the

housings.

The main concern, however, was the difficulty in reconciling the styles of the CG characters,

used in the interactive triptychs, with the digitally painted characters displayed on the votive

panels. I feel that utilizing elements generated in Photoshop and compositing those with

elements created in Maya, the final product has an aesthetic that works well with the digital

paintings that accompany the triptychs.

During the defense of this thesis and installation, I received a great deal of insight and

constructive criticism from my thesis committee. In addition to general notes on formatting, it

was recommended I expand the reference to Da Vinci and sacred geometry within the artist

statement. This was suggested to clarify the use of mathematical geometries to construct the

symbolic compositions. It was also recommended I expand the background portion of the thesis

to include a section on the Rothko Chapel in Houston, TX. This was desired to help ground the

intent of the installation as a geometrically arranged space created to convey a universal sense of

the sacred. Finally, the committee suggested I expand the section on the methods used to create

this installation, such as the concept of "level of detail" and the artistic process and workflow

used in creating the digital paintings.

Although the installation was created to be exhibited as a complete sequence of work, I feel the

individual pieces could be exhibited on their own and still convey the intended effect. The

viewers identity as the archetype of "1" would not be lost by obliterating the hexagonal

configuration. The installation is titled "7", while the sequence of work consists of six pieces

titled "II" through "VI". The absence of "I" implies the viewers position as the singular point

unfolding into these archetypal permutations. In addition to exhibiting this installation in whole

or in part at multiple venues, I would like to continue to create similar interactive works of art

that blur the line between viewer and artist and intimate symbolic meanings and archetypes.

CHAPTER 6: CONCLUSIONS

As an interactive installation, I feel that 7 represents a body of work and artistic philosophy that have consumed my thoughts and efforts for over a year. I have found that the application of new media in the creation of visionary or transformative artwork is not only feasible, but ideal. The ability to directly engage a viewer in a work of art, through interactivity, affords limitless opportunities and should be actively pursued by artists of all styles and movements.

The archetypes conveyed in this installation speak to my fascination with history, spirituality, and human culture in general. In creating this sequence of work, I feel I have expressed the universal power of symbol and archetype in the human drama. Each of these figures, while very different in aspect and temperament, represents a universal facet of the human personality. By creating this sequence, I have begun to discover the power of each of these archetypes in myself. In the spirit of transformative art, the process of creation has changed the creator.

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