Constructing realities

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Constructing realities

by

Wyeth Haglan Lynch

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
MASTER OF FINE ARTS

Major: Integrated Visual Arts

Program of Study Committee:
Anson Call, Major Professor
Stephen Gilbert
Emily Morgan

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DEDICATION

Breanne Marie Lynch - for making me more than I could be alone.
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This document is the written component accompanying the *Constructing Realities* art exhibition. The five interactive digital art installations encourage participants to investigate various fundamental elements of photography. By exploring these component parts, a greater overall understanding of the power of photography over our perceived realities can be gained.

This document describes the artist’s creative intention. Major historic and contemporary philosophic and artistic influences are identified and analyzed. Included are postmodern theories related to reality and contemporary interactive artists, in order to place and explain the exhibition’s relevance. The themes and processes that were employed to create this exhibition are explained and documented. The artwork examines the impact elements of photography have on our understanding of reality.
CHAPTER ONE

INTRODUCTION

This writing serves to document and summarize the work from the past six semesters as I pursued a Master of Fine Arts in Integrated Visual Arts at Iowa State University. Within the following pages I discuss the scholars and artists that have informed and influenced my journey, as well as the conceptual conclusions I have reached along the way. This text also serves as a supplemental explanation of the thoughts behind and execution of the Constructing Realities exhibition. In addition to the primary body, the two appendices that follow visually and technically summarize the exhibition in more detail.
Photography is recognized as a two-dimensional depiction of the four-dimensional world. What viewers often do not recognize, however, is that photographs are interpretations of the world, just like paintings or other representations. While the camera impartially records the light passing through its lens, the photographer makes a host of decisions when determining what is recorded and how it is presented to others. Photographic images are artificial, carefully composed renditions of an experience, made in the pursuit of the human desire to actually record the experience of living. This artificial nature of photography is magnified by the growing number of cameras in the world.

And yet photographs are in many ways different from other forms of representation. Photographic scholars have attempted to define and explain the elements that make a photograph different from a painting, print or other medium. Curator John Szarkowski first used the term “The Thing Itself” in his essay The Photographer’s Eye to describe the peculiar dependent position a photo has with its subject (Szarkowski). This term describes the conflict between the reality before and the interpretation presented by the camera. This inherent conflict is created through the visual hierarchy the very elements which comprise photography (i.e. time, detail, focus, vantage point and framing) create, resulting in the two-dimensional depiction of our four-dimensional world. Through these elements one can begin to see how a photographer can, both consciously and unconsciously, pass along personal values and ideas through a photograph. All of these elements are adjustable and give rise to a myriad of implications, the most fundamental of which is creating unique experiences from reality.
I investigate these component parts of photography to raise awareness among viewers about the interactive elements of photography and the power photographic images have to control our view of reality. Simply accepting a photograph as a recording of an event or a visually pleasing picture is only one level of awareness toward photography. Understanding why the photo was taken and the theoretical and psychological implications is another step in understanding one’s reality.

I have two goals in my work: First, each piece in the exhibition stands as a visual embodiment of a particular photographic element (time, detail, focus, vantage point and framing). Second, each piece aims to bring that element to the viewer’s attention, and to give the viewer the experience of controlling and manipulating that element for him- or herself. In this way I hope to connect with viewers and to encourage them to become aware of how photographs manipulate reality. Perhaps viewers may also become aware, through this experience, of how other people may use photographs to manipulate and even gain power over them as consumers. Also, by creating an environment of interactive discovery I hope to encourage reflection on how we individually perceive, illustrate and perpetuate our own experiences to others.
A variety of contemporary and historic scholars have influenced both my work in *Constructing Realities* and my own personal approach to photography. The writings of John Szarkowski and Jean Baudrillard in particular have been instrumental in informing my approach to the power photography holds. The various other scholars discussed in this section have both generally shaped my philosophical understandings of art and photography, and their ideas constitute relevant base for *Constructing Realities* and the ideas perused therein.

**John Szarkowski – *The Photographer’s Eye***

John Szarkowski’s essay *The Photographer’s Eye* originated as part of an exhibition catalogue in New York in 1964. It has since become an important argument for the value of photography as a fine art.¹ Szarkowski uses a Modernist approach to certify photography as an art by identifying five elements that differentiate photography from other media and place it within the realm of art. These five qualifying, medium-specific elements are important because they not only form the foundation of photography but they also allow photos to influence the reality they display.

*The Photographer's Eye* lists the medium-specific qualities of photography as the following: the thing itself, the detail, the frame, time and vantage point. Each of these elements both validates photography as a unique art medium and controls what reality is seen through the image.
Szarkowski first addresses “the thing itself” (3). *The Thing Itself* discusses a photo’s relationship to reality. It is the photographer’s task to see beyond what is commonly present in reality and instead capture what the individual sees within reality (3). “The first thing that the photographer learned was that photography dealt with the actual; he had not only to accept this fact, but to treasure it; unless he did, photography would defeat him” (Szarkowski 3). Szarkowski also used *The Thing Itself* to describe the photographer’s power to bridge the difference between the reality before the lens and the scene that the photographer envisions: “It was the photographer’s problem to see not simply the reality before him but the still invisible picture, and to make his choices in terms of the latter” (3). While a photo is ever connected to a past reality, it is not actually that reality. However, its resemblance to the former reality gives the image factual-like qualities. This close reliance on reality makes it easy for most to believe an image is a direct, verifiable depiction of that reality. This conflict between the belief in the ‘factual’ photo and the truth of a skewed interpretation is the cornerstone for many scholars’ arguments, including Szarkowski’s.

Next Szarkowski addresses the idea of “the detail” as photography’s next unique quality (8). “The detail” dives deeper into photography’s connection to reality. Unlike in painting, photography is tied to the reality that the camera sees. However, the medium is focused on fragments of reality because a photo cannot capture all. Photography then creates symbols (rather than stories) out of the incomplete reality. The symbols have increased presence because a photo automatically raises the status of the fragmented reality by selecting it for capture.² This hierarchy is further reinforced through variable focus within the image—those elements most in focus seem most important.³
Szarkowski’s third element is “the frame.” The concept of inclusion in and exclusion from an image is not new, but unlike makers of other historic media, the photographer, beyond moving the camera to accommodate more within the frame, cannot change what falls at the edges. As opposed to painting, where items at the edges can be added or removed, photography must accept the visual relationships established by the transecting edge. Framing also raises the significance of what is within the frame and removes what is left outside the edge from the presented reality.

The struggle between prominence of one element and the reality displayed comes to fruition in Szarkowski’s fourth element, “time.” Every photograph is the visual illustration of a segment of time. This means a photo is both perpetually linked to the past segment of time, yet also always exists in the present where it is viewed.

Beyond the philosophical connections between past and present, the element of time also allows photos to capture instances that our eyes are incapable of seeing. Muybridge solving the governor’s bet over a horse’s gallop is but one example of the changes photography witnessed at the turn of the century. Beyond the segment of time held still in a photo, the photographed scene further demarcates the importance of that event over the moments not captured. A hierarchy of importance, similar to that created by the other elements, surrounds the recorded events.

How an image is captured is often related to where the image was taken from. The final element of *The Photographer’s Eye*, “vantage point,” addresses this quality of photography. Fundamentally, vantage point references photography’s ability to capture a scene from a nearly infinite number of different angles and distances. This ability to portray a scene through innovative approaches influenced other media, in and out of fine arts. Beyond
this, the ability to show the richness of the world has also affected society. Szarkowski references William Ivins’ 1953 book, *Prints and Visual Communication*, to explain the change in public perception after the invention of photography. “… It was not long before men began to think photographically, and thus to see for themselves things that it had previously taken the photograph to reveal to their astonished and protesting eyes” (Szarkowski 11).

While other media and styles of art have adopted the novel approaches of photography, photography differs because it is more closely tied to reality, since reality is the linking factor between all of the foundational elements of the medium. The camera’s ability to capture a subject from a nearly endless array of angles can make benign everyday things or events novel and engaging. One example of this is the growing interest and following surrounding aerial drone photography. As the technology to create and operate a civilian drone becomes cheaper and easier to use, more individuals are finding new vantage points from which to explore objects and places as familiar as their own homes and neighborhoods. While the common subjects may not provide an inherently fascinating subject, the ability to study a scene from a different perspective can easily override a mundane scene and has proven to be very engaging for a whole community online.

All of Szarkowski’s elements are altered by the changing digital landscape of photography and social media. The medium’s propensity for change not only necessitates the examination of these topics but the understanding of their implications. I endeavor to address the need for understanding of these elements by animating them through interactive experiences.
Instead of presenting “the thing itself” by juxtaposing different interpretations of the same reality and making visible the invisible hand through direct illustration, I have chosen to allow the viewer to determine the reality the show will have as a whole in the online environment. In doing so I hope to show not only the idea of “the thing itself,” but also illustrate how the other elements work together to form the unique medium and impact of photography.

The element of framing and the issues it causes are very common in contemporary culture with the increased use of camera phones. Camera phones often utilize live view viewfinder displays over traditional through-the-lens viewfinders. By allowing the photographer to compose the final image on a screen placed between him/her and the scene, rather than peering through a viewfinder, the individual has a direct sense of the relationship between the presented reality and what the camera is capturing. The screen acts more like a framed final image than a traditional camera viewfinder. This merging into one step the
conceptual framed image and the final digital image is important to the growth of photography and has inspired me greatly.

In my own work I have eliminated the screen of the smartphone and instead use the viewer’s body to guide the image’s frame. Instead of presenting the audience with a centralized photo I give the viewers a pleasant vista and charge them with finding the important element in a scene that is often left as wide and sweeping as possible, rather than focused and centralized. Here my goal is to create a physical experience to highlight how gaining and losing information through framing can be a positive when raising the prominence of one element causes one to sacrifice information from the overall scene.

While photographs are still bound to capture fragments of realities, new technologies are pushing the limits on the idea of the detail within the image. By allowing adjustments as to what aspects are in focus after the image has been shot, a fundamental aspect of photography is changed. The fragmented reality of the image is easily seen as the in-focus and out-of-focus elements are rearranged to result in a different image from the original. Lytro’s light field technology and HTC One’s dual camera both allow for this type of adjustment. Photographers and viewers (in the case of the Lytro technology) now have the ability to change the element in the scene which commands the most attention visually by changing what is most in focus after the image has been taken. This is precisely why I have created a space where the viewer can interact with the issues of focus and detail. By tying control of the piece to the participant’s body movement I hope the viewer gains a deeper understanding of the impact that this element has on the overall reality and message of the image.
The significance placed on capturing the perfect moment has been incorporated into camera technology to the point where software now allows the user to review the time before and after a photo to ensure the ‘right’ moment is recorded. While the importance of recording the most vital moments of an event is not a novel concept, I have addressed this in *Time (moment of importance)* by linking the viewer’s body movement to the individual frames in the timeline of the short video. However, instead of presenting the audience with a stereotypical climactic moment, I want the viewer to see how dividing and creating a hierarchy based on time affects the continuous moment; in other words, what makes one frame more relevant than another? While every photo is dependent on time, it is often how the experience is captured which defines its relevance to the viewer the most.

The common threads throughout all five elements are the crucial role reality plays within each element and how they all interact within photography. While *The Photographer’s Eye* relies on these elements to validate photography as a fine art, I have included them in my research not to bolster the argument for photography as art but to use the unique qualities as a foundation to explore the power of photography. These five elements have continued to be pertinent to photography even as the medium continues to change. By using other scholarly writings that analyze photography’s connection to and power over visual reality, I will show how elements of the medium and its direct connection to reality are the roots of the power of photos. My ultimate aim is to demonstrate that if we want to understand our reality we must understand the qualities of photography and the power the medium possesses.
Jean Baudrillard and John Berger

Jean Baudrillard’s analysis of reality and simulated reality in *Simulacra and Simulation* and John Berger’s *Ways of Seeing* have not only proven to be enduring post-modern philosophical works but also remarkably adaptable to the continuing changes in modern life. Contemporary digital society often aligns with Baudrillard and Berger’s various ideas. The marriage of photography and social media is a strong example of the change from reality to hyper reality.

Baudrillard believes that by analyzing the referential relationships of symbols, the things they represent and the meanings attached to both, it becomes clear that reality is nothing more than a manufactured hyper reality. Hyper reality is fundamentally reality based on copies that have no initial reference to reality. This means the copies are indistinguishable from one another and yet have no reference to an original. This breakdown between the referent and the referenced is organized into a three-step system. This ordering is based on the idea that as capabilities of mechanical production increase and meaning is assigned to the symbol rather than the object, people will no longer be able to tell the difference between a simulation and the original, to the point where the simulation has no original and instead produces itself, leading to hyper reality.

The first order of simulation is familiar: the image or symbol reflects the real and distinguishes itself from the real. A map reflects a geographic space but its physical characteristics and scale show the user that it is not to be confused with the space. The second order lessens the definite differences between the original and the copy. This confusion is accomplished often through production and adoption of meaning. Industrial production has allowed for mass replication of goods, so much so that the numerous
simulations may eclipse the original. Additionally, because more people identify with the copies, these simulations take on additional meaning. Andy Warhol’s numerous untitled pieces from the *Marilyn Monroe* (*Marilyn*) series illustrate both these points. The sheer number of reproductions of Marilyn Monroe’s likeness (both in the popular media and in pop art) eclipsed Marilyn Monroe as an individual, instead built a fabricated reality manufactured by Hollywood. Also, Warhol’s series became imbued with ideas beyond the scope of the Marilyn Monroe herself, often to make comments on things like the constructed nature of Hollywood and its stars. By assigning other meanings exterior to the original, people may establish a closer connection with the copy than the original.

In the final order of simulation the sign and object become indistinguishable. Signs and copies not only carry their own meaning separate from the original but are also produced without a reference. This creation of a sign or copy without connection to an original is called a simulacrum. Simulacra allow for a world devoid of reference to the real, where reality is produced, resulting in the creation of a hyper reality. For Baudrillard Disneyland is a wonderful example of many aspects of this third order of simulation because it truly is a hyper reality. Within Disneyland individuals go to escape the reality of the outside world, but in fact Disneyland actually hides the fact that there is no difference between it and reality. Disneyland is a creation of the culture of America; the park does not let us be kids but rather hides the fact that we are kids (Baudrillard 171 - 172).

Hyper reality, Baudrillard theorizes, is the current evolving state of society. We are not aware of this because the difference between referent and reference is artificially maintained. Maintaining the relationship between referent and reference not only hides the artificial nature of hyper reality but it is also a powerful mode of control by which the
artificial can disguise itself from the viewer. This line of thought applies itself well to photography when the medium’s dependent relationship on referencing reality is acknowledged to be a mirror of the referent and reference relationship Baudrillard discusses.

As in Plato’s *Allegory of the Cave*, people rely on what they see to help them understand their reality, and they believe that what they see is reality. All of these ideas regarding reality work well within in chapter seven of John Berger’s *Ways to Seeing*, which revolves around our relationship with commercial imagery. Throughout *Ways of Seeing* Berger discusses the demystification of art, art’s relationship with the male/female power dynamic, and the growing power and connection to art of the bourgeoisie. Chapter seven specifically takes on the relationship that publicity and commercial imagery have with modern society (Berger).

In light of the growth of consumer culture the rise of the copy is more easily seen as the sign takes on layered meanings beyond those related to the actual object. Berger uses this fabricated meaning to show how the imagery of commerce can alter perceptions. Not only does commercial imagery present the aspirational self but it also creates envy within the viewer by showing the happiness which the viewer could obtain. By routing the significance and vested cultural meaning of that inherent envy into the referent, a simulation is born. Neither the object nor the image of the object matter because the true, unattainable goal is to satisfy the progressively manufactured envy. According to both Baudrillard and Berger this cycle keeps the viewer-consumer from ever understanding the manufactured cycle of envy and the truth of hyper reality: that it is all production without referencing an original.

Social media’s dependence on photography helps bridge the gap between the last two orders of simulacra, moving us further towards true hyper reality. With the continual growth
of social media the production of hyper reality and envy has shifted. While traditional commerce and media still sustain the hyper real, social media allows for the simulation to take hold in people’s personal and virtual lives. Social media often simulates real-time interpersonal communication but is inherently a disembodied form communication. This disconnect allows for the blending of the real and hyper real in our day-to-day social communication.

The reality a photo presents to the viewer is composed of various elements (i.e. time, detail, focus, vantage point and framing). Through my own work I hope to show that by manipulating these elements one can alter what the viewer understands as the reality. While people understand that most forms of imagery are interpretations of reality, they tend to take photography for reality itself. Because of photography’s close connection to reality, it blurs the line between reality and representation, placing photography within the second order of simulation.

The ability to control and create an altered reality via social media extends and adds to both Baudrillard and Barthes’ view of the modern world. Through my own work I hope to show how photography alters the participants’ own sense of reality. It is because of this power of photography to manipulate our understanding of reality that teaching and understanding the elements of photography are so important. While the majority of information in social media may be benign, each item has been altered simply through the passage of that information. Thus understanding the power photography has over one’s understanding of reality is an instrumental step toward understanding how others can control our reality. While both Barthes and Baudrillard published their works well before the
technological and social revolutions of social media, its growth has reignited the discussion over hyper reality and the role imagery plays in our understanding of reality.

**Walter Benjamin – *Art in the Age of Mechanical Reproduction***

In *The Work of Art in the Age of Mechanical Reproduction*, Walter Benjamin offers a critique of the social and political implications of photography and film. Photography, he contends, differs from other art forms because there is no “original;” the medium is inherently and infinitely reproducible. Benjamin views the break from the old (via reproduction and the medium’s increasing ease-of-use) as an aspect that allows photography to operate differently, both in the art and social spheres (Benjamin 225-8). In this regard Benjamin shows the reader how photography can be a vehicle for a message, and potentially crucial in political and social change.

Benjamin argues that other media, unlike photography, tend to result in a single, unique, original work of art. The unique original, he continues, tended to be imbued with a quality he called “aura.” Photographs, by contrast, have no “aura.”

In section IX Benjamin compares the painter to a magician (or shaman) and the cameraman to a surgeon. Both pairs, painter/cameraman, and magician/surgeon, have similar goals: to capture what they experience and to heal the ill respectively.

Here the question is: How does the cameraman compare with the painter? To answer this we take recourse to an analogy with a surgical operation. The surgeon represents the polar opposite of the magician. The magician heals a sick person by the laying on of hands; the surgeon cuts into the patient’s body. The magician maintains the natural distance between the patient and himself; ... The surgeon does exactly the reverse; he greatly diminishes the distance between himself and the patient by penetrating into the patient's body...

Magician and surgeon compare to painter and cameraman. The painter maintains in his work a natural distance from reality, the cameraman
penetrates deeply into its web. There is a tremendous difference between the pictures they obtain. That of the painter is a total one, that of the cameraman consists of multiple fragments, which are assembled under a new law. (Benjamin 233-234)

Where the painter creates a reality wholesale, the photographer or cameraman stitches a reality together from component parts. The resulting photographic or filmic object lacks the aura traditionally associated with the unique work of art. Not only does a photograph lack an aura of its own, it diminishes the aura of other works of art by reproducing them. More people may see a work of art if it is photographed, but not as it was intended.

Without aura, photography is not beholden to the old power dynamics and can be freely used by any party. This allows photography to be molded to carry the message of different groups. However, Benjamin also warns of the misuse of photographic imagery. Techniques deployed by Fascism are used as an example because in Europe Fascism attempted to “organize the newly created proletariat masses without affecting… [change within] the masses” (Benjamin 241). Fascists used tactics such as propaganda art, photos and the cinema to bolster and convince people of their message.

Benjamin shows how photography can operate socially as being both art and the voice of the people. In his article, Benjamin elucidated the ability of photography and other reproductive media (including film and sound recordings) to permit average, everyday people to have a voice and to offer their particular vision of the world. In effect he predicted the rise of social media and also foresaw how its influence would be tied in part to people’s trust in photography’s ability to directly reflect reality.
Benjamin offered one of the earliest social and political examinations of photography, anticipating by decades the work of Susan Sontag and other theorists. Benjamin’s article illustrates the power photographic images have on our day-to-day routine. By stripping images of aura additional messages can be added. Understanding how fragments of a reality can contain so much power and internalize different messages is important if one wants to fully understand the impact photographs have. By illustrating the impact of different elements within photography my goal is to make the power of photography over perceived realities more easily understood.

Susan Sontag – On Photography

In On Photography, Susan Sontag approaches photography through post modernism, and any attempt at a universal definition of photography is therefore suspect, since the meaning of an image varies from individual to individual. For Sontag, a photograph is a construction made by man rather than a direct reflection of reality. In the essays within On Photograph she addresses the overarching question, “Why does photography hold such authority in modern society?”

Photographs have gained prominence, according to Sontag, because one can access other realities while also having those experiences mediated through the inherent restrictions of the image. The very nature of image capture limits the experience represented and makes it impersonal, portable, controlled and consumable. Sontag’s essential qualities of photography are not dependent on specific technical or visual aspects like those Szarkowski proposes, but rather on the intersection between photography’s relationship with reality and the cultural adoption and adaptation of the camera. Szarkowski and Sontag complement one
another in this regard because understanding photography in the context of modern culture is crucial to understanding how the elements of a photograph (technical and visual) affect societies and individuals on a daily basis.

At their most basic level the essays in *On Photography* appear to say that photography is inherently subversive with regards to reality. Photography alters our perceptions of reality in various ways, from objectifying the subject to altering our understanding of beauty. Beauty and photography’s influence on beauty are the focus of both “The Heroism of Vision” and “America Seen Through Photographs Darkly.” In these two essays Sontag illustrates how using photographs to define beauty alters our perceptions of beauty. In “America Seen Through Photographs Darkly,” Sontag shows the application of Walt Whitman’s idea that there is not a true distinction between beauty and ugliness to Alfred Stieglitz’s modern photos. In her next essay, “The Heroism of Vision,” Sontag explains that because one of photography’s overarching goals has been to capture beauty it has also changed our perception of beauty. At its most basic, a photograph of a beautiful thing adds to the mass of images of beautiful things. This mass overstimulates people to beauty and is one more image for other beautiful things to be judged against, hence increasing the criteria of beauty. At the same time, the manipulation of images of beauty degrades reality for the benefit of beauty. These alterations again warp and control beauty relative to reality.

One of Sontag’s critical contributions to the understanding of photography was her assertion that the act of photographing something is itself a mode of control. The decision to take a photo elevates one particular moment above the surrounding moments. The framing, vantage point and focus all limit the image produced and establish a set of decisions that the
photographer forces upon the viewer, further adding a level of interpretation and control. Beyond the fact that every photo is a controlled interpretation of reality, every photo is also an object. The inherent quality of objectification is a direct illustration of photography’s power to control. In “In Plato’s Cave” Sontag argues that the photo strips the person or scene represented of ownership and control over the produced likeness but all while at a distance from the subject (Sontag 13). The image can be represented, altered or destroyed without warning or consent.

Sontag continues her discussion of reality in one of her most celebrated essays, “In Plato’s Cave.” In this essay Sontag modernizes and expands the ideas discussed in Plato’s Allegory of the Cave and applies them to photography in modern society. Sontag employs Plato’s concepts by comparing the viewer of a photograph to the prisoners in front of the wall. Both the viewer of a photo and the captives in the cave are limited by what they can see, and unable to understand that what they see is not reality itself. While both the photographic image and the shadows are only reflections of reality, for the viewer of photographs as for the prisoners they effectively become the world.

Photography has three distinct advantages over the shadows on the cave wall, which can be identified by breaking down Sontag’s analysis of Allegory of the Cave and photography in general. First, where shadows are known to be only distorted visualizations of the original figures, images are often seen as direct non-objective representations of the original scene. Second, cave shadows are dynamic and fleeting, whereas a photograph is a static representation of the past. And lastly, photography not only becomes an image of an object but also a new object in itself. These three ideas work in harmony, creating a more modern and realistic version of the shadows on the cave walls. By expanding Plato’s Allegory
of the Cave one can establish the tenets of photography that allow it control over perceived reality.

The reliance on photographs to capture, store and illustrate life has created a two-part phenomenon of vision. Moments recorded gain prominence, meaning and nostalgia over those not captured. This allows one to raise the status of an event by alluding to its importance through photography. Beyond this, photography also fragments the past, creating disconnect between the visually represented events. This is because a photo is often the ultimate evidence of an event. These ideas have helped to create a society where image capture is often done with the simple goal of verifying the individual’s life to others.

The ever-growing trend to record one’s life with digital media necessitates a full understanding of the control photography has over the moments it records. While the majority of image-makers use the photograph as a means to record a particular experience, an image cannot fully show a complete reality. I address these ideas of control within my work by allowing the audience to choose the final still image. Each piece focuses on one element of photography and the restricted focus forces the viewer to choose based on that individual aspect. Sontag, through works like On Photography, gives us an understanding of the impact photography has on our lives, and I to hope to illustrate this depth of impact through my own work. She addresses the whole of photography and its ability to control our perceived reality. My goal is that by giving the final choice to the viewer I can illustrate how fundamental visual and technical elements of photography can alter the reality illustrated through a photograph.

Roland Barthes – Camera Lucida
In Camera Lucida French philosopher Roland Barthes applies Post–Structuralist theory to photography. Barthes’ approach is post-structuralist because he identifies a structure inherent to photography—two qualities he calls “studium” and “punctum”—while at the same time acknowledging the self-referential and individualized nature of the structure. Barthes begins his discussion by addressing what makes a photograph different from any other form of representation. He notes that a photograph relies on its referent to exist, since photographic images are created through the action of light reflecting off the objects they depict. He also highlights the element of time inherent in photography. Barthes illustrates how the capture of time through a photo often renders the photo itself invisible to the viewer because the viewer sees the photo as a direct reflection of reality and not an interpretation of a larger reality. A photo is tied to its referent, and to the time that the image was taken, thus it appears to realistically illustrate a past reality, what Barthes calls the “that-has-been” (Barthes 77). The audience often sees this dependent relationship between reality and photo as reassurance that a photo objectively represents reality.

The key terms in the structure Barthes proposes are “studium” and “punctum.” He says, “The studium of the image is…the broadened face of the image that can garner our interest, even our passion, but in the most banal of ways” (Roselli). It is “of the order of liking, not of loving” (Barthes 27).

The studium addresses our desire to understand what is shown to us and the created relationship between the meaning, the photo and the viewer. Barthes’ second term, the “punctum,” is more precise. He defines it as “a detail” of the image “which pricks me” (43, 27), simply referred to as “the detail that ‘wounds’” (Amir 160). This particular element of an image holds the interest for a particular viewer. Barthes sees the punctum as innately
personal and emotional, yet nearly indescribable. While indescribable, the punctum of an image is tied into both the idea of past “that-has-been,” and is always contingent on referencing to the original scene brought into the present. Yet the punctum would not exist the same way in another image of the same object. Indeed, not every image will have a punctum for every viewer.

Fundamentally the punctum is the aspect of the image that holds the viewer’s eye (Barthes). By establishing that the photo is always found to be in the past and is dependent on its referent, he demonstrates how the photo itself is lost. The photo’s close relationship with a past reality minimizes the photograph as a physical object, and only heightens our relationship with the referenced object and with time itself. By accounting for the wide range of interactions with the photo in only two terms Barthes completes his analysis of photography.

Barthes’ investigation addresses the elements from which photographs draw their power and, by extension, how a two-dimensional object can contain so much hidden meaning. The studium is of particular interest to my investigation because it directly addresses the amount of meaning that can be understood through an image. The punctum, on the other hand, is the intangible difference between the photo that demands an individual’s attention and the photos that do not. Not only is the punctum unique to the individual, if a viewer sees a photo as a direct representation of a referent and the image itself does not strike him/her uniquely, the image is negated and the associated meaning(s) of the photo take prominence. This allows the subjective studium of the image to seem like an objective representation of a past reality. This connection is a fundamental tenet of my work. Without acknowledging it, the viewer often considers the image to be an accurate representation of
reality and the image may even come to be a substitute for an experience. By creating work that addresses the visual elements of photography, I strive to make the viewer aware of the subjective nature of every image. With this knowledge the photo becomes visible to the viewer not only as a representation of its referent but as a thing in itself.
CHAPTER THREE
ARTISTIC INFLUENCES

Much like the scholars who have influenced my approach to art, the artists to whom I look for inspiration are varied, spanning across media and ranging from modern through contemporary. One of the oldest influences that helped mold my approach to photography was Marcel Duchamp’s piece *Nude Descending a Staircase, No. 2*. As in Duchamp’s piece, my inspirational artists address the idea and/or portrayal of reality through some aspect of their work. Addressing reality is important to my work because I strive to show degrees to which images can control one’s sense of what is real. Like many of the artists discussed below, I aim to illustrate the impact photography has on our understanding of reality and on one’s own experiences.

Marcel Duchamp, *Nude Descending a Staircase, No. 2*

Marcel Duchamp’s *Nude Descending a Staircase, No. 2* is one of the most recognizable Cubist works. Its visual presence and execution, along with its scandalized reception, have elevated the painting’s position in the study of art. With respect to photography and my own work, Duchamp’s piece is a wonderful illustration of the elemental nature of motion in image-making. Duchamp’s painting is often mentioned in conjunction with the work of photographers Etienne-Jules Marey and Eadweard Muybridge. The movement and rhythm of *Nude Descending a Staircase, No. 2* mimics and references the visual and technological revolution in photography at the turn of the century.

The developments made by photographers to increase light sensitivity and thus the speed of image capture resulted in an explosion of scientific studies of movement in the late
nineteenth and early twentieth centuries. Much like the invention of the microscope two hundred years earlier, the ability to capture images at or above speeds of 1/100th of a second enabled humans to see phenomena that had previously been invisible to them, and thus opened another world to the human imagination (Davidson). While these technological leaps affected the science community, the concurrent art movements of Cubism and Futurism were equally impacted.

The fundamental ability to capture motion fascinated many and Duchamp was no exception. Duchamp found his expression of motion in painting rather than photography by marrying it with his figure studies. *Nude Descending a Staircase, No. 2*’s exposure in America would make it one of the most recognizable Cubist works. The exploration of human movement down a set of stairs would gain a great deal of notoriety in New York City’s 1913 Armory. This collection of European Modern art shocked Americans accustomed to naturalist work. But while many pieces were satirized and criticized, only *Nude Descending a Staircase, No. 2* was called “an explosion in a shingle factory” (Collections Object: Nude Descending a Staircase (No. 2)). The piece came to stand, in many Americans’ minds, for all the outrages of Modernism.

While it was meant as a criticism of *Nude Descending a Staircase, No. 2*, the description of exploding shingles enforces Duchamp’s Cubist direction. Following the growing Cubist movement, Duchamp used distinctively outlined monochromatic geometric shapes to illustrate the various positions and body parts of the moving figure. The strength of the yellow fades from the lower right to upper left, giving the sense of progression down the stairs. Other elements assist in conveying this sense: a light dotted line shows hip movement, and darker swooping lines below the knee help illustrate the direction of the legs. All of these
elements operate together to achieve Duchamp’s desire to both suspend movement and create a composition from the various positions of a single form’s movement (Brooker).

While *Nude Descending a Staircase, No. 2* did succeed in capturing motion through painting, it led me toward photography rather than painting. Photography’s ability to capture the element of motion drew me to the photography as it drew Duchamp’s paintings to motion. It was this fundamental element of motion which inspired me to reexamine the effects of photography on the modern viewer. Duchamp’s piece encouraged a deeper study, stepping beyond photography as a whole, to instead inspect the elements that create an image. Here *Nude Descending a Staircase, No. 2* succeeds by reducing the importance of the figure and raising the idea of motion. This ability to illustrate an often-abstract idea so easily without need to tie it to specific subject is a goal of my own work.

Etienne-Jules Marey and Eadweard Muybridge

Étienne-Jules Marey and Eadweard Muybridge are two dominant figures in the technical transformation of photography during the turn of the nineteenth century. These two men not only influenced each other, but their work would go on to change what humankind understood about movement, as well as help create the field of cinematography. This vast impact was brought about because of their desire to capture motion too quick for the human eye to see and analyze. Both of these men are important to my progression as a photographer because their work was instrumental in illustrating to me the ability photography has to capture and control reality.

Eadweard Muybridge’s path towards the study of motion through photography was more convoluted than Marey’s. In the years prior to 1872 Muybridge had become a
successful English immigrant photographer in California, concentrating on natural landscapes. However, in 1872 the Governor of California, Leland Stanford, after having seen the early work of Marey, charged Muybridge with proving all four of a horse’s hooves left the ground during a gallop, and also with determining when this occurred within the horse’s gait. While preliminary results indicated early success it would not be until 1876 that Muybridge successfully captured a complete series, noting the point at which a horse’s feet do indeed leave the ground during full gallop (Ward).

Muybridge accomplished this by rigging 12 cameras, with shutters capable of taking a photograph at or near 1/1000 of a second, to a sequence of tripwires along a section of track. As the horse galloped by, each line would trigger the corresponding camera. Afterwards Muybridge continued to study motion and to promote his work throughout America and Europe.

As Muybridge’s images gained prominence Étienne-Jules Marey became interested in utilizing the techniques of the Englishman from California to continue his own research into motion. However, instead of utilizing a multi-camera approach, Marey wanted to find a one-camera solution to allow for a more scientific study of motion (Capturing the Moment). Marey’s dedication to the study of motion meant he had built and patented numerous items, including numerous cameras, around the same time as Muybridge was experimenting with his triggered cameras in the pursuit of capturing and analyzing motion.

Marey eventually perfected and patented both a photographic gun and stroboscopic cameras. Both rely on one open shutter, one lens and a moving component that controls the length of each exposure. The major difference between the photographic gun and the stroboscopic camera is what moves in front of the shutter to determine the exposure. In a
stroboscope a disk with slots cut into it moves. This allows the open shutter to expose only small sections from the total sequence of movement to the single negative within the camera. The photographic gun, on the other hand, moves negatives past the open lens, allowing each photo to hold separate segments of the movement. Because the photographic gun produces numerous images it would become an early precursor to the video camera in cinematography.

Outside of the numerous animal and human motion studies Muybridge and Marey produced, their ability to bring together the various changes in photography at that time continues to impress me. At the turn of the century photography underwent a number of changes, which allowed the medium to produce and capture images much quicker (History - What Is Photography?). Outside of the shutter technology, which Muybridge and Marey both helped engineer, the transition from wet plate to dry plate and eventually to transparent film allowed for the decreasing time needed to capture an image. By combining changes in technology with their own ingenuity and passion, Muybridge and Marey changed how humankind understands movement.

The work of these two men influenced my progression as a photographer in numerous ways. When I was a child, they opened a world of motion beyond what I could see with my own unaided eyes. Later the same work helped illustrate the ability of photography to reveal a reality that is both inherent within and yet outside our own. Most profoundly, Étienne-Jules Marey and Eadweard Muybridge encourage me to look at the dynamic nature of photography and apply my passion in innovative ways to this ever-shifting medium.

While Muybridge and Marey’s success may be partially reliant on the changes in technology at the turn of the century, an equally large portion of the responsibility lies within their own ability to show and educate people about something so common in an uncommon
way. I hope my own work is successful for these reasons. The ability to illustrate a common idea and create knowledge about that idea is an elusive goal I will continue to pursue for the rest of my career.

Camille Utterback, *Liquid Time*

Artist Camille Utterback explores the relationship between our corporeality and the conceptual reality of digital space. She engages viewers both physically and emotionally through visually arresting, reactionary physical-digital interfaces. Whether they are location-specific installations or digital sculptures, Utterback creates an exploration-driven experience, often without instructions for the viewer/user. She crafts these immersive experiences without ‘rules’ by engineering her own software. This level of dedication has resulted in a large body of work, a MacArthur Foundation Fellowship and exhibitions spanning the globe.

Works like the *External Measures* series speak directly to Utterback’s desire to interact with the viewer to create an interaction which bridges “the conceptual and corporeal” (Utterback Statement). All of the kinetic digital sculptures that make up this series respond to the presence and movement of the participant(s). Each piece consists of a projected image on a wall adjacent to a demarcated space on the floor. “The positions, velocity, and existence of various parts of the sculpture image depend on people’s positions and motions in the space in front of the projection” (Utterback, *External Measures*, 2001). A computer paired with an overhead video camera tracks the motion and position of the people within the space. This vantage point allows for an accurate recording of the participants’ position relative to the
screen, including how far a person is from the edges of the marked space, as well as how close he/she is to the screen.

This approach to player tracking is used in a number of Utterback’s pieces, including the *Liquid Time* series. In both *Liquid Time – Tokyo* and *Liquid Time – New York* the participant’s movement and location within the space “fragments time” by animating the section of a still image directly in front of them (Utterback, *Liquid Time Series*). This interaction between the participant and the program continues Utterback’s exploration of the relationship of the human experience to the digital realm of computational systems. Here “her work focuses attention on the continued relevance and richness of the body in our increasingly mediated world” (Utterback bio).

The viewer’s movement and position parallel to the screen determine which section of the still image is active and the perpendicular position determines what frame of the movie is displayed. By destabilizing such a basic element of image capture and by equating the playback by frame to a physical position, Utterback allows for “multiple times and perspectives” to coexist (Camille, "Liquid Time Series"). In doing so the piece becomes very disjointed as more participants activate the space. As each person does so, the piece races to change the corresponding section of video to the correct collated time in the movie. By moving diagonally the viewers change both the activated area and the displayed time, resulting in an experience that “can be described as video cubism” (Camille *Liquid Time Series*).

When all the participants have left and no one is activating any section the pieces work backward from their last active position to “heal” the distortions in time, almost like a calming pond. At the same time, there is little that is calming about Utterback’s chosen
imagery: the video associated with each piece displays well-known locations in either Tokyo or New York, full of hyperactive pedestrian movement. Interacting with the piece not only showcases and even heightens this hyperactivity, but it also reflects the pedestrian movement in the scene.

Beyond the flood of activity, certain unyielding elements within each scene are revealed. These stationary elements within the scene illustrate additional related topics and also comment on the quality of time in image capture. This ability to comment, explore, critique and prompt discussion about such contemporary ideas as computer-user interaction or foundational ideas as time through interactive pieces encouraged me to pursue technology similar to Utterback’s to create a similar environment for my viewers and participants.

Instead of addressing the nature of interaction with the symbol-driven digital environment I have chosen to open discussion about our interaction with photography. While the areas that Utterback’s series and my exhibit *Constructing Realities* address are different, the underlying goals and methods are similar.

Both Utterback and I are actively bringing the experience we are addressing into the viewer’s current physical reality by required interaction. This is important because it activates the often-passive process of viewing images or digital devices. We share the goal of encouraging critical thought about the idea(s) addressed through the physical movement and exploration required of our participants. The whole-body experience is important because it physically grounds a process often left metaphorical by more traditional media processes. By incorporating physical interaction and a non-traditional approach both Utterback and I will further encourage viewer engagement and inquiry.
ChopChop, *Unnamed Soundsculpture*

According to principal member Daniel Franke, the German group ChopChop is a “small community of designers, video and media artists working and exploring in the field of visual culture production” (Franke, *We Are ChopChop*). While the output of this diverse community ranges from music video production to hybrid digital/physical sculpture, ChopChop does have a distinct visual signature. The finished pieces often fall into one of two categories, either alternative music video or animation/digital sculpture. Also, all the group’s pieces consistently contain the common elements of digitally generated objects and/or spaces, computationally controlled effects, sound (music or otherwise) and a created sense of place.

These elements also run throughout *Unnamed Soundsculpture*. *Unnamed Soundsculpture*’s principal artists were Daniel Franke and Cedric Kiefer. In all his work, Franke challenges “the restriction of conventional spatial frameworks,” which limit the digital world to an on-screen experience (Franke About). He explores the mixing of the virtual and tactile realms through his various design projects. Kiefer is a German designer and cofounder of Onformative, a studio specializing “in generative design solutions” across “various types of media and topics” (Kiefer).

*Unnamed Soundsculpture* is fundamentally a virtual, sound-responsive sculpture based in “the recorded motion data of a real person” (Moskova). The finished piece is a three-dimensional animated video of a dancer. The accompanying sound is not the music to which the dancer dances, but rather the sound she makes as she dances. Also, instead of appearing as a solid figure the dancer appears to be made out of sand. This sand pours out of
the figure where the skin would be. The resulting visual is a mesmerizing cascade of sand flowing away from the figure as she moves through the empty space.

As new particles continually fill and fall away from the dancing figure, the lighting flickers to the sound of the dancer’s movement. The particles generate the moving figure and also show where the figure has been, indicated by the various piles of sand.

This extraordinary image was carefully rendered using depth information gathered by Microsoft Kinect cameras. The ChopChop team used three Kinect cameras arranged in an equilateral triangle around the dancer to continuously record the position and form of the dancer. The resulting data made it possible to see the dancer from all angles at all times. This complete understanding of the figure allowed Franke and Kiefer to experiment by incorporating different computer-generated materials, eventually deciding on sand-like particles.13

What makes Unnamed Soundsculpture such a success is the effective marriage of technical and visual elements. The piece also accomplishes a long-standing goal of photography and film: to show a reality in an innovative way. The resulting video not only pushes the bounds of animation, motion capture and video art but also falls perfectly into the ChopChop portfolio.

Beyond the arresting imagery, Unnamed Soundsculpture serves as a source of inspiration on a technological level for Constructing Reality. Franke and Kiefer’s ability to create something so engaging and beautiful out of raw depth data motivated me to explore not only how the elements of photography give photography power over perceived reality, but also how to visualize my findings in an engaging and innovative way.
The recent exponential growth in the number of photos is a predominantly digital phenomenon. As images have become easier to take, edit, store and display, more people have been capturing and sharing their experiences. In her 2013 Exposure article, Abundant Images and the Collective Sublime, Kate Albers highlights a number of artists who address the explosion in the sheer number of digital images through their work (Albers). While focus and approach differ among the artists, Albers argues that this growth in photography is not necessarily detrimental to fine art, but is an area for further exploration. She uses the works of Erik Kessel, Mark Klett, and Byron Wolfe as references to support her article, and I have found these artists’ work particularly inspirational. While they illustrate image density and the growing mass of photos in different ways, their bodies of work are all visually striking.

Erik Kessel’s 2011 piece titled 24hrs in Photos was an installation at the FOAM gallery in Amsterdam (Foam Press). In 24hrs in Photos viewers walked among piles of over a million photos that were uploaded to the website Flickr in a 24-hour period. The pace and state of the contemporary visual world was the intent with which Erik Kessel set out when he filled multiple rooms with public images from Flickr at The Future of the Photography Museum in 2011 and more...
recently in San Francisco’s Pier 24 (A Sense of Place). By printing all of the uploads that day commercially as four-inch by six-inch photos, Kessel not only amassed an enormous physical pile of images, but he also made the images immediately relatable and intimate, as if placing the viewer inside a box full of someone’s photos. This size was easy to print and is also familiar to many. This juxtaposition between the mass and the personal illustrated Kessel’s vision: “I visualize the feeling of drowning in representations of other people’s experiences” (Williams).

While opposite in approach to Kessel’s pieces, the single composed image titled *Fifty sunrises at Mather Point arranged by a shared horizon; pictures from a popular image-sharing web site*, by Mark Klett and Byron Wolfe, is within the same vein of thought. The single image is created by layering 50 other images to show the vista at Mather Point, an overlook on the Grand Canyon where people frequently take pictures of the sunset. Instead of using time to mark image concentration like Kessel, Klett and Wolfe use physical location to illustrate the Internet’s growing mass of images. Kessel, Klett and Wolfe all approach the growing number of images by either virtually or literally stacking images.
Neither Kessel nor Klett and Wolfe are strangers to digital media. Erik Kessel is the publisher and art director for the *In Almost Every Picture* and the *Useful Photography* book series. He is described as an “excessive collector of everyday moments” (Kaczor). It is this propensity to collect found photographs, which has not only made his numerous photo books so successful in Europe but also helped give birth to *24hrs in Photos*. Klett and Wolfe, on the other hand, have dedicated a large portion of their careers to documenting historic and natural places through re-photography, often combining imagery through collage.\(^{14}\)

*Figure 3 - Buttes of the Moenkopi Formation near Lee's Ferry, Arizona*

This overlapping technique shows its influence in *Fifty sunrises at Mather Point arranged by a shared horizon; pictures from a popular image-sharing web site*. However, by making the images translucent *Fifty sunrises at Mather Point* builds a complete image where the overlap occurs.

*Figure 4 - Fifty Sunrises at Mather Point Arranged by a Shared Horizon; Pictures from a Popular Image-sharing Web Site.*
most, instead of using the various images to obscure one another. In doing so Klett and Wolfe concentrate less on the change of place, as they do through their re–photography, and more on the image density that is created due to the popularity of a common location and shared experience. Fifty sunrises at Mather Point shows people’s pervasive drive to record their experiences. Klett and Wolfe not only illustrate how the digital revolution in photography has allowed more people to take and share their experiences, but also comment on the current state of art and the digital world.

The exploration of the impact of digital photography in the age of social media and cloud computing is what drew me to Albers’ article, and thus introduced me to Kessel, Klett and Wolfe. Whereas these contemporary artists comment on the exponential growth of photography, I explore and encourage further understanding of the reality that the images themselves create for the viewer. All of the artists in Albers’ article touch on the issues regarding the growing number of images. However, because each piece utilizes multiple photos, the pieces are also directly tied to photography’s relationship with reality. Not only are photographs reliant on the reality before the lens, but photos are often seen as a direct reflection of a time and place. Thus understanding the connection between the representative image and reality helps the viewer see the underlying authority that is contained within images.

The appropriation of images used by many artists in Albers’ article was inspirational to me because I, too, want to use the seemingly mundane to illustrate and discuss the topics of photography and reality. Using commonly photographed local venues gives the viewer a closer frame of reference to their own reality than would trying to have the viewer relate to an experience wholly foreign to them. While this eliminates some of the novelty of the scene,
it allows the participants to more easily see the effects of the visual elements on familiar
scenes. The orientation toward local familiar venues and my target audience informed my use
of objects in places familiar to my viewers. (Please see the Chapter 4’s section titled
“Mechanics” for a full explanation regarding my target audience.)

The ever-growing mass of images is the driving force behind the success of artists
like Kessel, Klett, Wolfe, and all of the artists mentioned in *Abundant Images and the
Collective Sublime*. Each piece approaches the growth of photography differently but all
reflect on the impact this phenomenon has on the medium and society. In the case of Kessel’s
*24hrs in Photos* the mass of photos succeeds in overwhelming the viewer and translating
physically the sheer quantity of digital imagery. Mark Klett and Byron Wolfe rely on subtlety
in diffuse imagery to show the viewer the impact of the overabundance of images. By relying
on others’ photos to craft an overall landscape the two photographers successfully illustrate
image density without explicitly showing 100% of each contributed photo.
CHAPTER FOUR
CONSTRUCTING REALITIES [THE WORK]

The various pieces within *Constructing Realities* all work together to form an experience whereby the participants experience various elements that both create and control photography. At the heart of this exploration is the control photography has over the reality it represents. By experiencing each element separately the individual aspect is highlighted before being reinforced by *Decisions*. This convergence shows not only the impact of photography in capturing reality but also the power an image has to control the reality portrayed to others.

Because *Time, Clarity, Location* and *Frame* all rely on the same basic mechanics and construction, what immediately follows is a description of the technological approach and interactive environments of these pieces. Afterward each piece is described in turn, with a focus on the viewer experience and the conceptual underpinnings.

**Mechanics**

Each of the pieces within *Constructing Realities* concentrate on a different aspect that creates and controls photography while also giving the medium its power over the perceived realities. However, *Time, Clarity, Location* and *Frame* all utilize similar technologies. What follows is a brief introduction to the inner workings and range of base participant interactions regarding this exhibition.

*Time, Clarity, Location* and *Frame* all utilize the open source Open CV software in conjunction with the Microsoft Kinect to track a range of participant motion and positions.
Each piece recognizes a single participant at a time. At its most fundamental the Kinect identifies a person by the recognizing their shape and frame within a space established by the artist. If another user is also present the program identifies and tracks that person, placing him/her on a list and transferring control after the primary participant leaves the area.

Once a participant gains control a depth image, generated by the Kinect’s depth camera, is briefly overlaid on top of the scene. This image highlights the participant in green and other individuals in red. Once the image fades the scene is once again presented and the participant can begin to interact with the particular piece.

The Kinect’s depth camera is not a high definition camera and as a result is farsighted. The further an object is from the sensor array, while still within range, the more detail the camera can discern. With more detail comes more accuracy when correlating the participant’s movement with the scene’s movement. Additionally, when an object is too close it takes up too much of the camera’s view, and fine movements and depth cannot be accurately tracked due to a lack of spatial contrast. For these reasons some of the movements incorporated into particular pieces may appear backwards but are programmed in such a way as to best utilize the technology available.
With this in mind the majority of interactions Time, Clarity, Location and Frame employ are determined by the participant’s position relative to the Kinect and the screen. Whether by moving parallel or perpendicular to the Kinect, the pieces use these metrics to augment the scene before the viewer. However, the image capture technique employed by all four pieces relies on a participant’s hand position rather than entire body position. The participant captures an image by simulating a high five toward the screen. This motion activates the image capture function, causing the program to save the current frame in the scene. This capture feature is indicated by briefly overexposing the screen, simulating a camera flash. The selected frame is then sent to Flickr and is gathered and displayed later. The image capture function is suspended while the upload to Flickr takes place. The program continues tracking and capturing with the current participant so long as he/she is within the activated area. While the last piece in Constructing Realities does not utilize the Kinect player capture and tracking technology, it is integral to the image capture component. A full explanation follows in the designated section regarding Decisions (choice) but at its most basic, once another piece has captured an image, Decisions downloads the image from Flickr and makes it available for the participants of Decisions to rate. These rated photos will be the images that represent the show’s online presence.

The arrangement of the physical space within each piece is important because it helps guide the interaction without expressly saying so. By using barriers and symbols the goal of the space’s arrangement is to allow for the greatest range of audience participation. Each space is arranged in an isosceles trapezoid fashion. The shortest side of the trapezoid is the front of the space, which is made out of the screen. The two angled sides not only funnel one’s vision forward but also are tall enough to limit peripheral distractions and mark the
sides of the Kinect’s field of vision. These mirrored walls do not touch the shorter back wall. The shortened back wall height allows for an audience and does not connect to the sides, thereby creating natural entrance and exit points for the piece. Where the walls do not define the Kinect’s vision there is an outline of blue dashed lines. The blue tape is accompanied by white tape in the shape of arrows in the middle of the space. This tape provides instruction on the primary modes of control. Within each space written instruction is limited and exploration is encouraged. This both allows for a wide range of people to experience Time, Clarity, Location and Frame, and encourages investigation.

*Time, Clarity, Location* and *Frame* utilize similar basic structures of interaction and participation but each interprets the particular data differently in order to illustrate various elements of photography. Approaching these aspects of photography through recognizable imagery in this way not only provides for a novel interaction with familiar scenes but also simplifies a large part of the interactive experience, lessening the learning curve for participants and allowing for more engagement with the concepts rather than with a challenging environment.

**Audience and Presentation**

Opening the pieces up to allow for a wide range of users is important because my target audience ranges greatly in age and experience level. I conceived the target audience to consist of teenagers and their parents from Boone, Story and Polk Counties, and selected my imagery accordingly: various elements of Iowa State Capital Building’s grounds, the high trestle trail bridge near Madrid and the weekend farmer’s market in downtown Des Moines. My choice of this target audience resulted from years of conversations with various
individuals across the spectrum of age and education. From my experience teenagers and their parents were two categories who took the greatest number of photos and also admitted to thinking the least about the photo as an object and as a mechanism of control.

Limiting my desired audience to a specific section of the population was important, because while teenagers and their parents may not actively think about how photographic images affect their understandings of the world, they still view, consume, and are affected by photographs. Also, when considering how to present these aspects of photography I did not want to force the idea of photography’s power over reality on the audience, but rather present the elements in such a way as to teach the participants about each element’s visual impact. By approaching in this more didactic fashion, teaching about photography without using a camera, I can more easily engage with the participants before discussing the metaphoric ideas of reality and simulation.

Focusing on families did present an issue with regards to imagery: what imagery would best encourage engagement with both sections of my audience? My venue space, a community hall, is situated in Madrid, Iowa. This helped determine the teens and parents likely to make up my audience, because the population is near a growing metropolitan area, yet is a blue-collar socio-economic community. With this in mind I generated my imagery from locally frequented or well-known places. The choice of familiar scenes accomplishes two things: first, it provides an identifiable initial image; and second, it challenges the participant to see how simply changing the specific element can alter a familiar scene. While the ‘challenge’ to the participant could be more shocking and direct, I believe that incorporating elements of play and exploration is more important to my goal of having an engaging and meaningful interaction. Diversity of imagery became important after testing
revealed both limited interaction and limited concept reception when only one scene was presented for an extended period of time. While this lack of engagement might be related to the declining amount of time viewers delegate to each piece, these works have the ability to overcome some element of viewer fatigue and engage the viewer by manually updating the displayed imagery once the participants were finished (Smith).

Another element I used to help limit viewer fatigue and raise engagement was to deliberately arrange the exhibition to encourage participation. (See appendix A for a diagram of the exhibition arrangement). The arrangement of the physical space, while allowing for free movement among pieces, subtly encouraged participants to visit the works in a specific order: first *Time* and *Clarity*, then *Frame* and *Location*, and finally *Decisions*. In this way, participants could increase their understanding of how to control the pieces. Beyond the physical arrangement of the exhibition, which required a large space, the use of rear projection screens allowed for a larger image, which helped created a more immersive experience for each participant. The room was also quite dark, which not only allowed for proper viewing of the projected images but also indicated to the viewers that they should prepare for an experience not often found in a rural community hall.

*Time – (moment of importance)*

*Time – (Moments of Importance)* directs the participants’ attention to the core element of time in photography. Photography operates by recording segments of time, directly connecting the resulting image or video to a reality. Time is such a fundamental aspect of photography that it constitutes one of the controlling values of the medium. While using different shutter speeds in photography yields different images, all the various time values
allow light into the camera in order for the image to be exposed and recorded. Every photo
exists because it captures both light and time from the reality before the camera. By
reinforcing the connection of the image to reality, time also adds to the logic that images
reflect the truth present in front of the camera. Because of the interconnected nature of time,
photography and reality, it is a core element to be explored, understood, questioned and
evaluated to better understand the overall power of photography.

*Time* creates an interactive environment where the participant’s physical position
relative to the screen determines what moment he/she is viewing of a time-lapse video. The
participant can change that moment by moving parallel to the screen. (For visuals please see
appendix A). Tying the position of the participant to the displayed frame illustrates the
concept that photography can only capture one moment at a time rather than a whole
experience. This is both a fundamental tenet of time and a defining aspect of cinema and
photography. In both media moments are captured in segments. In cinema the frozen
segments are played back fast enough so our eye cannot discern the difference between them.
In photography, however, a moment is separated and held still, allowing the viewer to
examine the moment closely. A still image is also displayed without the photos of the
surrounding moments, making the captured moment seem more important because it was
selected over the others. This creates a hierarchy of importance not only between the
moments of an event but also those within a lifetime. The moments deemed most important
become those in frames.¹⁵

By understanding time’s role it is easy to see the connection between time and the
portrayal of reality through an image. Rather than simply representing a moment,
photography’s connection to time in reality often validates experiences for the viewer. All the
elements of photography work in concert to give this power (to create a displayed reality) to a photo; however, time within photography allows one to freeze time into segments which are impossible for the human eye to see unaided. Moments captured through exposures lasting more than one second and less than $1/100^{th}$ of a second allow viewers to explore the world differently. While long exposures let the viewer see the blur of objects in motion and the patterns which are created, the quickest of exposures allow the individual to see the world frozen in mid-action. Because the human eye cannot verify reality in this way without aid of a camera, we must rely on the camera to tell the truth. Not only does the image create a hierarchy of time, but by raising the importance of one moment above others, segmenting time helps remove the image further from our visual reality.

This divergence from reality and all the above implications of time are addressed through the interactive environment of *Time*. Before a participant enters the space a still image is displayed on screen. Often the scene is mundane or only marginally interesting. However, the level of interest tracks upward as the viewer outside becomes the participant inside the environment. As the individual enters the interactive space the program sees him/her via the Microsoft Kinect camera. After identifying the user and tracking him/her the program will assign control to that individual. As the controlling participant moves from left to right the time lapse scene moves from the beginning to the ending frame, stopping on the corresponding frame when the participant stops. Unlike a traditional short film, the time lapse displayed rarely has a climax or definitive ending. The scenes that are displayed are often thought of as ordinary: the growth of a plant or waiting at an airport terminal. These mundane scenes are important to help illustrate the impact of capturing a moment on the reality portrayed through a photo.
These everyday scenes become engaging when one sees the movement of time and the aspects which time reveals (i.e. the patterns and connections inherent throughout the day or a life). Tying time to position means the participant must choose what moment he/she views as most important or representative. The participant does so by simulating a high five toward the screen.

The experience yields both an interactive and exploratory piece as participants often exaggerate their movement in front of the screen to test the limits of input. Because Time tracks one controlling participant at a time, the piece is inherently an individual experience where others can watch and interact with that individual from behind the shortened back wall. This is intentional because the act of image capture is an individual event from behind a camera but is often affected by others.¹⁶

The focus on the individual helps to define the difference between the underlying ideas pursued in *Time* and *Constructing Realities* compared with those in Camille Utterback’s *Liquid Time* series. Utterback uses group interaction to explore the interaction itself between people and the digital realm. As social media has shown, our interaction with the Internet and technology can be a very social affair. However, I use individual interaction to address the elements of photography that give the media power over an individual’s perception of reality. I do so because one’s perception of reality and one’s practice of image capture are both inherently individual. While others affect our individual understanding of ourselves and reality, the process of internalizing and applying what we understand about reality is inherently our own. The individual has the ability to decide what to believe in relationship to the various experiences portrayed by others.
By illustrating the impact that such a foundational aspect of photography can have on even a mundane scene, *Time* addresses the power that time has on how we see and interact with photography. I hope that by encouraging exploration and discussion among the participants in *Time* and *Constructing Realities* as a whole an internal conversation within and among the individuals can form to help facilitate critical thought about how photographic images impact our understanding of reality.

Clarity – (focus hierarchy)

The title *Clarity* appears to explain the piece but in fact the subtitle (Focus Hierarchy) best encapsulates the true concept on display. In a photograph, those features that are in focus are seen to be the most important. As things fall out of focus, they fade in importance accordingly. This constitutes a kind of hierarchy, and *Clarity* draws the participant’s attention to this inherent hierarchy. With the advent of digital technology, reliable recording of depth and focus has become more relevant and even urgent because of its necessity for user tracking. The Microsoft Kinect technology has effectively accomplished this goal for both the scientific community and the average user. While this has allowed thousands of people to read the dynamic depth of an environment and track the users within, other technologies have created new dynamic visual explorations of depth and clarity. While the hardware within products like Lytro’s Light Field Camera and the HTC One smartphone may be different they both allow the user to alter what is in focus in the digital image after it is captured. This ability to refocus touches directly on foundational ideas of *Clarity*.

Historical precedent for this concentration on depth of field may be found in the works of members of Group f/64. In the early 1930s, West Coast photographers like Ansel
Adams and Edward Weston moved away from the soft-focus aesthetic then dominant in art photography and toward an aesthetic in which nearly every element in the picture was in sharp focus (they named their movement f/64 after the stop on the camera that permits the sharpest focus and greatest depth of field). By doing so the members of Group f/64 transitioned from illustrating the importance of one element within a scene to encouraging the viewer to see the whole scene as of importance. This allowed the viewer to choose what was important by focusing on that element themselves, rather than being directed. Today’s technology is allowing for an extension of the latter, further breaking down the inherent hierarchy of clarity.

My piece is informed by these historical precedents, while at the same time taking advantage of the innovations of current image capture technology. *Clarity* utilizes Microsoft’s Kinect depth camera to track participants and allows for their interaction with the piece. Depth takes on a literal application within *Clarity*, pairing the player’s distance from the screen to the depth of the elements in focus within the scene. As the player moves from near to far (relative to the screen and Kinect Camera) the area in focus moves from foreground to background. This connection between the perpendicular movement of the user to the screen and the area of focus not only animates the process of choosing which area of detail to focus on, but also illustrates the hierarchy this choice establishes.

As depth technologies are incorporated into more consumer devices the hierarchy that focus creates is altered and made current. The ability to refocus an image after it has been taken opens the possibilities of photography on many levels. Not only can mistakes be fixed, but images can also become interactive: changing the prominent in-focus element can change the meaning of an image (Er). Allowing the participant to change the in-focus area takes the
element of detail and clarity a step farther, removing the photographer’s control over this
element. The artist/photographer yields control of the image to the viewer—the fundamental
idea that has inspired, and that motivates, Clarity.

Clarity’s design makes the decision of what to focus on a full-body experience. Like
the other pieces utilizing the Kinect, Clarity uses the participant’s position and movement to
adjust the parameters to augment the displayed image. The whole-body experience both
engages the participant and activates a concept often automated through technology. Ideally,
the physical experience of moving with intention will spark thought within the participant
and conversation between users and viewers about the role of detail and clarity in
photography. The participant best resolves the experience when he or she captures a still
image from the scene representing the effort. This captured frame indicates a decision has
been made as to what aspect of the scene is most important. Overall, Clarity brings the
hierarchy of focus into more concrete terms by dynamically engaging the viewer in this
element of photography.

Location – (vantage point)

Changing where and from what angle a photograph is taken fundamentally changes
what an image illustrates as reality. The camera is not tied to one human’s perspective; thus it
allows the viewer to see the moment through another’s eyes. The construction worker atop a
high-rise sees the same city as the cab driver on the streets below but each individual’s
existence is unique. Each would see only his own reality if not for the ability of photography
to present the viewpoints of others in such a way that we can make them our own. Capturing
a moment from novel vantage point is a foundational tenet of photography and the focus of *Location (vantage point).*

By capturing a given reality from a novel vantage point, photography can present to each viewer an unaccustomed viewpoint, a reality parallel to his or her own. These images enrich the viewer’s understanding of reality by presenting alternative angles.

When photography was new, viewers were shocked by its ability to present alternative viewpoints. Gradually, however, people have become accustomed to seeing the world from all angles. In a way, people have begun to think and see the world photographically. The viewer may have never seen the world from an eagle’s perspective, or a bug’s, but can conceptualize these viewpoints because of previous experiences with such images. Again, photography’s supposed direct reflection of reality means the viewer is likely to receive it as reality. While the camera does record reflected light from a scene, the approach the photographer uses greatly affects the reality the reader understands from the image. This link between the vantage point, reality and photography is the heart of *Location.* Tying the location of the participant to the different vantage points from which the scene was shot helps the participant understand how drastically the scene changes when the vantage point changes.

The term *Vantage Point* was used by curator John Szarkowski in his essay *The Photographer’s Eye.* In this piece Szarkowski uses the term to describe and encapsulate the principles of location and angle of approach mentioned above. To Szarkowski, “vantage point” and other fundamental aspects of photography establish an argument for photography as Art, demonstrating the myriad decisions a photographer must make in creating an image beyond simply pressing a button. I use these elements to show how the medium itself can
influence how the viewer perceives a scene and thus how he or she understands the scene on a fundamental level. *Vantage Point* is photography’s principal element, which directs how a scene is recorded and how the image illustrates that scene.

My view of photography with respect to vantage point is also influenced by postmodern theory, particularly by Jean Baudrillard’s *Simulacra and Simulation*. Any given photo can be seen as a second-tier simulation, according to the system Baudrillard spells out in his book. A photograph is a second-tier simulation because it blurs the lines between real and reproductions of the real, making it hard for the viewer to differentiate the two.

Photography is wonderful at disguising the difference between what is portrayed and what is real. Photography can easily give a false idea of reality by showing someone images that are based in reality but provide false information. One perpetual example of this generation of false realities is ongoing discussion surrounding magazine covers. Often accused of portraying false expectations for women, magazines like Vogue are well known for ‘airbrushing’ images to enhance the image (Anderson). Raising awareness of the possibility of manipulation of reality through use of these fundamental elements is the goal of *Location* and the other pieces in *Constructing Realities*.

By connecting participant position and vantage point, *Location* requires physical engagement through an interactive environment. Not only does this mimic the reality of photography, but it also illustrates the concept that a photograph is limited to only one vantage point. While an object can be recorded from an almost unlimited number of approaches, the resulting image only displays one. The decision is made by the photographer as to what best represents the idea behind the image.
These ideas of controlling and representing reality are accomplished in *Location* by tracking the position of the participant. *Location* uses the same user recognition and tracking technologies as the other Kinect based pieces in *Constructing Reality*. However, *Location* relies on only parallel or perpendicular participant movement to inform image progression on the display. Once the viewer locates the ‘best’ vantage point for that particular scene he/she mimics a high five toward the screen to activate the image capture procedure for *Location*.

The visuals used in *Location* are unique to this piece, because unlike the other pieces making up *Constructing Realities*, *Location* uses a time-lapse technique called hyper-lapse to capture the change in vantage point. Hyper-lapse photography generates a short video clip like that of the time-lapse movies used in *Time*. However, hyper-lapse is based on location rather than set time intervals. By taking images at regular intervals around an object, the sensation of moving around that object is generated through playback. This also changes the vantage point from which one sees that object.

*Location* accomplishes its goal of illustrating the fundamental influence of vantage point in photography by creating an interactive environment in which the participant controls this aspect in order to select their final image. The location and perspective from which an image captures a scene influences how the viewer understands the reality illustrated, simply by limiting how that viewer sees the scene. This ability to influence others’ ideas is accomplished in two ways through *Location*: first by encouraging the participant to select an image from *Location* that best represents the scene as the participant interprets it; and second by taking that image and allowing others to rate it through the last piece in the exhibit, titled *Decisions*. By collecting the pieces and borrowing elements from one another, not only does *Decisions* create continuity of experience within the exhibition for the participant, it also
illustrates how all the elements of photography influence one another, allowing the viewer to see the accumulated power of photography through these elements.

Frame – (inclusion and exclusion)

*Frame (Inclusion and Exclusion)* addresses the fundamental dichotomy between reality and photography. We have a tendency to mistake photographs for reality, but a photograph is actually a selected, two-dimensional, representative fragment of reality, while reality itself is endless and multidimensional. Other elements contribute to this oppositional relationship but the edge of a photograph innately represents the dichotomy between the photo as a fragment and the expanse of reality. The edge of a photograph represents the decision that is made, each time a photographic image is captured, as to what is most important. This creates a hierarchy of importance inherent within photography, stating that what is included is more important than what is excluded.

Those items that fall within the frame gain meaning and connections to one another based on their visual relationship with one another and the frame. Those aspects not seen fall away from the scene and are forgotten. This mediation of reality is at the heart of photography’s relationship and power over reality. Where reality is expansive and all consuming, photography focuses and controls what is depicted. The control is accomplished by restricting the choices that can be made about how to represent the proposed reality.

These elements of control and choice are the heart of *Frame*. The piece ties the participant’s body position to the position of the framed image, allowing the participant to control what others will see. *Frame* allows the participant to control what is included and excluded in the final image, thus controlling what people perceive as reality from that photo.
Like other pieces in *Constructing Realities*, *Frame*’s goal is to engage people physically and interactively in the visual and conceptual elements of photography. The participants begin to see how significant a role inclusion and exclusion play in the relationship between photography and reality.

The transition from the conceptual to physical starts when the viewer is recognized by *Frame* and becomes the participant in control. Panoramic imagery, often of a recognizable local place (Des Moines Skyline or the Des Moines River Valley) is animated by zooming in and panning, in correlation with the participant’s position in front of the scene. Thus, if the participant moves to the left the scene moves in that direction, exposing more while removing the segments of the scene to the right. Zooming in and out of the scene is also connected to the participant’s positions but in opposite directions. If the participant moves closer to the screen the scene zooms out to its fullest extent and the scene zooms in when the participant walks away.

In my own testing this has been shown to cause an increase in interest among most participants. Because it is no longer intuitive participants must work harder to master the overall experience, which is incentivized by the end goal of obtaining their final chosen photo.

While *Frame* tracks a range of participant movements, it adds another set of controlling motions to the list of those used within *Constructing Realities*. Once the participant has focused on one section of the panorama, he/she can place two hands in front of his/her torso and move the frame up and down. By raising and lowering the hands together, mimicking the breaststroke, the viewer causes the framed panorama to move up and down. This motion both reveals the details not seen from afar and allows the participant to fine tune
the resulting image. By coupling this action with the others, Frame becomes an immersive and interactive experience. Not only does correlating participant position to image position encourage engagement, the space itself also helps funnel attention towards Frame’s screen.

By limiting the control to one individual at a time, Frame encourages each person to decide for themselves how the reality should be fragmented. The frame of an image also raises the dichotomy between the detail and the hold the image has over the portrayed reality. The camera is essentially unable to capture and isolate a detail without also losing the overall scene. Within Frame this dilemma is illustrated by the physical fact that the participant cannot be in two locations at once. The inability to display both the overall and the detail causes an internal dialogue and decision by the participant as to how much of the scene can be sacrificed in pursuit of the desired detail, while also preserving the reality of the scene.

While the balance between detail and the overall scene is left to the photographer (or in the case of Frame to each participant), this zero sum visual decision is at the heart of two of the elements that John Szarkowski proposes in “The Photographer’s Eye” as critical to photography’s character as a representational system: The Frame and The Thing Itself. Both of these elements directly relate to the visual depiction of reality and its connection to photography.

Control is at the heart of much of photography. Knowing how to control the camera and the scene often equals the ability to control reality. My own approaches to controlling and visualizing reality through photography greatly influenced my approach to Frame. Through my time with photography I have grown to love both panoramic and macro photography. These two opposing photographic genres represent reality in vastly different ways. Where panoramas attempt to show as much of a scene as possible, macro photography
fills the frame with one detail, foregoing the overall scene. Neither can accomplish what the
other sets out to do, yet both can yield distinct depictions of the same reality. *Frame* was the
result of my own exploration of inclusion versus exclusion through panoramic and macro
photography. In my own photography I continually ask: what degree of content can be
sacrificed and still retain the intended meaning? And it is this question the participants of
*Frame* ask and answer for themselves. Tying the participants’ body movements to the
movement of *Frame* reinforces the importance of the decision to capture the image.

*Frame* addresses one of the elemental ways photography records, displays and
controls the reality one sees. Just as capturing an image is a choice, so too is framing.
Understanding the implications of the edge in photography is critical in not only taking a
photograph but understanding its full impact.

**Decisions – (choice)**

*Decisions (choices)* is the final piece in *Constructing Realities* because it both
captures all the images selected by the participants from the other pieces, and speaks to the
overall theme of choice present throughout the other works and throughout photography as a
whole. A photograph is fundamentally a specific section from an individual’s experience.
The translation of four-dimensional reality to the two-dimensional image involves a series of
decisions by the photographer. This aspect of choice is reflected throughout the other pieces,
wherein the participant controls the individual elements of a photograph. As mentioned
previously, each of the pieces prior to *Decisions* contains an image capture function. Here the
decision to capture the ‘best’ image from each piece is given to the individual participant.
The image they select is reflected in Decisions as a ratable image. Decisions approaches the issue of choice from the perspective of the viewer rather than from the photographer.

All of the viewer’s interactions with Decisions are focused on illustrating the power of choice and the relationship between the viewer and the photograph. Each image that is captured from the other pieces both reinforces the goal of that particular piece and aids in reinforcing the overall reflection on photography’s impact on reality. This impact is based on choice of both the photographer and the viewer. Thus, by ending Constructing Realities with Decisions I reinforce the importance of choice by correlating the visual voting system with the online presence of the show. Giving the viewer agency to select what others will see only increases the importance of that choice and encourages a final reflection on the impact of choice in photography and how we understand reality.

Decisions (choices) is made up of three dependent parts resulting in three separate participant interactions. The three parts are necessary because three different types of participants view and interact with Decisions: those interacting with the other pieces, those interacting with Decisions, and those viewing the exhibition’s website after the show. The first of these participant types are the individuals who were interacting with and capturing images from the other pieces within Constructing Realities. The image capture function within these pieces freezes the frame currently displayed by that particular piece and then captures the image and sends it to Constructing Realities’ Flickr photo stream.

To capture an image the participant holds up his/her right hand. The screen then briefly overexposes, mimicking a flash and serving as visual “feedback” to the participant that the image has been created. This marks both the end of the image capture component and upload of the image to Flickr and Decisions. Part of the popularity of Flickr is its
versatility, and one component of that versatility is the site’s ability to interface with outside applications, which is accomplished through an Application Programing Interface (API).

The Flickr Application Programming Interface allows the individual programs to use Flickr as a database to store the capture images. Not only does this create a pool of images from which Decisions can pull images but Flickr itself allows for these images to organize themselves. This organization is based on a two-level system. First, all images are time stamped when they’re uploaded. Using this information Decisions can determine an approximate time when the images were captured. These timestamps allow Decisions to rank images based on time and display those most recently added to Flickr. Not only does this keep Decisions up-to-date but it also helps the more recent images mix evenly with the list of rank images. The second tier of organization is based on the rank number of individual images. This rank is based on the number of votes each image receives through Decisions as the participants view and vote on the images.

This ranking system is tied to a different component of Flickr and is used to collect user interaction with Decisions. Normally the comment section for images facilitates conversations about or sparked because of an image. Decisions, however, uses the comment section to record the number of votes per image. When the image is uploaded to Flickr and downloaded by Decisions the number of comments is zero. As individuals vote for an image Decisions records those votes in separate comments. These rankings are logged and sent to Flickr as the images are cycled through and the number is used to rank each photo in comparison to the other ranked images.

This ability to interface with Flickr is crucial because Decisions records and retains the ratings from each day, while also clearing the ratings daily. The fresh start is important
because it allows the best images of each day to be recognized and synced with Flickr without having to compete with the previous day’s highest-ranked images. If the ratings were never reset than the most highly rated images from previous days would continue to be ahead of the current day’s images.

The rating system is represented visually by two elements, the projected grid of images and a number keypad. The two work in conjunction with one another to allow the viewer to rate and enter his/her vote for most-liked images. The grid of images consists of a 2x2 arrangement of images; these are grouped either by time of capture or their rating number, creating sets of image grouped by these two common themes. Viewers select the images they wish to rate by tapping on the colored key that corresponds to the colored band at the bottom of each image. Color matching not only simplifies the selection process but also helps reduce the chances of ranking the incorrect image. Once the image is rated the user must confirm by clicking the enter button. Doing so enters the rating and refreshes the grid with the next selection of images. By making the selection a two-button process Decisions better defines its purpose of adding intention and thought behind the viewer’s selection of images.
The viewer is often seen solely as passive consumer of the photograph. The choices of the photographer are generally seen to be the only choices that influence the piece. However, the viewer does have the choice in what they believe and take away from an image. Scholars like Susan Sontag and Roland Barthes have focused at least some of their writings on the ability of photography to control how reality is understood by the viewer. In *Art in the Age of Mechanical Reproduction*, Walter Benjamin not only illustrates photography’s social power but also how individuals can use photography to effect change by controlling the image and thus the message within that image. Benjamin describes how the special attributes of photography and cinematography helped break the connection between these new media and the older arts controlled by the ruling elite. All of the attributes of photography that allow for control over the illustrated reality also allow for choice when taking, viewing and understanding the imagery (and the message contained within). Like a
painter, the photographer decides the initial exposure and printed image; however, the viewer holds the final decision as to the success of the image. But unlike a painter the photographer appears more like a surgeon who is taking things directly out of reality. Here lies the power of photographs to control how others perceive reality. This power can be held in check if the viewer understands that he/she decides what is understood and taken away from the image rather than being at the mercy of the image.

*Decisions* takes this aspect of image production and viewing and applies it to the images produced by the participants of the show. However, instead of simply reviewing and deciding what images are best, the participants engage with *Decisions* by choosing what other people will see online after the show. This activates the decision of viewing and selecting imagery, and illustrates the impact the viewer can have on how an image is later perceived. This multilayered approach allows *Decisions* to be a visual and physical meeting place for participants of *Constructing Realities* and also a point for review, where the separate aspects addressed in the previous pieces can be seen grouped together. By ranking images the individual participant not only selects the best looking or most representative images but also reviews the elements that created those images. This review reinforces the concepts of the individual pieces.

It also helps focus the viewer on the task of ranking images. This ranking serves two purposes: first, the comparison of individual images provides for a more prolonged interaction with the individual components of the show and thus with the concepts that the show intends to highlight; and second, the highest-ranked images for each day will represent the sum of the visual output from the show on the website. By giving the user control over
what another (the online viewer) will see, *Decisions* helps to illustrate the power of both the viewer and photographer.
CHAPTER 5

SUMMARY AND LOOKING FORWARD

Summary

My studies have resulted in significant personal growth as an artist. This process has pushed me into new realms of research and media. Focusing on the power inherent within my own chosen medium has helped define not only my approach and final visualizations but has required that I better define my core concepts of photography. The core elements of photography defined above have formed this base. I have learned and continue to promote the idea that the artist and viewer are equally responsible for the message and reality that a piece portrays. While the artist has the control inherent within the process of creation, ultimately the viewer determines the success of the work and the message he or she takes away. I continue to be interested in both directly interacting with the viewer and in affecting what the viewer understands about images. This interest has led me to pursue the use of interactive elements, not only to interact with but to more fully incorporate the viewer into my pieces. As I continue toward a more robust understanding of photography’s impact I grow both as a photographer and as a consumer of this visual world.

Looking Forward

This study in the dynamic relationship between elements of photography and the medium’s control over one’s understood reality serves as a watershed moment for myself as a photographer. I have gained a crucial understanding of how my own images can affect others and how I am affected by other’s images. Recognizing the impact of photography has also further illustrated the responsibility I have as a generator of images to those viewing my
art. This responsibility has led me to approach image-making with the conscious approach to strike a balance between the reality before the camera and the one seen through the camera.

With this in mind I plan on continuing this line of exploration through traditional and unconventional digital interactive pieces, as well as a new body of still image work. I would like to explore the role social media now plays in portraying reality through the use of more passive interactive interfaces. Additionally, I am exploring directional or location-based interactive sound environments to assist in the delivery of instruction and message. By utilizing techniques like these I will not only expand interaction with the audience but also develop further my ideas on the implications of the relationship between reality and photography. This drives me as an artist and also assists in satisfying an innate desire to illustrate and explain the power images truly have.
APPENDIX A
CONSTRUCTING REALITIES – IMAGE RESOURCE

Clarity - (focus hierarchy)
- Bread -
2013 - 2014
Digital Interactive Installation

Numbers indicate order of Presentation
Clarity - (focus hierarchy)
- Capital -
  2013 - 2014
Digital Interactive Instillation

Time - (moment of importance)
- Airport -
  2012 - 2013
Digital Interactive Instillation

Numbers indicate order of Presentation
Clarity - (focus hierarchy)
  - Capital -
  2013 - 2014
Digital Interactive Instillation

Time - (moment of importance)
  - Airport -
  2012 - 2013
Digital Interactive Instillation

Numbers indicate order of Progression
Clarity - (focus hierarchy)
- Bread -
2013 - 2014
- Digital Interactive Instillation -
User Interaction Example

Numbers indicate order of Progression
Frame - (inclusion and exclusion)
- Capital-
  2014
- Digital Interactive Instillation -
  User Interaction Example

Numbers indicate order of Progression
Location - (vantage point)
- Capital-
2014
Digital Interactive Instillation

Numbers indicate order of presentation from left to right.
Location - (vantage point)
- Capital-
2014
Digital Interactive Instillation

Numbers indicate order of presentation from left to right.
Frame: (Inclusion and exclusion) - River, Downtown, Forest - 2014
Digital Interactive Installation
The following appendix introduces the technical part of the Constructing Realities exhibition system. The main use case of this system is interactive photo manipulation and browsing for one user, using the user’s body. Two applications, referred to as Kinect Photo Viewer (KPV) and Wall Hub, as well as the web service Flickr, are the foundation of this system.

The subsequent four sections explain the KPV and Wall Hub and their functionality and processes. The manuscript is structured as follows: the next section starts with an overview of the overall system architecture. This incorporates an introduction of the KPV, Wall Hub and Flickr, and their interconnection. Section 2 explains the hardware/software setup of the KPV and describes function details. The Wall Hub application is presented in the last section. Note that KPV and Wall Hub are code project names.

1 System Architecture Overview

Figure 7 shows an overview of the system architecture, which represents the structure of the software components and their interconnections. The two major components are the KPV and Wall Hub. Both are linked via the web service Flickr.

![Figure 7: Overall system architecture overview](image)
The Kinect Photo Viewer (KPV) is a versatile photo viewer application for Apple Mac OS X. It provides interactive photo navigation and browsing capabilities that are controlled by the user’s body via the Microsoft Kinect. Input "photos" can be single image files such as jpeg, tiff, and png-files as well as image sequences; videos (.mov), which can be considered as a stack of image files. The KPV provides three major functions that allow users to interactively select a view of an image or an image sequence:

- **Navigation**: refers to the function that facilitates to zoom in/out and move a view window in horizontal a vertical direction.
- **Browsing**: allows the user to interactively move through an image stack and to select the image to be shown on display.

Note, the output image of both interactive functions is referred to as personal view.

- **Screenshot**: a function that literally allows a user to take a screenshot of the his/her personal view. The screenshot image is saved to a file in jpg-format.

A user controls all functions with his/her body, tracked by the Microsoft Kinect and the subsequent software modules: the user’s distance and/or lateral position with respect to the Kinect controls navigation and/or browsing. The right hand of the user is also tracked to trigger screenshots. Only one user can control the application at the same time.

Multiple instances of the KPV can operate in parallel on one (depends on the number of available hardware interfaces) or multiple computers.

Different instances of the KVP provide a different, specific functionality that has been tailored to a specific artistic requirement. Four instances have been realized for the Constructing Reality exhibition. Each of them can be considered as a single stand-alone application that relies on a common foundation. The application names of those four instances are **Time, Location, Clarity**, and **Frame**.

Wall Hub is a photo set viewer application. The main purpose is to present KPV photos and to allow the audience to vote for photos. It visually appears as a tiled display, which can present 4, 6, or 8 photo tiles at the same time on one computer display; up to two displays can be operated by Wall Hub. The photo tiles show photos according to two ranking list: upload time and user votes. The *upload time ranking* list sorts the photos according to their upload time, which is similar to the time the personal view (screenshot) was created with a KPV instance; the newer the photo, the higher the rank. The *user votes ranking list* sorts the photos according to the number of votes each photo received; the more votes, the higher the rank.

The Wall Hub application provides two interactive functions for a user:

- **Voting**: a user of Wall Hub can vote for each single photo on display using a keyboard and the specified voting-buttons. One button is associated to vote for an image in one certain photo tile. The buttons and the photo tiles are color-coded.
- **Photo browsing**: the user can browse through all \( k \) photos which are stored in the ranking lists, with \( k \), the number of photos of each ranking list that should be on display, and \( i \), the upload time \((i=0)\) or user votes \((i=1)\) ranking list. Currently, the user has to push the "enter"-button to browse through the photos. Wall Hub selects photos from either the upload time ranking list or votes ranking list when selecting photos to put on display.
When Wall Hub operates two computer displays or projectors, each display acts as a single instance that can be operated by an individual user. Additionally, only one application of Wall Hub can run at the same time.

Wall Hub is also the technical code project name. The application name is *Decisions*.

Flickr is a well-known photo sharing web platform available at https://www.flickr.com. Technically, Flickr provides a web service and a database for image hosting via web APIs, which facilitates to embed photos into several third-party applications.

The KPV and Wall Hub use the Flickr database to store and exchange photos via an https protocol connection. Every instance of the KPV (Time, Location, Clarity, or Frame) can initiate an photo exchange: as soon as a user takes a screenshot of his/her personal, the image file is uploaded to Flickr. Flickr receives the photo and stores the photo file, the upload time, and the number of votes (initially zero). The Wall Hub application queries all photo updates from Flickr all 20 seconds (Flickr allows only 3600 API queries per hour and also limits the access speed for non-commercial users). Thus, Wall Hub frequently fetches all photos and can update its ranking list with the latest photos. In the opposite direction, Wall Hub submits all user votes to Flickr within the same time interval.

2 **KPV - Components and Function Principle**

This subsection introduces the hardware components and software modules of the KPV and the basic function principle. Additionally, it explains the four different applications (Time, Location, Clarity, and Frame) that have been implemented using the KPV.

The next subsection presents the hardware and software. Subsection 2.2 shows the function principle, Subsection 2.3 introduces the different applications, and the last subsection describes the prerequisites for the KVP.

2.1 **Hardware and Software Overview**

Figure 8 shows the typical hardware setup for a KPV application. The three major components are the Kinect video camera system, a computer and an output device. The Microsoft Kinect is used as input device that is utilized to track the user. The Kinect is a video camera system with two embedded image sensors: a RGB color sensor and a depth sensor. The first provides an RGB color image. The latter provides depth images whose pixels indicate the distance between the camera's lens and the objects in front of the camera. Both images have a resolution of 640x480 pixels at 30 frames per second. The KPV application works on an Apple Macintosh computer with USB 2.0 interface and Mac OS X 10.9. The application requires an online connection to the internet. The output device is a typical large-sized TV or a projector.

The recommended hardware setup for a KPV application requires a 12x12ft. large area with the TV/Kinect at one end. The Kinect should be located underneath the output device and be oriented towards the user. The Kinect has a 43° vertical by 57° horizontal field of view. Thus, the minimum distance between the user and the Kinect is 3ft, and the maximum distance should not exceed 12ft; however, the Kinect will be able to track a user beyond this distance. The horizontal operation range depends on the distance between the Kinect and the user due to the field of view of 57°.
The KVP application is an object-oriented software program written in C++ and Objective-C with three major modules (Figure 3): a basic photo renderer module, a user tracker module, and a communication module.

The photo renderer module is a versatile graphics renderer that provides basic rendering functionality. The major functionality incorporates to open an operating system window, to manage the graphical content of the application, and to render this content. The photo renderer can be extended for a particular application and for certain artistic needs. From a technical perspective, the extension module provides the content (i.e., photos and
videos) of a particular application and the functionality to manipulate this content. It poses that part of the software that creates a unique application since it functions govern the appearance of an image on screen. The photo renderer module relies on OpenSceneGraph (OSG, www.openscenegraph.com), a 3D scene graph programming framework based on OpenGL. It allows to structure the scene as a scene graph which is a tree-like data structure. The tree consists of nodes and edges between nodes. Each node can be either content of the scene or a set of rendering instructions. The edges connect the single nodes and specify the rendering order as well as the structure of the scene. OSG also provides different rendering modes and styles as well as interaction capabilities. The image processing of the KPV is based on OpenCV (http://opencv.org), a computer vision programming framework that provides image management and processing capabilities as well as image filters for segmentation, object detection and object classification.

The user tracker module's purpose is to connect to the Microsoft Kinect, to fetch the color image and the depth image that the Kinect provides, and to track a single user's body. It provides the user's position (hip-position) in 3D coordinates, the position of the left and right hand, and a right hand trigger indicator, which is used to trigger screenshots. The user tracker module relies on the OpenNI framework\(^{21}\), a software programming framework that facilitates to connect to user interaction hardware/software. It comes along with a unique software interface that simplifies to fetch data from different devices and to integrate the received information into a third-party application.

The communication module provides functions to communicate with an FTP server as well as with Flickr. It acts as an independent module that observes a trigger value to start a photo upload process. The photo file must be stored on the hard disk drive. Currently, a general FTP/FTPS protocol and the Flickr API/https protocol are supported. The first allows to upload photos to an FTP server. The latter uploads photos to a specified private Flickr database.

Note, to use the Flickr API, the application must be certified and possess an OAuth key as well as a Flickr API number. Flickr provides a routine for this authentication process. Check https://www.flickr.com/services/api/auth.oauth.html for further details.

2.2 Function Principle and Activities

Figure 10 shows the activities and their connections as well as the information exchange between the three modules. The KPV maintains three main activity branches, which belong to the three introduces modules: the rendering process, the interaction process, and the photo upload process.
The rendering process incorporates four activities labeled as synchronization of all modules, updating content, taking screenshot, and rendering content. To synchronize the modules means literally that all modules work with the same clock; this clock is aligned between the three main branches every frame. Technically, a C++ Mutex and integer counter is used for that purpose. The second activity, updating content, traverses the scene graph and reads all the information inside the nodes. It prepares a stack that keeps the content and instructions to be executed on the graphics hardware. The last activity, rendering content, executes the prepared content and instruction stack, which result in a rendered frame on display. The taking screenshot activity in-between is activated when the user triggers a screenshot. It starts a new independent process that fetches the current frame from the graphics card frame buffer and stores it in a jpg-file on the hard disk drive. These four activities are executed in a continuous interval of 60 times per second.

The second branch, the interaction process, tracks the user which changes the appearance of the photos on display. This process transfers the user interaction into a different appearance of the photo or video and, finally, creates the personal view.

The process incorporates four activities: fetching images from the Kinect, user tracking, information processing, and sync. The first activity, fetching images, queries the current RGB image and depth image from the Kinect and forwards them to the second activity, user tracking. The user tracking image processing detects the user in the image and provides the user's skeleton in 3D. The skeleton information is processed in the third activity, information processing, in order to prepare the data the KVP requires. The activity also
automatically updates the data within the scene graph nodes, which finally alters the content and changes its appearance on screen. The last activity is a synchronization step.

The photo upload process uploads photos to Flickr or an FTP server. It is activated by a trigger signal, submitted from the rendering process branch.

2.3 Application content and filters

As already introduced, the KVP is a versatile application which only provides basic rendering functionality; it does not keep content (photos and videos) or application specific image processing filters. The content and filters are part of the extension module that changes for every single application that has been realized. This content and the image manipulation filters are executed in the activity labeled as "content," Figure 10. From a technical point of view, every application provides a new scene graph with new photos or videos and new filter functions.

The following subsection explains the different applications that have been realized with the KPV. Note, the names of the subsections are the technical C++/Cocoa code project names used in XCode. The application names are Time, Location, Clarity, and Frame.

2.3.1 Time Lapse Video / Time and Location

The Time Lapse Video application allows the user to navigate through a video stream by using the user's body position. This position indicates the current frame that is rendered on display. The application names of Time Lapse Video are Time and Location. Both are an instance of Time Lapse Video and utilize different Kinect and interaction settings.

Input

A video (.mov) is the input data. The video should not exceed 15 seconds since the length is manually limited to 500 frames. A higher number of frames is theoretically possible; it would require additional software tests.

Initialization and Representation

All images inside the movie file are loaded and stored as image stack in the main memory (Figure 5). The current image, indicated by \( i \), and the next 15 images in both directions are stored as raw image files. All other images are compressed (.jpg) in order to save main memory.
Interaction

The user can either move in forward/backward direction or lateral from left to the right end of the view frame or vice versa in order to navigate through the video sequence. The hip-position of the user is linked to the index $i$. As soon as the user moves, all images between his/her old position $i_{old}$ and the new position $i_{new}$ are shown on screen, thus, the user sees all photos between the old and new position in a fast iteration. The application also uncompresses the next 15 images into both directions from the new user position immediately when the user moves.

2.3.2 Multi Focus / Clarity

The Multi Focus application allows the user to change the focus point of an image. From a technical perspective, the application is realized as a blending application that blends between two photos. Both photos show the same content, however, they show different points in focus. Interactive blending between both photos in addition with a blur filter appears as a smooth transition on screen. This appears as changing the focus point. The application name of Multi Focus is Clarity.

Input

The input is a set of either four or six images of the same scene with different objects in focus. The distance between the objects in focus should be similar in order to achieve a steady transition when changing the focus point. The images must have the same resolution which should not exceed 1920x1080 pixels.

Initialization and Representation

The images are represented as image stack; each image is associated to a number in the range between 0 and 255 where the first image is associated to 0 and the last image is associated to 255. The current view position of the user is associated with the index $i$. 

Figure 11: Principle of the Time Lapse Video application
The photo that appears on display is a blend of the two images closest to the index $i$. The photos are blended considering the distance ratio $r_1$ and $r_2$ between both images. In addition, a Gaussian blur filter is applied to both images, which also considers the distance ratio between the indices of both images.

Interaction

The user can move in forward/backward direction to navigate through the image stack. The hip-position of the user is linked to the index $i$, which changes the current view position of the user. Two new images are selected as soon as the user position changed and a new output image is generated.

2.3.3 HighResZoom / Frame

The HighResZoom application is a photo viewer that allows to navigate a view window inside a large, high-res panorama photo in order to select a subarea of the panorama window to be shown as output. From a user’s point of view, this appears an image zoom as well as a movement along the horizontal and vertical image axes. The application name of HighResZoom is Frame.

Input

The input is one high-resolution jpg image with a maximum resolution of 10800x1680 (more may be possible, however, it would require additional tests).

Initialization and Representation

The image is represented as an image texture on a quad, an OpenGL primitive. The entire image is loaded into the graphics hardware memory. The view window, in particular the four corners are represented as image coordinates.
Interaction

The user can change the size and the position of the view window by changing the image coordinates. The distance between the user and the Kinect video camera is associated to the size of the view window. The horizontal position of the view window is tied to the lateral viewer's position. The user can control the vertical position with his/her right and left hand: an up or down movement of the right and left outstretched arms moves the view window up/down.

2.4 Pre-requisites

The KPV application relies on the following programs that must be installed in advance:

- OpenSceneGraph 3.x, 64 bit, a scene graph framework available at http://www.openscenegraph.com
- OpenCV 2.4, 64 bit, a computer vision programming framework available at http://opencv.org
- freetype, a software package to render fonts, available at http://www.freetype.org or via homebrew.
- curl, libcurl, a command line tool to transfer url text strings. libcurl is the related programming framework that allows to execute url strings in C/C++ applications. It is available at http://curl.haxx.se or via homebrew.

All programs (except OpenCV and OpenSceneGraph) can be installed manually or via homebrew. Homebrew is a software package manager for Mac OS X. It facilitates the installation of software and programming frameworks and simplifies the update. Homebrew is presented at http://brew.sh and can be installed by executing a ruby command:

```
ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/homebrew/go/install)"
```

Note, all programming frameworks must be installed as 64 bit version. Homebrew installs all packages as 64 bit version by default.
4 Wall Hub / Decisions

The WallHub - or Decisions, which is the application - software architecture is presented is Figure 14. The application incorporates two main software modules: the PhotoManager and the WallHubRenderer.

The PhotoManager module is responsible for photo file and ranking list management as well as for the communication with Flickr. The main data storage is an associative container referred to as database that stores the photo metadata such as the photo key, the download url, the votes, the image size, etc. It is a local mirror of the Flickr database and keeps the same data as Flickr; it speeds up the photo file management and prevents numerous Flickr API queries (which would be impossible since Flickr limits the number of queries to 3600 per hour).

The PhotoManager module maintains the two ranking lists in order to identify the newest images and the images with the highest votes. To generate these list, it fetches all data from the database and represents them as a list. The list is sorted twice. The first time according to the upload time, the second time with respect to the votes. Both ranking lists are updated as soon as the second module, the WallHubRenderer, queries ranking list data.

![Figure 14: Software architecture overview of WallHub](image)

The PhotoManager module also keeps the communication line to Flickr. The communication incorporates the continuous updates from Flickr (all 20 seconds) and the submission of votes to Flickr. An https interface is maintained that allows submission of Flickr API requests to Flickr and reception of a response from Flickr. Every request is encoded as https text string; an answer is received in XML format.

This module is also responsible for downloading the photo files from the Flickr photo farms. The Flickr API provides the photo url, the online address of a photo at one of Flickr’s farms; it does not provide the photo image files. The PhotoManager downloads the top 50
photos of every ranking list, tests the image files, and maintains them in a photo folder on hard disk. Only photos that are available in this photo folder are selected to be shown in one of the photo tiles. Photos that did not pass the test are removed from the ranking lists; they appear again after the next database update.

Two programming interfaces are available to provide the first $n$ time rankings, the first $m$ vote rankings, and the photo metadata, where $n$ and $m$ are the number of photos that should appear from each ranking list on the photo tiles. The PhotoManager also provides an interface to accept votes.

The WallHubRenderer module is the visible part of the WallHub application. The main capabilities are to maintain the photo tile instances and the photo tiles’ layout, to update the photo tiles with new photo files, to listen to the keyboard in order to notice votes, and to submit votes to the PhotoManager module. It also selects the ranking list from which the next photo for a photo tile should be fetched. The photo tiles can be considered as independent photo viewer instances. Their only functionality is to show photos on screen and to swap between photo image files, which are kept in a photo queue. Every photo tile keeps a minimum of two images at the same time; one image that is on display and one hidden image. During an update cycle, only the hidden image is replaced. The role of both images changes during the update cycle of the photo tiles.

The WallHubRenderer main activity is to update the photo tiles, the rendering output, in the sequence as follows: first, it triggers the update of the display. Second, it assigns a new photo to a photo tile and third, it updates the user votes.

The user triggers the update via a keyboard, and the WallHubRenderer receives this update and coordinates several activities that control the update process. The first activity is to trigger the update of the photo tiles. This swaps the images; the hidden images becomes the image on display and vice versa.

Second, the hidden images are updated; the current image is substituted with a new image. The new photo is fetched from one of the two available ranking lists. The WallHubRenderer selects the ranking list and assigns a photo to one of the photo tiles. This process involves four activities, which are carried out for all photo tiles on one display (note, two displays can be independently operated). 1) The WallHubRenderer module decides which ranking list to be selected, the votes ranking list or the upload time ranking list. A ratio counter is used for this purpose: the PhotoManger counts how many photos of each ranking list have already been on display. It tries to keep a certain ratio between images or both lists and selects the list that helps most to maintain this ratio. 2) It fetches the selected ranking list from the PhotoManager module. 3) It queries the first $n$ images, where $n$ is the number of photo tiles on display, loads the photos into the main memory (note, the photos must be available; it is responsibility of the PhotoManager to assure this) and removes their key from the ranking list. 4) The image and the photo metadata are passed to a photo tile. Step 4) is repeated until all photo tiles of one display have been updated.

At last, the WallHubRenderer reads all votes and submits them to the PhotoManager. The WallHubRenderer keeps all votes in a list. A list entry is created when the user votes for one of the photos on display via keyboard. The WallHubRenderer listens to the keystrokes and processes the data. The list entries are removed after they have been submitted to the PhotoManager.

In addition to the already described functions, both modules provide several additional functions whose introduction would exceed the scope of this documentation.
These functions are maintenance functions, logging functions, and several support functions that are necessary to time animations, conflict free data access, as well as to maintain the local database. For research purpose, the WallHub application collects statistical data about the usage of the application and the votes. It does not collect personal data or photos of any user.
APPENDIX C

REFLECTION

EXPECTATIONS AND OBSERVATIONS FROM CONSTRUCTING REALITIES

Often success is measured through quantitative benchmarks but in the case of this interactive exhibition I have broken down success into two qualitative categories: achievement of expectations and participant reaction. Both are necessary because while the majority of my own preconceived expectations might be met, the audience response might be far outside the intended reaction to the work. Thus, the show’s execution could be in line with the vision of the piece but the underlying message may be out of sync with the material. With this in mind the following addresses the success of the Constructing Realities exhibition held in June 2014 at Hansen Hall in Madrid, Iowa.

A crucial component of the expectations for Constructing Realities was my ability to attract and address the intended target audience. As discussed in Chapter Four’s subsection Audience and Presentation, I chose to concentrate on teenagers and their parents. I did so because these two groups both take the greatest number of photos and yet admittedly think the least about the implications photography has for themselves or others. This goal was reached, because over half of the attending people were either teenagers or parents of teenagers.

Early in the development of Constructing Realities expectations regarding the ease of interaction were developed to help guide the construction of the exhibition. The major interactions of Time, Clarity, Frame and Location should be intuitive and easy to explain. Throughout the development of these four pieces the primary actions were finally limited to two per piece: 1) participant movement and position perpendicular and/or parallel to the screen and 2) a “high five” position with one’s right palm towards the screen, which participants held for two seconds to capture a still image of the current screen. As mentioned in the Mechanics section of Chapter Four, parallel and perpendicular body movement and position were the way participants controlled the various elements of photography addressed through each piece. The right-handed high five sequence was used by each piece and was more specific because it engaged the image capture function. During the exhibition, the “high five” action presented the most issues. To limit accidental image capture the space in which this action was recognized was limited to a space in front of the participant that starts at the top of his/her head, down to the navel. Anything that fell outside this zone did not result in an image capture.

In testing, if the participants were told to imitate a right-handed high five toward the screen the success rate on the first or second attempt was quite high, even if the participants were not told precisely where their hands needed to be with regard to their bodies. During the exhibition, however, the success rate was much lower, resulting in a significant increase in the need for the show’s attending personnel to provide supplemental directions. This rise in necessary explanation was unexpected and fell outside established expectations. Further refinement and perfection of the trigger for the image capture function is needed going forward.
The final major set of expectations revolved around viewer understanding and reactions. The vast majority of my expectations concerning how individuals processed *Constructing Realities* and what they took away from the exhibition were met. Prior to the exhibition it was understood that a percentage of the audience was at risk of overlooking the show’s message about the power of photography, but that an example using direct application of the impact of these ideas could help significantly. This knowledge resulted in crafting two simple and effective sets of examples, one for each of the chosen demographics. For the teenage population the example revolved around Facebook, while the parents often identified with an example using advertising. The Facebook instance presents the teen with a common example: someone you know to be one person online is another in real life. Those adults who did not identify with the Facebook illustration did identify with the effect ads can have: an ad shows a happy family using product X, insinuating that the product is integral to the family’s happiness and the viewer too could have that happiness, even when the viewer knows that not to be true. While I did not use the examples as often as I had expected, the two proved helpful in grounding the ideas presented in the show back to the participants when needed.

As defined earlier the second component to success is the audience’s cumulative response to *Constructing Realities*. In this case the reflections of the crowd are easiest to divide into two camps based on their final reactions and discussion of the exhibition. One group of viewers went through each piece and read all of the accompanying material. After *Decisions*, this type of participant often discussed both the elements of photography and the idea of photography’s control over perceived realities with myself and other participants. The other group also went through each piece but did not read the majority of the material provided. Thus, after *Decisions* the conversation between myself and individuals of this second group rarely progressed beyond the visual impact of the various elements of photography.

A limiting factor with regard to the number of participants in second group was the unexpected assistance they received from those in the first group. People who had read and understood both parts of the exhibition’s message often discussed their findings with others who had not understood both aspects. Because both the reinforcing examples and the participants’ reactions were well within the predicted goal and expectations I deemed these aspects successes. Also both are significant in helping participants to achieve a higher level of overall comprehension.

Overall, according to the rules established at the beginning of this appendix, the first exhibition of *Constructing Realities* was a success. However, there are always areas to be improved. The following suggestions are a result of both visual observation and limited participant questioning.

Based on a general participant survey, the pieces which received the greatest and least amount of participant interaction were *Time* or *Location* and *Clarity* respectively. *Time* and *Location* received the greatest number of participants, which appeared to be based on the particular content of the pieces at a given time. While this helps prove the importance of content, it fails to answer why *Clarity* was unable to attract equal attention.

Another observation that will likely lead to changes is the strong correlation between reading all of the instructional material and understanding the intent of the exhibition. While more analysis is needed, I have identified two approaches to solving the issue through preliminary testing. The first solution is to make some degree of preparatory instruction an
integral part of each piece before it becomes activated. Second would be to simplify the procedures, eliminate the majority of instruction, and rely on minor visual instruction and participant exploration. More testing is needed with regard to both before a definitive answer can be reached.

Overall, I regard the initial exhibition of *Constructing Realities* as a success. The exhibition met the majority of established expectations. Over 60% of participants left with an expanded understanding of the elements of photography; and most also came to understand the medium’s impact on their perception of reality.
NOTES

1 The show was a collaborative exhibition highlighting a number of prominent photographers such as Walker Evans and Paul Strand. The goal of the show was much the same as Szarkowski’s accompanying essay, to show that photography was art.

2 Within *The Photographer's Eye*, Szarkowski uses the example of war photography to illustrate the idea of the whole of reality versus the detail. While most believe the images of the American Civil War to be accurate representations of the reality, each image is only a detail of a larger entity. Each photo depicts something specific to that reality, often representative of a symbolic theme/idea, but without context the images cannot successfully illustrate the reality.

3 While context is often needed to clearly explain most photos, the elements in focus within the image are of equal importance. In this sense, what is in focus is the most important because it can be clearly made out. This further raises the prominence of the symbols in focus versus those other elements, which are of lesser importance as they recede in clarity.

4 Please see the section titled *Etienne-Jules Marey and Eadweard Muybridge* within chapter three for a more detailed explanation.

5 Please see the description of *Decisions (choice)* in chapter four for more details.

6 Windows Phone 8 has a mode titled “Burst Mode” which allows the user to review the moments before and after the photograph at any time (Ponder).

7 In discussing the changes of society and culture due to industrialization, Baudrillard is working from a base established in part on Walter Benjamin’s *Work of Art in the Age of Mechanical Reproduction*.

8 All media representing a reality alters the reality to allow others to understand that reality. Just as newspapers are selective on what is run, social media is individually selective as to what and how information is passed along, further altering the passage of information.

9 From this point onward photography is used instead of restating ‘photography and cinematography’ due to focus of this thesis. Anywhere within this section where photography is referenced in conjunction with the ideas within *The Work of Art in the Age of Mechanical Reproduction*, it is done so not to discount cinematography from Benjamin’s argument, but instead is done to focus this section.

10 Ancient Greek philosopher Plato discussed the ideas of reality versus perceived reality and illusion in the section known as *Allegory of the Cave* in his book *The Republic*. In *Allegory of the Cave*, Plato used a metaphorical cave to help differentiate between what is real and what is perceived as reality (Plato). In this example a group of prisoners are placed in a row facing one wall of the cave onto which a light is cast from a fire lit above. In-between the prisoners and the fire is a road, and as things and people pass along this road their shadows are cast.
onto the wall. Because the prisoners can only see the wall and hear what is passing along the road their reality consists of a reference to, rather than an actual, reality. This means that the prisoners are removed from the actual reality beyond the cave (Cohen).

11 While the topics of the two pieces are different, this idea of the photo becoming invisible has a strong connection to Barthes’ earlier Post-Structural essay “Death of the Author.” In a similar fashion as presented in *Camera Lucida*, Barthes argues that the consumption and interpretation of the written word is individual. To properly interpret the work one must rid the text of the author and all systems, which support the importance of the author (e.g. the system of literacy critics).

12 According to Utterback’s writing, these fixed physical elements correspond to aspects in our memory, allowing the *Liquid Time* series to also open discussion about the idea “that personal and cultural memory have a physical component [which are] subject to the unpredictable nature of decay” (Camille, "Liquid Time Series"). While these ideas related to memory may step beyond the standard ideas Utterback discusses in her other early work, they do provide an additional area of exploration. Additionally, these stationary elements comment on fixed nature of certain aspects of our reality and the relative transient nature of others.

13 Digitally replicated sand was likely picked because it displayed a number of common elements across many of ChopChop’s pieces. This sand was not only digitally generated but helped create a sense of space, place and time.

14 Instead of using the traditional academic re-photograph, where a side-by-side presentation of the historic photo and contemporary images is used, Klett and Wolfe often elect to overlay a smaller more focused historic image on top of the wider contemporary scene.

15 Susan Sontag commented on this in *On Photography* by stating, “Today everything exists to end in a photograph” (Chapter 1).

16 The word “others” is an inclusive term, ranging from effects that strangers in or near the scene have, to the cultural norms that control the individual’s ideas of what is appropriate to photograph.

17 In photography a change in vantage point requires physical movement. Even if the movement is vertically oriented, and one changes perspective from that at ground level to several feet in the air, physical movement is required, just as it is in *Location*.

18 How the vantage point in the scene changes dictates what particular participant movement controls *Location*. If the change in vantage point of the scene moves laterally around an object, like that of the Iowa State Capital building, the parallel movement of the participant to the screen directs the specific vantage point in view. If the vantage point of the scene displayed moves linearly toward or away from the scene, the participant’s perpendicular movement toward and away from the screen then controls the specific vantage point in view.
One of Sontag’s underlying themes in *Regarding the Pain of Others* is to show the juxtaposition between how a conflict is captured in an image and the reality of that conflict. The image inherently softens and distorts the impact of the event because it can never fully illustrate the reality of that trauma (Sontag Regarding the Pain of Others).

**API:** Application Programming Interface

Apple purchased Prime Sense, the company that operates OpenNI, and shut down the OpenNI webpage and also suspended further development programs. The last version of OpenNI is still available but advances cannot be expected.
WORKS CITED


"The Treachery of Images (This Is Not a Pipe) (La Trahison Des Images [Ceci N'est Pas Une Pipe])." *Los Angeles County Museum of Art.* LACMA Collections. Web. 29 June 2014.


