

**VISUAL COMMUNICATION OF MOOD THROUGH AN  
ESTABLISHING SHOT**

A Thesis

by

**RADHIKA THIRUNARAYANAN**

Submitted to the Office of Graduate Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of

**MASTER OF SCIENCE**

December 2005

Major Subject: Visualization Sciences

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Approved by:

Chair of Committee,	Karen Hillier
Committee Members,	Ergun Akleman
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**ABSTRACT**

Visual Communication of Mood through an

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Chair of Advisory Committee: Prof. Karen Hillier

Visual storytelling has come a long way since primitive man began creating colorful, narrative cave paintings. In this new age of technology, motion pictures have become a prevalent medium for visual storytelling throughout the developed world. Filmmakers have the added advantage of being able to create more and more fantastic settings and stories with the introduction of computer generation images (CGI). They also gain a fine degree of control over the visual elements of the final product. The ultimate goal, though, has always been the same: to create a visual story with a distinct mood that will captivate the viewing audience. In film, the first shot of a scene, known as the establishing shot, is used not only to set the time and place of the story, but also introduce the mood. This thesis involves the study of establishing shots from five contemporary films to determine how to manipulate specific visual elements that promote mood, specifically a dark and ominous mood. Through this study, an original computer generated establishing shot will be created that successfully communicates a similar dark mood. The visual analysis used to achieve this goal can be adapted to various other genres of film and can serve as a guide for future artists to create comparable work.

To my family

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## TABLE OF CONTENTS

CHAPTER	Page
I	INTRODUCTION ..... 1
	I.1.    A Brief History of Visual Storytelling..... 1
	I.2.    Mood and the Establishing Shot in Film..... 10
	I.3.    Level of Predictability in Audience Reaction..... 11
	I.4.    Artistic Intent and Objectives ..... 12
II	VISUAL ANALYSIS ..... 13
	II.1. <i>Sleepy Hollow</i> ..... 13
	II.2. <i>Blade Runner</i> ..... 15
	II.3. <i>Underworld</i> ..... 17
	II.4. <i>Dark City</i> ..... 21
	II.5. <i>Apocalypse Now</i> ..... 24
III	METHODOLOGY ..... 27
	III.1.    Characteristics of a Dark, Ominous, Mood..... 27
	III.2.    Visual Elements ..... 27
	III.2.1.    Lighting and Atmosphere..... 28
	III.2.2.    Color ..... 31
	III.2.3.    Models and Symbolic Content..... 33
	III.2.4.    Textures..... 34
	III.2.5.    Camera ..... 35
IV	IMPLEMENTATION AND RESULTS ..... 38
	IV.1.    Setting up the Visual Elements in the Environment ..... 38
	IV.2.    Evaluation of Results ..... 57
V	CONCLUSIONS AND FUTURE WORK ..... 58
	V.1.    Conclusion ..... 58
	V.2.    Implications for Future Research..... 58
	REFERENCES ..... 60
	VITA ..... 64

## LIST OF FIGURES

FIGURE		Page
1	“Chauvet Cave, Lions hunting Bison,” ca. 30,000 B.C. ....	2
2	Cosimo Tura, “Assumption of the Virgin in an Initial A,” ca. 1470–80 ....	2
3	“Christ Giving the Keys to Peter,” stained glass, ca. 1315 .....	3
4	Michelangelo, “The Creation of Adam,” 1509-1512.....	4
5	Caravaggio, “The Conversion of Saint Paul,” 1601 .....	5
6	Photograph of a Cinématographe, The Smithsonian Institution, 1995 .....	6
7	Photograph of a Kinetoscope, 1895 .....	7
8	Still example from <i>Star Trek: The Wrath of Khan</i> , 1982.....	8
9	Still example 1 from <i>Final Fantasy: The Spirits Within</i> , 2001 .....	8
10	Still example 2 from <i>Final Fantasy: The Spirits Within</i> , 2001 .....	9
11	Still example from <i>The Sum of all Fears</i> , 2002 .....	9
12	Still example from <i>Sleepy Hollow</i> , 1999 .....	14
13	Still example from <i>Blade Runner</i> , 1986.....	16
14	Still example 1 from <i>Underworld</i> , 2003 .....	18
15	Still example 2 from <i>Underworld</i> , 2003 .....	19
16	Still example 3 from <i>Underworld</i> , 2003 .....	19
17	Still example 4 from <i>Underworld</i> , 2003 .....	20
18	Still example 5 from <i>Underworld</i> , 2003 .....	20
19	Still example 1 from <i>Dark City</i> , 1998.....	22
20	Still example 2 from <i>Dark City</i> , 1998.....	22
21	Still example 1 from <i>Apocalypse Now</i> , 1979 .....	25
22	Still example 2 from <i>Apocalypse Now</i> , 1979 .....	25

FIGURE		Page
23	Still example 3 from <i>Apocalypse Now</i> , 1979 .....	26
24	Value distribution in a blurred still from <i>Blade Runner</i> .....	29
25	Value distribution in a blurred still from <i>Underworld</i> .....	29
26	Value distribution in a blurred still from <i>Dark City</i> .....	30
27	Antoni Gaudi, Photograph 1, Sagrada Familia, 1883 .....	39
28	Antoni Gaudi, Photograph 2, Sagrada Familia, 1883 .....	40
29	Antoni Gaudi, Photograph 1, Casa Batlló, 1905.....	41
30	Antoni Gaudi, Photograph 2, Casa Batlló, 1905.....	41
31	Photograph 1, the ruins of Angkor Wat in Cambodia, 12 <sup>th</sup> century.....	42
32	Photograph 2, the ruins of Angkor Wat in Cambodia, 12 <sup>th</sup> century.....	42
33	Photograph 3, the ruins of Angkor Wat in Cambodia, 12 <sup>th</sup> century.....	43
34	Full view of models in the environment .....	44
35	Close-up of the stone pillar and window grill.....	44
36	Close-up of the main structures .....	45
37	Side view of the main structures .....	45
38	Close-up of the scarab model.....	46
39	Screen capture 1 from first camera .....	47
40	Screen capture 2 from first camera .....	47
41	Screen capture 1 from second camera.....	48
42	Screen capture 2 from second camera.....	48
43	Textured still 1 from first camera .....	49
44	Textured still 2 from first camera .....	50
45	Textured still 1 from second camera.....	50



FIGURE		Page
46	Textured still 2 from second camera.....	51
47	Example of color map used to shade a root in the scene .....	51
48	Example of displacement map used to displace root surface.....	52
49	Example of specular map used to enhance root highlights .....	52
50	Value distribution in a blurred frame from the first shot .....	54
51	Value distribution in a blurred frame from the second shot.....	54
52	Composite image 1 from the first shot.....	55
53	Composite image 2 from the first shot.....	55
54	Composite image 1 from the second shot .....	56
55	Composite image 2 from the second shot .....	56

## CHAPTER I

### INTRODUCTION

#### I.1. A Brief History of Visual Storytelling

Visual communication is described as the communication of information through a visual medium. Throughout history, storytellers have used visual mediums to tell stories and captivate audiences. This “visual storytelling” began with primitive man, who created magnificent cave paintings of giant beasts and great hunts, which now serve as a record of his life and times. Chauvet cave, discovered in 1994 in southern France, tells the story of survival in the Paleolithic Era. The walls of the cave show several panels of artwork with lions and bison (see Figure 1). As archeological record shows lions to be among the top predators in the area, to depict them as the dominant figure in a painting, suggests a degree of respect and admiration for them.

The Dark Ages brought civilization, religion, and many more examples of visual storytelling. The church held immense power over the illiterate masses. The select few that were fortunate enough to receive a proper education were often in the service of the Christian church. These monks and scribes painstakingly created many illuminated manuscripts page by page to educate the general public about the teachings of the Bible. For example, the “Assumption of the Virgin in an Initial A” (see Figure 2), created circa 1470-1480, shows the twelve Apostles surrounding the Virgin Mary as she ascends to heaven. Other methods of teaching the public included commissioning architects to create

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This thesis follows the style of *IEEE Transactions on Visualization and Computer Graphics*.

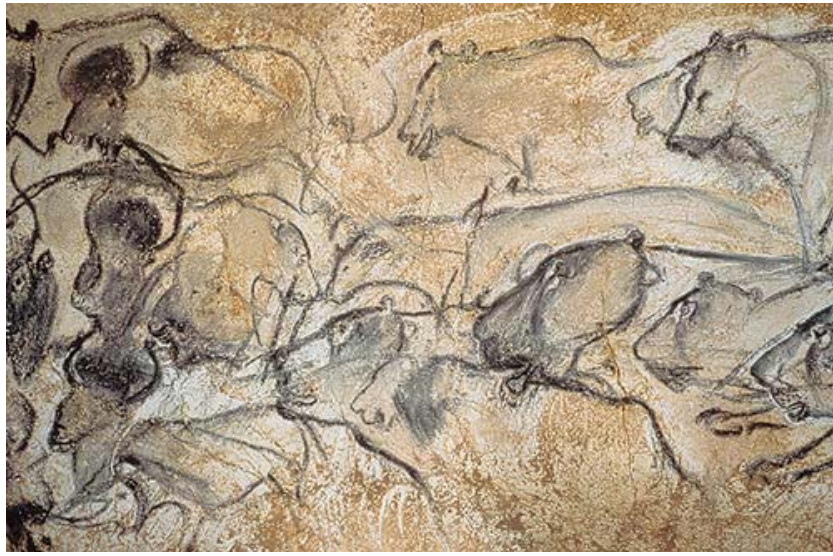


Fig. 1. “Chauvet Cave, Lions hunting Bison,” ca. 30,000 B.C. [1]



Fig. 2. Cosimo Tura, “Assumption of the Virgin in an Initial A,” ca. 1470–80 [2]



Fig. 3. “Christ Giving the Keys to Peter,” stained glass, ca. 1315 [3]

elaborate stained glass windows for the church. Created circa 1315, “Christ Giving the Keys to Peter” shows Peter, the first pope, receiving the key to the Kingdom of Heaven (see Figure 3). This served to emphasize the connection between Jesus Christ and the Catholic Church. In addition, people could view these stories on stained glass from inside and outside the church.

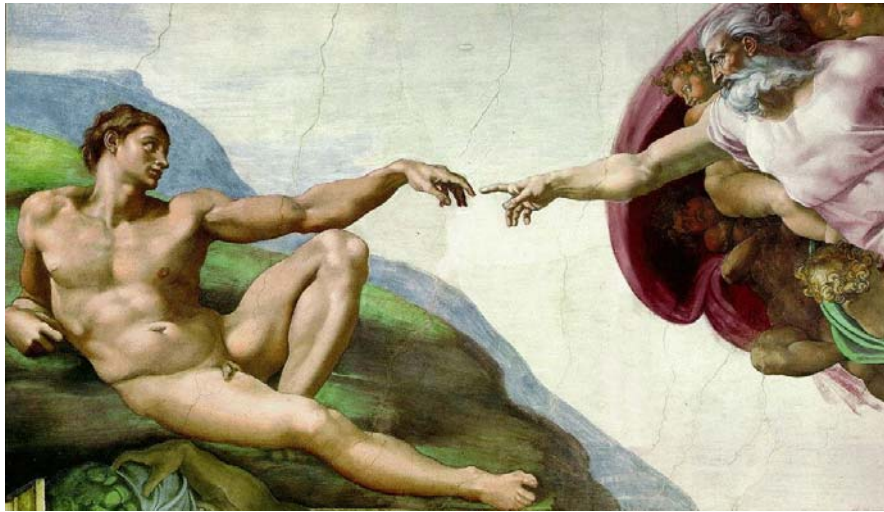


Fig. 4. Michelangelo, "The Creation of Adam," 1509-1512 [4]

In the early 1500s, at the insistence of Pope Julius II, Michelangelo began work on the fresco for the ceiling of the Sistine Chapel. By the time of its completion, the artist had painted more than 3000 apostles and captured nine stories of the Old Testament at the center. "The Creation of Adam" is one of the most popular of these visual stories (see Figure 4). In 1601, classical baroque painter, Caravaggio, painted the "Conversion of Saint Paul." He often selected lofty religious themes for his paintings and presented them with a sense of realism that appealed to the public. Paintings of pious saints were more believable and influential when they were depicted as common men. The dramatic lighting and bold colors in this painting draw the audience to the muscular horse and the prone figure of Saint Paul with his outstretched arms reaching to the heavens (see Figure 5). With more attention given to the visual composition, the stories became more believable and real.

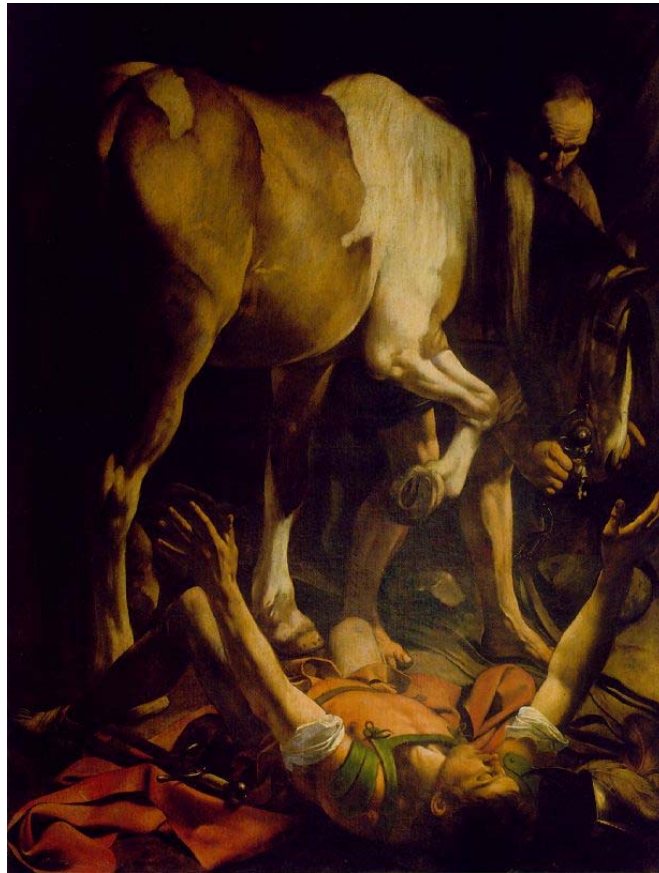


Fig. 5. Caravaggio, "The Conversion of Saint Paul," 1601 [5]

By the late 1800s, still photography had gained in popularity. Inventors such as Thomas Edison and the Lumière brothers were perfecting new and more innovative methods to capture images. In 1895, a sequence of static images was shown consecutively through a crude camera, which doubled as a projector, and the motion picture was born [6]. This portable device, known as a cinématographe, was among the first to allow more than one viewer at a time (see Figure 6). Earlier models, like the kinoscope, first presented to the public in 1891, required individuals to view the action through an aperture (see Figure 7).



Fig. 6. Photograph of a Cinématographe, The Smithsonian Institution, 1995 [7]



Fig. 7. Photograph of a Kinetoscope, 1895 [8]

Over the last century, film has gradually grown into a new art form [9]. It has been used to tell stories, teach valuable moral lessons, and even sway public opinion. With literacy percentages increasing worldwide, film could also be used purely for entertainment rather than a didactic tool. In recent years, cutting edge, computer-generated imaging (CGI) has become more prevalent in films. From *Star Trek: The Wrath of Khan* in 1982, with the first all-digital computer-generated sequence (see Figure 8), to *Final Fantasy: The Spirits Within*, a fully CG photo-real tale created in 2001 (see Figure 9 and Figure 10), filmmakers have begun turning to computer technology to create new and more amazing



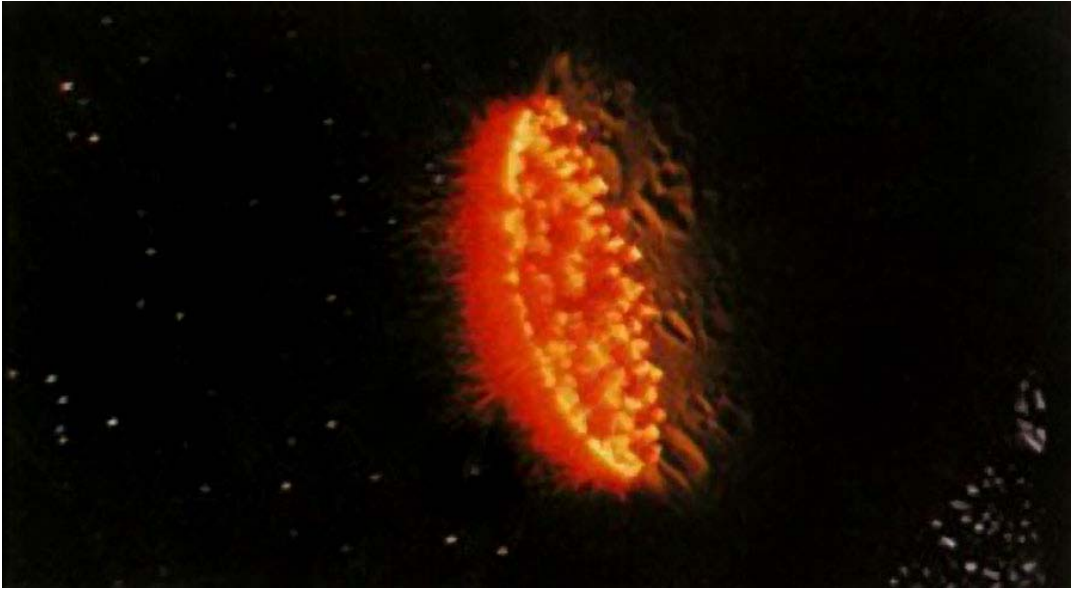


Fig. 8. Still example from *Star Trek: The Wrath of Khan*, 1982 [10]



Fig. 9. Still example 1 from *Final Fantasy: The Spirits Within*, 2001 [11]



Fig. 10. Still example 2 from *Final Fantasy: The Spirits Within*, 2001 [11]



Fig. 11. Still example from *The Sum of all Fears*, 2002 [12]

stories. For example, it would be practically impossible to physically create and film a nuclear explosion in a crowded metropolitan area, but a computer generated one worked wonders in the 2002 film adaptation of *The Sum of all Fears* (see Figure 11). With a finer level of control over the visual elements in a film, computer aided filmmaking has permeated all genres. Even television commercials have employed digital effects to sell their wares. However, in the end, the effectiveness of visual storytelling through these visual mediums depends on the creativity of the storyteller and the impact on the audience. Regardless of the medium, the ultimate goal is to draw the viewing audience into the story and make them believe it [13].

## **I.2. Mood and the Establishing Shot in Film**

By the end of the silent film era in the late 1920s, “talkies,” or films with synchronized soundtracks arrived in Hollywood. With the addition of sound, motion pictures slowly became a popular medium for visual storytelling in the western world and Europe. Just as written story types could be classified by content, films could also be classified into identifiable genres. On the same note, just as a single book can belong to more than one genre, so can a film. Furthermore, these genres can themselves be separated into sub-genres each with its own distinct thematic properties [14]. Regardless, every genre brings with it a set of conventions based on content and form, which can lead to the establishment of mood [15].

The dictionary defines mood as a conscious state of mind, the predominant emotion, and the expression of the same in art or literature [16]. The mood of a story is fundamentally linked to the intentions of the storyteller. The storyteller must arrange a sequence of images in such a way that the audience is captivated by the story and has an

appropriate response to the mood. In the medium of film, the images are grouped into scenes based on key events in the story. The first shot of a scene, known as the establishing shot, is very important because it gives the audience several clues that reveal important characteristics of the story. It can describe not only the time and place in the scene, but also introduce the mood.

### **I.3. Level of Predictability in Audience Reaction**

It is important to note that while mood can be an extremely subjective topic to analyze, it brings with it very distinct human reactions. Certainly, reaction to an environment will vary from person to person. Factors such as social circumstances and personality can affect the outcome. However, there are other factors such as physiology and culture that are shared between individuals [17]. So, to a certain extent, audience behavior can be predicted.

The branch of science that deals with the interaction between humans and their physical surroundings is known as environmental psychology. Studies in this field have lead to the development of probabilistic models that help predict human responses to the environment. This area of study within environmental psychology, known as behavioral geography, tries to map values, meanings and preferences to the immediate surroundings [18]. The Brunswik probabilistic model, in particular, tries to determine behavior on two levels; instinctual and cognitive. The rapid, initial response to the environment is purely instinctual and based upon the visual perception of its physical properties. The slower, cognitive reaction, though not necessarily based on conscious thought, does involve recognition of symbols and content [17]. Such ideas can be used to make informed predictions about how audiences will react to their physical surroundings. As the primary

goal of visual storytelling is to captivate the audience, these predictions can be used to judge the effectiveness of a story's intended mood.

Just as the visual components in the environment can affect the mood, auditory input can also have a profound impact on it. For example, a piercing scream or a loud explosion can have a very different effect on people than a recital of *Spring* by Vivaldi. Auditory input can work with or against the visual elements in the environment depending on the intent of the storyteller. It can also allow the audience to make inferences about the story. Since the focus of this thesis is primarily on the visual communication of mood, the analysis of the effects of auditory elements within the environment is left to future artists.

#### **I.4. Artistic Intent and Objectives**

The establishing shot not only provides the location and time of the scene, but also helps introduce the predominant mood. This research will involve the study of establishing shots from five contemporary films to determine how to manipulate specific visual elements that promote an eerie, foreboding feeling. Through this study, an original computer generated establishing shot will be created that successfully communicates a similar dark ambiance.

The process of producing a 3D computer generated shot that can achieve the above-stated goal begins with the creation of a location, and selecting a time. Then, visual elements such as modeling, lighting, texture, color, and camera placement, will be laid out. Created using tools like *Alias Maya<sup>TM</sup>* and *Adobe AfterEffects<sup>TM</sup>*, these elements will serve to establish a dark, ominous mood throughout the establishing shot.

## CHAPTER II

### VISUAL ANALYSIS

The visual components of the establishing shot, while having a powerful impact on mood, are not necessarily the only factors that can affect it. The plot of a story can also play an important role in conveying the mood to the audience. Based on the conditions in the story, the members of the audience, as involved, sympathetic viewers, can be expected to have some predictable reactions as they watch the film. The visual look of an establishing shot can be used in addition to a descriptive plot, to support these reactions. The following examples are visual analyses of five establishing shots from contemporary films. The films were chosen from the genres of horror, science fiction, suspense, and drama, as they are more likely to successfully depict a dark and ominous mood. While the plot leading to the establishing shots will be mentioned, the analysis mainly discusses the lighting, colors, textures, modeling, and cameras in the shots and how they lead to the resulting dark mood. The final product of this thesis, an original computer generated establishing shot, uses variations of the visual techniques used in these shots to promote a similar mood.

#### **II.1. *Sleepy Hollow***

*Sleepy Hollow* (1999), a remake of Washington Irving's original story penned in 1819, begins with an establishing shot of a small village. Constable Ichabod Crane arrives in a horse-drawn carriage and makes his way on foot into the center of the village (see Figure 12). The quaint, rural setting and time period are established by the small wooden homes with chimneys and thatched roofs, and the small herd of sheep by the main path. A cemetery with several gravestones lies beyond the left wall. Flanking the gravel walkway



Fig. 12. Still example from *Sleepy Hollow*, 1999 [19]

are two cobblestone pillars mounted with stone deer heads. The mood is perceptibly suspenseful and eerie.

Immediately noticeable is the palette and its lack of any bright colors. In this overcast setting, colors become extremely muted and the soft quality of light produces little or no shadows. And without strong shadows or direct sunlight, the time of day becomes ambiguous, which can be disconcerting. Also noticeable is the light blue cast over the scene. Without the sun to add warmth or hue, the scene appears dead and uninviting. The textures on the thatched roofs, the grass, and gravel path are stark and gritty, suggesting a rough, crude environment. White smoke billows out of a chimney mixing with the hazy fog that obscures a dark, mysterious forest beyond the village. The village itself appears isolated in a clearing surrounded by the black trees. White text crediting the film's creators appears from time to time and seamlessly blends into the smoke in the background. This

eerie blending of the text and smoke enhances the ominous feeling already present. All these visual elements are combined together by a far camera, which shows the inspector walking up the gravel path, with the village and the trees beyond as a backdrop.

Beyond the initial visual effects, there are also several symbolic elements in this establishing shot from *Sleepy Hollow* that affect its mood. Death can be a macabre topic that can promote uncertainty, anxiousness, or fear simply because it is unknown territory; no one knows what lies beyond it. In this shot, several visual cues lend themselves as allusions to death. To enter the village, the inspector must pass by a cemetery filled with gravestones. This begs the questions, “who died?” or “how did they die?” with no answers readily available. The horns on the deer heads curve inward, resembling a ribcage in a human skeleton. The inspector, dressed entirely in black, a rather gloomy color, must traverse a lonely road to reach an equally deserted village. The lack of other humans in this shot, i.e. the lack of companionship, can be disturbing. This establishing shot from *Sleepy Hollow* can be described as a stylized gothic suspense story supported by the desaturated rural setting and the visual allusions to death [20].

## **II.2. *Blade Runner***

As *Blade Runner* (1982) approaches its climax, a lone character, Deckard, enters the Bradbury building in search of the deadly replicants and their human designer (see Figure 13). A camera, placed on one of the many corridors, strafes left as he warily enters the vast lobby far below. This high camera serves to show the overwhelming scale of the immense structure. Deckard appears miniscule in comparison, an inconsequential feature in the grand space. Lights from beyond the doorway shining into the lobby show him alone in the





Fig. 13. Still example from *Blade Runner*, 1986 [21]

building, isolating him in the deserted environment, and again pointing out his insignificance. This also creates a sense of depth in the shot by separating the dark corridor in the foreground from the brighter background. The intricate grillwork on the railing of the corridor and the vertical metal structures along the peripheral hallways become more apparent in silhouette. The repeating pattern on the railing draws the viewer's attention to them and then to Deckard, who appears directly behind them within the frame. The tall beams along the edges of the shot and the railing in the foreground frame the bright doorway in the center. The unwaveringly straight metal structures appear hard and unyielding. This arrangement of the architecture resembles a prison cell, possibly foreshadowing a trap laid out for Deckard. The moving camera lends an air of mystery to the shot as though someone may be covertly viewing Deckard's actions from the cover of

darkness. Concurrently, not being able to see Deckard's face or expression effectively hides his motives, again creating a sense of mystery and uncertainty.

A soft pale blue light located above, off-screen, shines down on the dust that has gathered in the old building. This reduces the color saturation and contrast in the area beyond the structures essentially reducing the visible details in the background [22]. This obscured view of the dark recesses of the Bradbury building promotes a feeling of apprehension in the shot. Deserted corridors along either side of the building are littered with trash, faintly visible in the shifting light. A general feeling of abandonment and neglect are prevalent. There are only a few isolated bright areas in the shot. In the dark corners, volumetric light beams from above quickly skim back and forth, momentarily highlighting the tall, intricate structures within the lobby. The amount of darkness suggests a night setting, making the shot appear more ominous. Without more light to properly illuminate the environment, danger could lurk anywhere in the shadows, waiting for Deckard.

### **II.3. *Underworld***

In the first of four consecutive establishing shots in *Underworld* (2003), a dark room is divided into two halves by a doorway leading outside to an ornate balcony. The camera moves towards a lone figure perched on the balcony, the tails of her long black coat billowing out behind her. Outside the narrow doorway, rain pours down and the elaborate crown of an opposite structure is visible. A small portion of a dreary night sky and a hazy line of city lights lies beyond the structure (see Figure 14).

The age of the building is apparent as intermittent lightning reveals the peeling paint on the inner walls. A pale blue light, possibly moonlight, highlights the figure and the



Fig. 14. Still example 1 from *Underworld*, 2003 [23]

structure beyond. As the majority of the setting is in darkness, this cold meager light barely reveals any detail except when the lightning flashes. The posture of the figure suggests that her point of focus lies far below. The camera is placed behind the character and slowly creeps forward towards her. As her face is not readily visible, her motives remain unclear. Similar to *Blade Runner*, this furtive camera promotes an eerie ominous feeling. The character's precarious positioning on the balcony at a possibly high altitude with very windy conditions, also encourage the anxiety and uncertainty in the scene.

The second shot shows the intricate moldings of the structure across the street to further reveal the age and complexity of their design. Rain pours down as the cold blue light illuminates the scene (see Figure 15). The third camera places the viewer across the street near the ornate buildings looking back towards the character on the balcony. The moving camera first focuses on the wet surface of the building, and as the camera moves left, the focus shifts to the background and the character is revealed (see Figure 16 and Figure 17). The close proximity to the foreground and the sudden change in focus add to



Fig. 15. Still example 2 from *Underworld*, 2003 [23]



Fig. 16. Still example 3 from *Underworld*, 2003 [23]

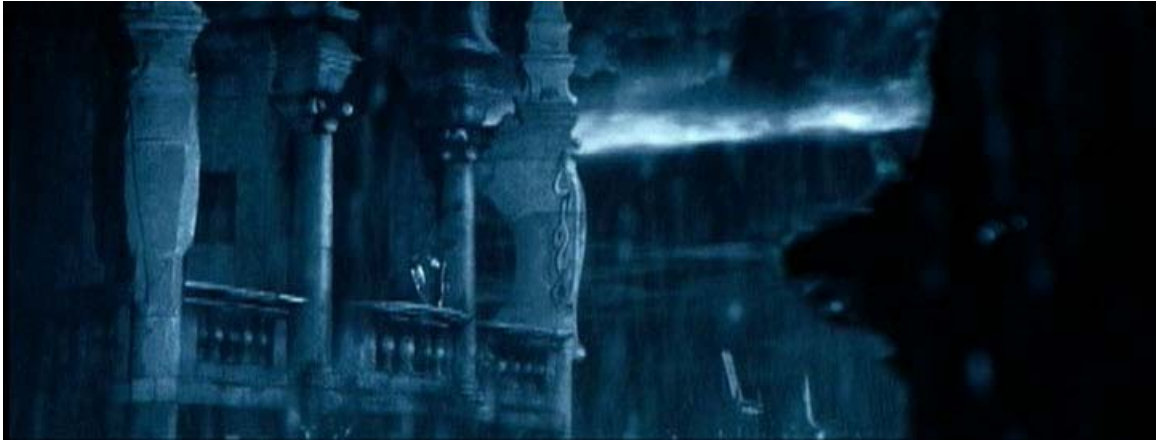


Fig. 17. Still example 4 from *Underworld*, 2003 [23]



Fig. 18. Still example 5 from *Underworld*, 2003 [23]

the apprehension created by the sporadic lightning and the chilling blue light. As the only source of illumination in all these shots, the key light in the scene casts a blue to black gradient over the whole setting. Without any other colors present, the shots have a cold, electric feel.

In the final establishing shot, the camera is positioned closer to the character where the same blue light illuminates her and the outer wall of the building (see Figure 18). Sharp highlights glisten on the wet, gritty texture of the foreground pillar. The busy city street far below is intentionally kept blurry and the viewer is forced to focus on the character. As wind and rain course down in the environment, the foreground character and building are effectively separated from the background. The buildings on the right remain dark and quiet, as though their occupants had shut down all business and turned in for the night. With intermittent lightning flashes, the stormy night intensifies the eerie, foreboding mood of the shots.

#### **II.4. *Dark City***

In the film, *Dark City* (1998), a group of travelers take a boat ride down the flooded streets of a decrepit city at night. The first of two separate establishing shots contains a camera placed high above the city street, giving a bird's-eye view of the boat, the waterway, and the tall buildings lining either shore. A pale yellow light from above and a few functioning streetlights illuminate the extensive devastation in the city and the boat traveling down the murky waterway. The foreground buildings at either edge of the shot lie in darkness, pulling the audience focus to the boat, as it passes under a demolished bridge (see Figure 19).



Fig. 19. Still example 1 from *Dark City*, 1998 [24]



Fig. 20. Still example 2 from *Dark City*, 1998 [24]

A few minutes later, in a second establishing shot, the camera is placed at ground level in a dark foreground and the background is more brightly illuminated (see Figure 20). Like *Blade Runner* and *Underworld*, the placement of the camera in a dark foreground suggests the possibility that someone or something is covertly viewing the ongoing action. Tall, decrepit, concrete buildings lie alongside the narrow waterway, rising up beyond the top of the frame. The positioning of these architectural elements promotes a feeling of claustrophobia. The dark windows completely obscure any details inside the buildings, hiding potential sources of danger. Apart from the street lamps, which appear to be functioning perfectly in spite of their rundown surroundings, the only source of illumination is a yellow tinted soft light placed above the scene, off-screen. This yellow tint gives the shots a sickly, jaundiced look supporting the dirty dilapidated setting. A slight haze permeates the location and the bloom from the light enhances this effect as the boat slowly moves across the water in the deserted city.

The *broken window hypothesis* states that certain physical attributes of an environment can incite fear and anxiety [17]. In part due to the genetic traits passed down from primitive man, modern humans generally respond negatively to any potential source of danger. They feel safer and more comfortable in a clean, well-lit, environment. The general ruin in these shots suggests that this may be the “bad” part of town. Visual attributes such as litter, debris, decay, and abandoned buildings all suggest the possibility of danger. Dark, shadowed areas could conceal attackers or other hidden threats. These physical attributes support the grim and ominous mood of these two establishing shots.



## II.5. *Apocalypse Now*

In *Apocalypse Now* (1979), Captain Willard is assigned the unenviable task of apprehending a renegade green beret, Colonel Kurtz, during the Vietnam War. After an intense trek down an enemy-infested river in Cambodia, Willard is captured, stripped of all weapons, and taken to meet his quarry. Armed guards shove him down a long narrow corridor towards a camera placed at shoulder level. The corridor is just wide enough to fit two people standing shoulder to shoulder. Far behind them, a bright yellow light spills into the corridor from a doorway, obscuring everything beyond it and drawing the viewer's attention to the foreground action. The intense beam of light cuts through the dust and haze in the corridor and highlights the three figures and the texture on the unfinished stone walls. Willard is covered in dirt and mud as his guards guide him into an adjacent chamber (see Figure 21).

The camera turns to follow Willard as he is made to kneel on a tiled stone floor in front of a rectangular doorway. A yellow light beyond the doorway, possibly evening sunlight, filtered through a sheer curtain softly illuminates the ground and some green foliage near the door (see Figure 22). None of the warmth associated with the sun enters the room or affects its contents. Willard's silhouette stands out against the brighter doorway, and his fate seems uncertain. Without electricity, the chamber is mostly dark, even in the daytime setting. A few candles placed here and there provide little to no illumination. The camera continues into the room and pans right towards a raised alcove containing a small table with some items and a cot on which Kurtz lies. As Kurtz rises onto his elbow, the light from the doorway rims his bald head, but his face is kept in darkness, intentionally hiding his expression and his plans for the captain (see Figure 23).



Fig. 21. Still example 1 from *Apocalypse Now*, 1979 [25]



Fig. 22. Still example 2 from *Apocalypse Now*, 1979 [25]



Fig. 23. Still example 3 from *Apocalypse Now*, 1979 [25]

Like the establishing shot in *Dark City*, the yellow light in this shot casts an unhealthy pallor over the whole setting. This sickly yellow light and Kurtz's weakened condition support the possibility of disease. The dark areas of the shot overpower the brighter areas and enhance the suspense. The lack of any technological elements in the small chamber suggests that living conditions may be harsh or difficult. Visual references to imprisonment and claustrophobia create anxiety and uncertainty. Willard had spent the better part of the film in search of Kurtz and his band of mercenaries. As he finally reaches his goal in this establishing shot, he finds their roles reversed. The armed guards unquestioningly follow Kurtz, exalting him to the position of unrivaled leader. Even in his prone state, Kurtz has become the hunter and Willard, the prey. The visual elements in the shot support this intense shift in power as they create a mood of suspense and tension.

## **CHAPTER III**

### **METHODOLOGY**

#### **III.1. Characteristics of a Dark, Ominous Mood**

Animals, with their purely instinctual responses to the environment, live by a “fight or flight” code. They are most comfortable in their natural environment [18]. A deer, for example, would prefer short grassy plains, which provide ample sustenance, poor concealment for predators, and a clear view all around for quick escapes. As any change to this situation occurs, the animal becomes more wary of its surroundings and more alert to possible predator presence.

While humans, as higher mammals, can judge a situation with more than just instinct, studies in environmental psychology have shown a direct correlation between visual features such as dark hiding places or barriers to escape and the amount of fear and tension experienced by humans. This response to the physical environment is often heightened after dark. Factors such as size and proximity to concealed areas, badly maintained locations, and poor lighting conditions also evoke fear [17]. As these visual elements in the establishing shot can be used to promote mood, a dark and ominous mood would, in turn, create a feeling of immediate danger and fear with regard to the physical environment.

#### **III.2. Visual Elements**

In film terminology, the establishing shot or master shot refers to the physical time and place of the current scene. It describes the opening sequence of the scene and spatially orients the audience [26]. Beyond this, the establishing shot also has the ability to define

the predominant mood in that scene. It can do so because it is much more than just a location for events [27]. An effective establishing shot helps develop and establish the mood of a story through a combination of visual elements such as lighting, color, models, textures, atmosphere, and overall presentation through the camera.

### ***III.2.1. Lighting and Atmosphere***

As creatures that thrive in sunlight, the absence of light naturally puts human beings on alert. Fear and desperation increase and adrenaline levels rise. The set can be lit to encourage these strong emotions, often in a minimalist way. In *Blade Runner*, *Underworld*, and *Dark City*, it was fairly noticeable that the darker areas of the setting overpowered the brighter areas. Figures 24, Figure 25, and Figure 26, each show a single frame from these three films, blurred with a gaussian blur filter in *Adobe Photoshop<sup>TM</sup>*, giving a clearer idea of the light values.

Only a few lights with limited range were employed in these shots. In a natural daytime setting, light would normally bounce around from surface to surface, illuminating the majority of the shot. In a computer-generated environment, this global illumination could be simulated through the use of multiple fill or bounce lights, or more complex lighting techniques such as radiosity or ray tracing [28]. But with a nighttime setting and very few directed lights, the establishing shots in these three films hardly show any light reflection between surfaces. There are just enough fill lights to hint at the general shape of the outlying structures in the shots, but not necessarily any of the details on them.

The dominant light source in an establishing shot can affect the apparent shape or volume of the object that it illuminates. It can also set the mood or dramatic quality of the shot [22]. In the establishing shots in the three films mentioned above, a harsh key light is



Fig. 24. Value distribution in a blurred still from *Blade Runner*



Fig. 25. Value distribution in a blurred still from *Underworld*



Fig. 26. Value distribution in a blurred still from *Dark City*

placed high off-screen, pointing downwards onto the scene (see Figure 13, Figure 18, and Figure 20). When pointing towards the camera, this light sometimes doubles as a backlight for the objects in the foreground, creating a rim of light around their edges. While fill lights do little to illuminate the dark foreground from the point of view of the camera, the rim lighting outlines the foreground objects and separates them from darker areas of the background. These shots also show a great variation in overall value between the bright areas and the shadowed areas, and details are difficult to discern in both extremes. The small pockets of bright areas surrounded by darkness produce a more significant reaction as the viewer is instinctually forced to squint or avert their eyes (see Figure 21). These camera-facing lights also create glare that reduces contrast in certain parts of the environment (see Figure 13 and Figure 20). The real world is full of atmospheric effects such as dust, fog, and smoke that affect depth and space in the environment. When these particles reflect light, they create volume beams and enhance the glare. The resulting low-contrast areas in the environment tend to create apprehension and uncertainty [22].

Popular techniques such as single key lighting, back lighting (silhouette lighting), and volume beams, can support this minimalist approach depending on their placement and their interaction with the models and atmosphere in the environment. Strategically placed lights can create shadowed areas or glares that can obscure vision, thus promoting fear or tension. Volumetric beams illuminating dust or haze in the environment can reduce the contrast in an already dark area, making it even more difficult to discern details. Minimalist lighting must also take into account the distribution of the light within the frame and the contrast between light and dark. As such, what is visible becomes as equally important as what is not [22].

### ***III.2.2. Color***

The amount of color humans can perceive is greatly reduced as the light entering the eye diminishes. In low light conditions, even vividly colored objects can appear highly desaturated or grayscale. As a result, sets that use minimalist lighting methods often display desaturated colors. A black-and-white image can often make a powerful statement about the setting. It can suggest an older time period or a shift in character perspective (flashbacks, dreams, etc.). It can also create a feeling of oppression associated with fear, mystery, or anxiety. The human mind is able to see a black-and-white image and fill in the necessary color information based on experience and prior knowledge. It can concede that a fruit shaped like an apple is probably red or that a tree in summer probably has green leaves. Based on these preconceptions, the actual use of color can help reveal environmental conditions. If the apple appears black, rather than believing that black apples are the norm, the mind would tend to believe that a red apple is lit by a green light that fools the eyes into seeing a black apple [22].



Color can also help promote psychological responses in the viewing audience. Just as mood itself can be subjective, an audience can have differing reactions to color based on cultural and societal differences. However, common life experiences and stereotypical color assignments allow some generalizations to be made. Color can be defined as warm or cool, vibrant or dull, or light or dark. The following excerpt from Sharon Calahan's SIGGRAPH 1996 paper, "Storytelling through Lighting," shows that certain colors can have more immediate significance.

Red, for example, is an emotionally charged color that has many associations: anger, passion, fire, blood, violence, sunset, sex, adultery, aggression, power, creativity, embarrassment, and courage. It is also used as a universal symbol to stop or to denote when an error is encountered.

Green recalls calmer memories: nature, water, trees, mountains, meadows. It is an introspective, reserved color that evokes feelings of security, constancy, normalcy, balance, civility, and convention. It is a suburban color for active, healthy people. It is the color of money. Green is generally a positive color, although it does have negative associations – we have all heard the expression "green with envy." Green lighting can look eerie, chemical, artificial, and unhealthy.

Blue can feel heavenly and religious and is associated with Western-culture weddings. It feels spacious and it reminds us of the sky and oceans. It is a rational, conservative color that symbolizes authority, loyalty, order, peace, conformity, success, caution, and patience. Blue lighting can look gloomy, electric, and cold if there is no warm light to counterbalance it [22].

While the architectural models in the scene may use color to support the mood, their effects may be minimal in low lighting conditions. However, color can also be a property of the lights in the scene. A common technique in the films analyzed is to substitute the gray in a black and white gradient with a different color like blue or orange. In *Underworld* for example, a blue light representing moonlight illuminates a night scene, casting a blue tint over everything (see Figure 17). Without any warm lights in the scene, the rainy blue night feels cold and sterile. The same can be said of *Sleepy Hollow* (see Figure 12) and *Blade Runner* (see Figure 13).

*Dark City* and *Apocalypse Now* show a yellow color gradient. Rather than being warm or sunny, the pale yellow gradient in *Dark City* creates a sickly pallor associated with death or disease. In this light, the deserted buildings appear dirty and unhealthy (see Figure 19 and Figure 20). Similarly, the yellow light beyond the doorways in *Apocalypse Now* never illuminates the rooms directly (see Figure 21 and Figure 22). Sunny yellow light is associated with good health and growth. The lack of light indoors suggests the exact opposite.

### **III.2.3. Models and Symbolic Content**

The architectural models in the scene consist of actual set props. These are often a major clue as to location and time. For example, the lack of technology in the establishing shot from *Sleepy Hollow* suggests a rural farm setting possibly set in a time before electricity became commonplace (see Figure 12). Models can also enhance the mood when properly combined with lighting and color. In architecture and design, straight lines and geometric forms can be aesthetically pleasing. If they are lit brightly and warmly, they can imply order and stability in the environment. The intricate railings in *Blade Runner*, though based on repetition and patterns, appear disturbing in their complexity since they are seen in silhouette (see Figure 13). Organic shapes are inherently chaotic in form and highlighting them with rim lights can further enhance the ominous feeling. In *Underworld*, the harsh blue light highlights the wavy decorative crowns of the buildings and creates a sense of motion and uneasiness (see Figure 15).

In many of the establishing shots discussed, the prevalent themes with regard to the props in the setting are age and disorder. Structural damage immediately suggests wear and tear over time. In *Dark City*, the amount of degradation and ruin even hints at some

powerful calamity (see Figure 19 and Figure 20) such as war, earthquake, or flood. The litter and general disrepair in the Bradbury building in *Blade Runner* implies low security and supports the *broken window hypothesis* [17] (see Figure 13). The same is true of the room with the peeling paint, the old balcony, and the worn stone pillars in *Underworld* (see Figure 14 and Figure 18).

Beyond the visual elements in an establishing shot, cognitive thought allows viewers to recognize symbolic content in the setting. Evaluations that affect mood are often made on a subconscious level [17]. In *Sleepy Hollow*, the numerous symbolic references to death such as gravestones and the deer antlers support the ominous mood in the shot (see Figure 12). The bars of the railings and the vertical support structures in *Blade Runner* almost resemble prison bars foreshadowing a trap laid out for Deckard who enters the lobby below (see Figure 13). The disorder and chaos that accompanies the unknown can create fear and anxiety. The recognition of symbolic clues can aid in promoting these feelings.

#### **III.2.4. Textures**

Textures work with the models and lighting in the scene to enhance the mood of the establishing shot. The models in *Underworld* and *Dark City*, as discussed above, show deterioration and ruin which can promote feelings of fear and tension. The intermittent lightning within the room in *Underworld* shows the rough, uneven textures on the inner walls (see Figure 14). Outside, the powerful blue light accentuates all the variation in grain on the pillar in the foreground (see Figure 18). In *Dark City*, the dilapidated buildings appear tall and smooth from a distance, but the light catches all the surface details caused by the rough texture of bricks and mortar. The lights also illuminate the gritty debris from

these half-demolished structures, which litters the streets (see Figure 19 and Figure 20). The lighting in these shots is used to enhance the defects in the models thereby enhancing the dark feelings associated with them.

Naturally occurring materials tend to show a greater variation in surface texture than man-made objects. Wood and stone can appear very coarse unless refined and polished to a smooth surface. The entire establishing shot in *Sleepy Hollow* has a rough, unfinished look (see Figure 12). The irregularity of the stones on the pillars and the low wall to the left, and the gravel path all suggest a crude implementation of civilization. The precision needed to achieve a polished look is clearly lacking. The rustic setting with its natural elements helps support the time period of the setting and the apprehension caused by the lack of modern comforts.

### ***III.2.5. Camera***

The camera is often thought of as an additional character that must be properly placed within a set with due consideration given to its interaction with other set elements. It has several inherent properties such as position, rotational angles, motion, and depth of field that can be easily adjusted in a synthetic computer-generated environment. The camera itself becomes a visual property of the environment that brings all the other visual elements such as lighting, atmosphere, color, models, and textures, into view. Since these other elements help determine the mood, the camera becomes integral to that process.

The establishing shot is often a long shot, where the camera is placed at its furthest distance from the point of focus and the background is in full view [29]. In *Sleepy Hollow*, the small town and all its rustic accouterments are made apparent though the use of the long shot (see Figure 12). The camera follows Constable Ichabod Crane along a gravel

road leading him and the viewer directly to the village ahead. The surrounding forest is also visible through the camera, isolating the quaint houses in the center of the frame and making them the point of focus. The establishing shot in *Blade Runner* can also be described as a long shot. The camera is placed high above the action looking down on it (see Figure 13). The entire width of the Bradbury building is visible as the camera strafes left, revealing its age and level of neglect. As Deckard enters the lobby below, the camera allows the viewer to focus on him, the only moving figure in the shot.

A static camera can only frame a limited area of the environment, and all the visual elements must be concentrated in that small area. A dynamic camera, on the other hand, affords the storyteller more “real estate” in which to set up the lights, colors, and models to effectively convey a dark mood. A moving camera can also act as an unseen observer watching the action in the shot from a concealed location creating a feeling of mystery or apprehension. This is most apparent in *Blade Runner* (see Figure 13), *Underworld* (see Figure 14), and in the second establishing shot in *Dark City* (see Figure 20).

Another effective technique to reveal the mood of the setting is to use multiple establishing shots. In *Underworld*, four consecutive shots are used to establish the character perched on the balcony and the surrounding buildings. The first camera is placed behind the character on the balcony (see Figure 14). The second reveals what lies beyond her (see Figure 15). A third moving camera is placed across the street looking towards the character (see Figure 16 and Figure 17), and finally, a fourth camera draws the viewer closer to the action with more attention given to the character (see Figure 18). The use of multiple shots allows the storyteller more time to set up the scene and visually promote the mood. In this film, it also conveys the importance of the character to the plot by continually focusing on her in consecutive shots.

A film camera uses a converging lens similar to the human eye. As a result, objects set at a specific distance from the lens will appear sharp. This distance is referred to as the focal distance of the camera. Objects near the focal distance can still appear to be in focus, but objects far in front of or far behind it appear blurry. The zone around the focal distance where objects appear sharp is known as the depth of field. In an establishing shot, depth of field can be used to emphasize specific portions of the frame. For example, in the third establishing shot in *Underworld*, the moving camera first focuses on the wet details of a foreground building (see Figure 16). As the camera moves left, the depth of field changes to reveal the character and the building in the background (see Figure 17). This sudden shift in focus not only emphasizes the complexity of the architecture, but also promotes a sense of uneasiness. In the last establishing shot, the street and surrounding buildings in the background are purposely kept out of focus (see Figure 18). Even though the character on the balcony is positioned on the far left side in the frame, she becomes more important in the shot as she is more in focus than the background. Depth of field can also be used to create apprehension or tension. In *Blade Runner*, the models in the set are positioned such that they are either very close to the camera or far from it. As the objects that are extremely close pass in front of the moving camera, they are difficult to recognize because they are out of the depth of field and thus appear blurry. They also pass by very fast giving viewers little time to adjust their focus. This abrupt intrusion in the frame can obscure vision, thus creating anxiety or unsettling feelings.

The camera can guide the viewer to the main action, emphasize important portions within the frame, and even become an additional character in the story. It can be a vital part of the establishing shot that ties all the other visual elements together to create a dark, ominous mood.

## CHAPTER IV

### IMPLEMENTATION AND RESULTS

#### IV.1. Setting up the Visual Elements in the Environment

The models for the final establishing shot were created based on photographs taken of the ruins of Angkor Wat in Cambodia. Originally, Antoni Gaudi's Sagrada Familia, commissioned in 1883 and as yet unfinished (see Figure 27 and Figure 28), and Casa Batlló built in 1905 (see Figure 29 and Figure 30), had served as a starting point merely for their unique chaotic style. However, Angkor Wat was more appealing as a reference because of the effective combination of man-made structures and untamed nature (see Figure 31 [34], Figure 32 [35], and Figure 33 [36]). The 12<sup>th</sup> century ruins were rediscovered in 1860 decades after the jungle, once kept in check, had grown back around the magnificent architecture. This encroachment of nature made for an eerie, unsettling environment, which supported the intent of this thesis.



Fig. 27. Antoni Gaudí, Photograph 1, Sagrada Família, 1883 [30]





Fig. 28. Antoni Gaudi, Photograph 2, Sagrada Familia, 1883 [31]



Fig. 29. Antoni Gaudi, Photograph 1, Casa Batlló, 1905 [32]



Fig. 30. Antoni Gaudi, Photograph 2, Casa Batlló, 1905 [33]



Fig. 31. Photograph 1, the ruins of Angkor Wat in Cambodia, 12<sup>th</sup> century [34]



Fig. 32. Photograph 2, the ruins of Angkor Wat in Cambodia, 12<sup>th</sup> century [35]



Fig. 33. Photograph 3, the ruins of Angkor Wat in Cambodia, 12<sup>th</sup> century [36]

The models for the establishing shots were created using 3D software (see Figure 34, Figure 35, Figure 36, and Figure 37). The use of a symbol such as the scarab beetle (see Figure 38) promotes cognitive recognition and conjecture as to its meaning. It suggests the possibility that the beetles might be the dominant deity for the culture that built these structures. The symbol could also mean that the location is home to the scarab beetle, or it could simply be a hex or warning to trespassers to watch their step. Beyond simple visual perception of the models, cognitive recognition of this symbol further supports a dark mood.

The dynamic camera sequence was designed immediately following the construction of the set. From the visual analysis of the five contemporary films, it seemed

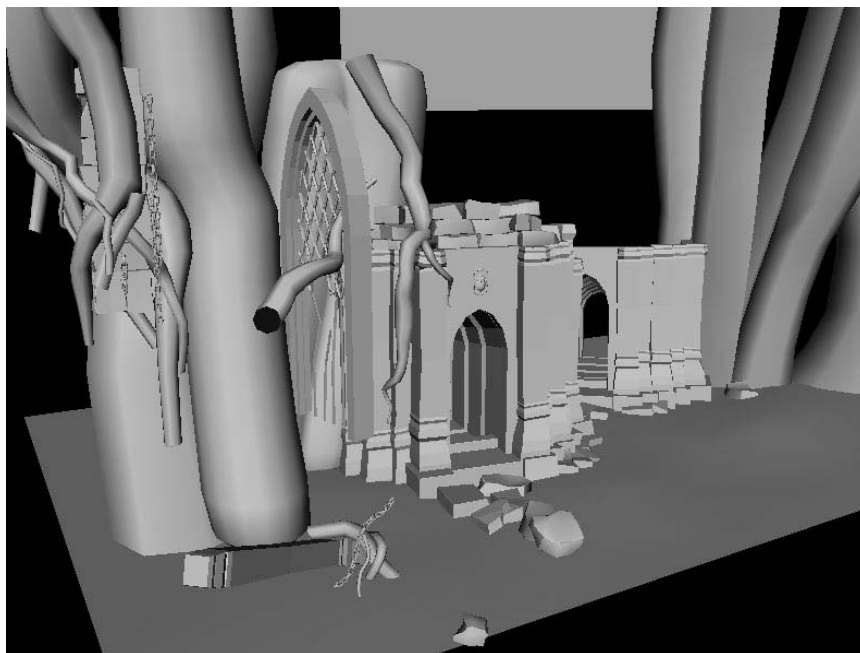


Fig. 34. Full view of models in the environment

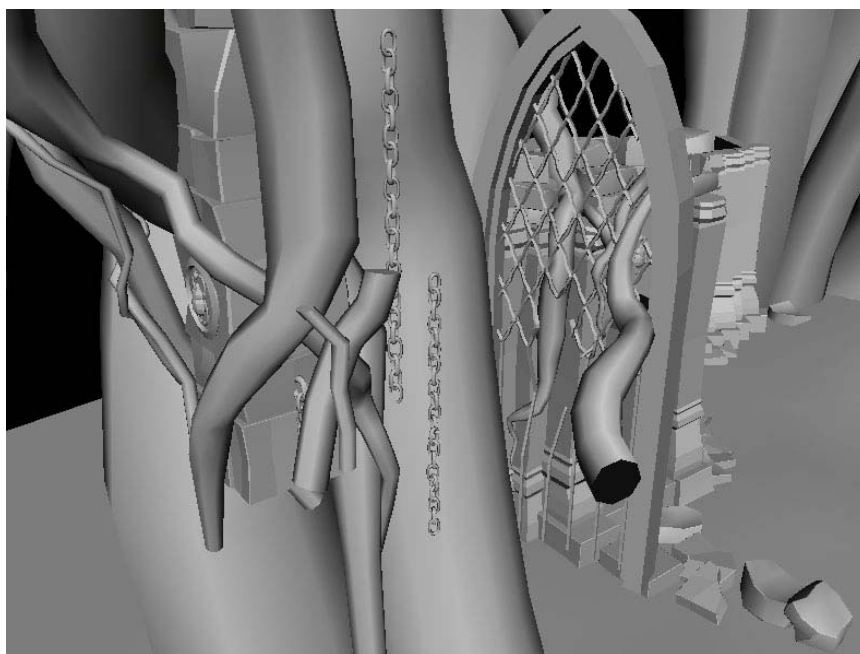


Fig. 35. Close-up of the stone pillar and window grill

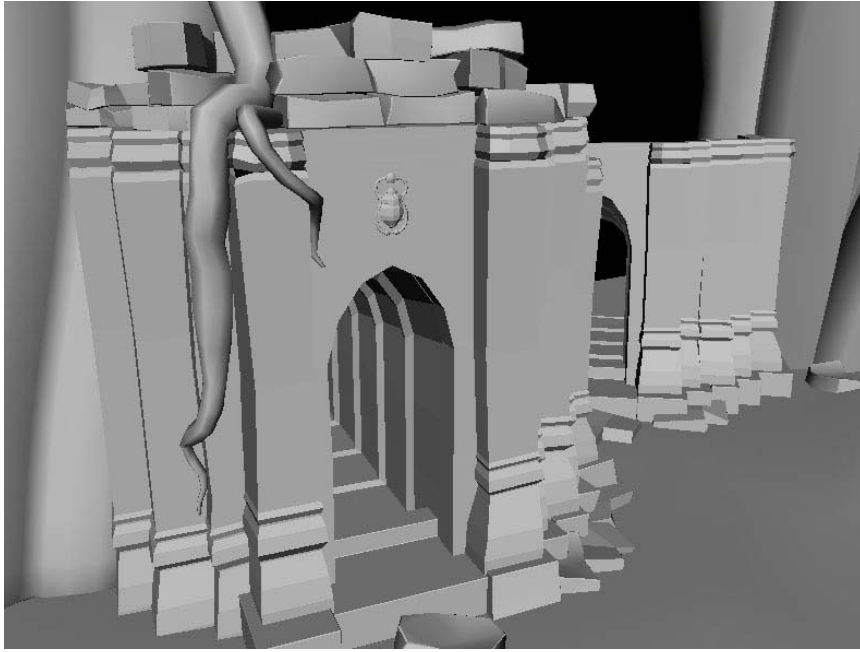


Fig. 36. Close-up of the main structures

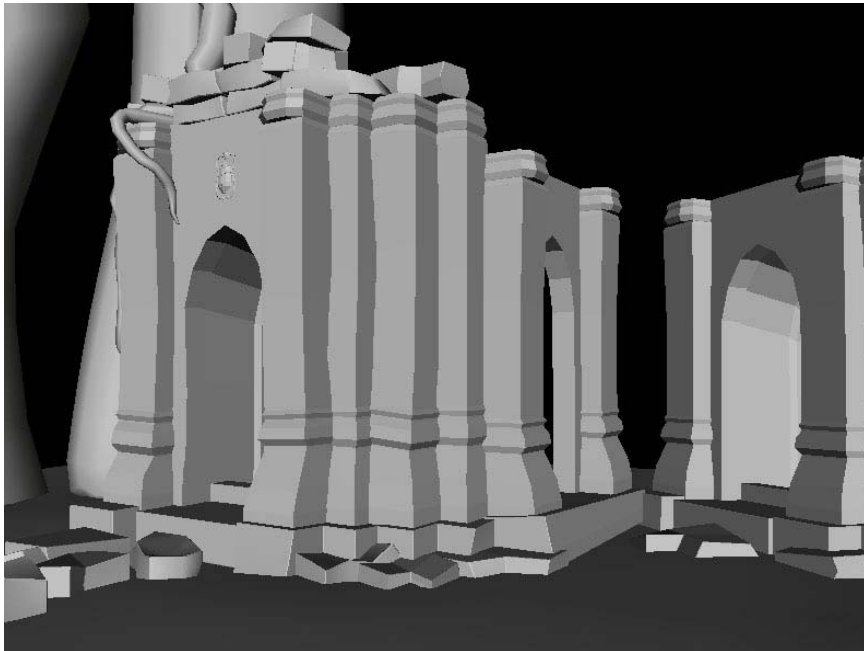


Fig. 37. Side view of the main structures

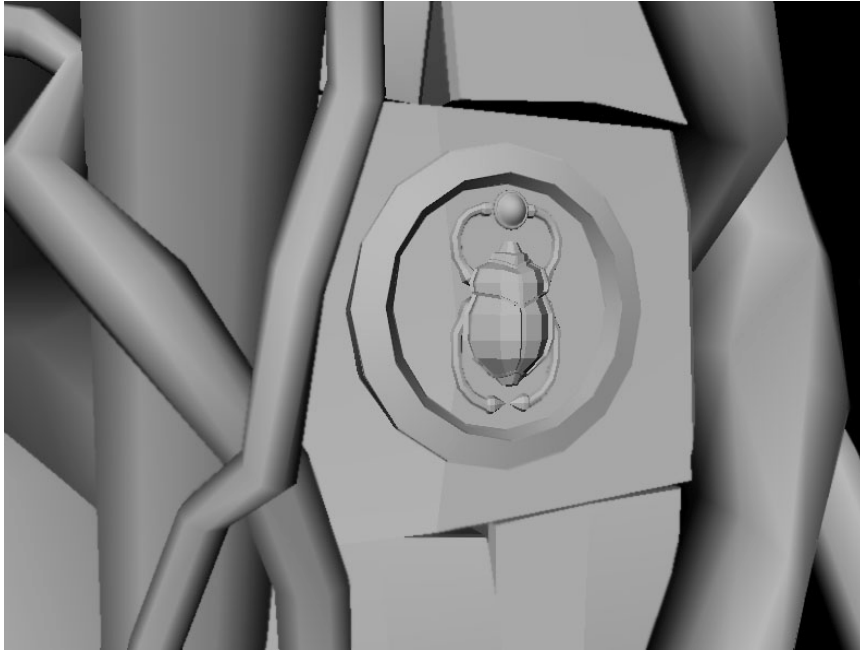


Fig. 38. Close-up of the scarab model

that two establishing shots would be more effective than one. Thus, the final visual output of this thesis has two shots laid out consecutively with a cross-fade between them. The first shot begins with a high camera leading to the background structure (see Figure 39 and Figure 40). Depth of field was added later to emphasize this structure. There is also a distinct separation of foreground and background. As the camera moves through the scene, the proximity to the camera and the swift movement only allows a brief, hurried view of some foreground models as they obscure the background momentarily. These models, themselves, are not in perfect focus, causing apprehension and uncertainty. The second camera is placed low to the ground to bring the viewer closer to the main subject, the overgrown dilapidated building (see Figure 41 and Figure 42). This shot also uses depth of

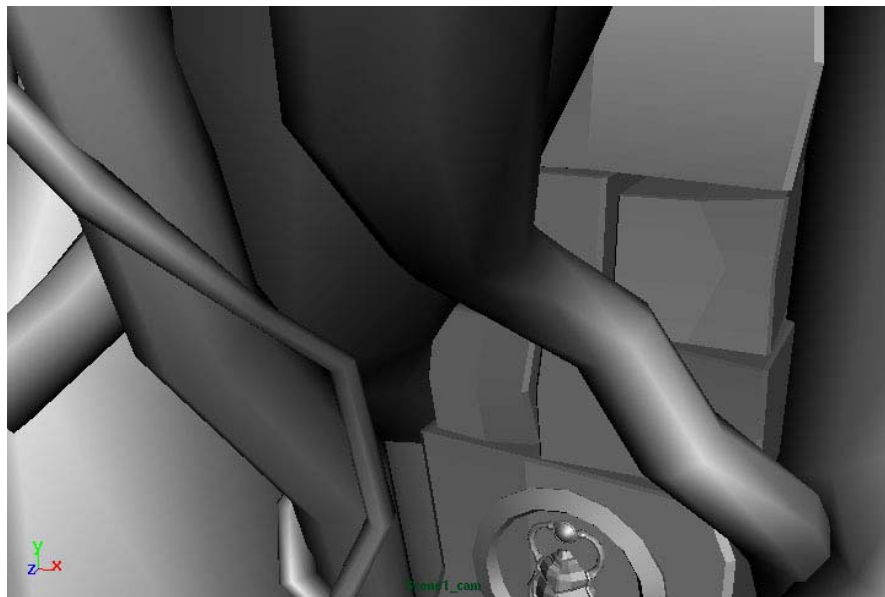


Fig. 39. Screen capture 1 from first camera

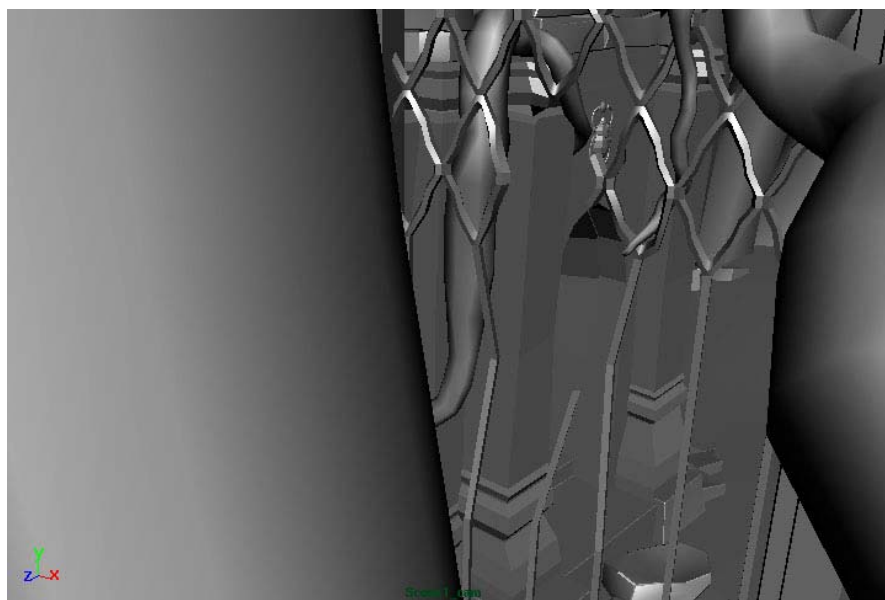


Fig. 40. Screen capture 2 from first camera



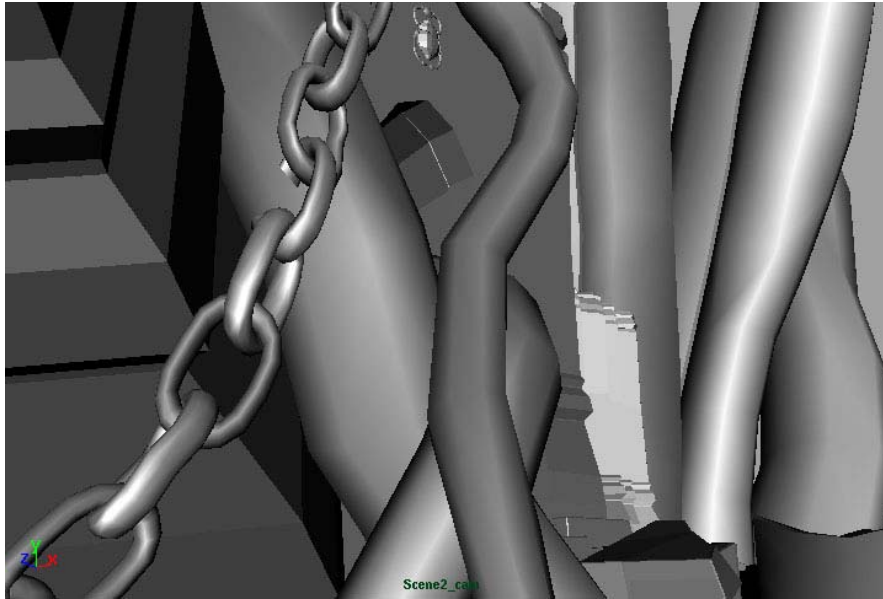


Fig. 41. Screen capture 1 from second camera

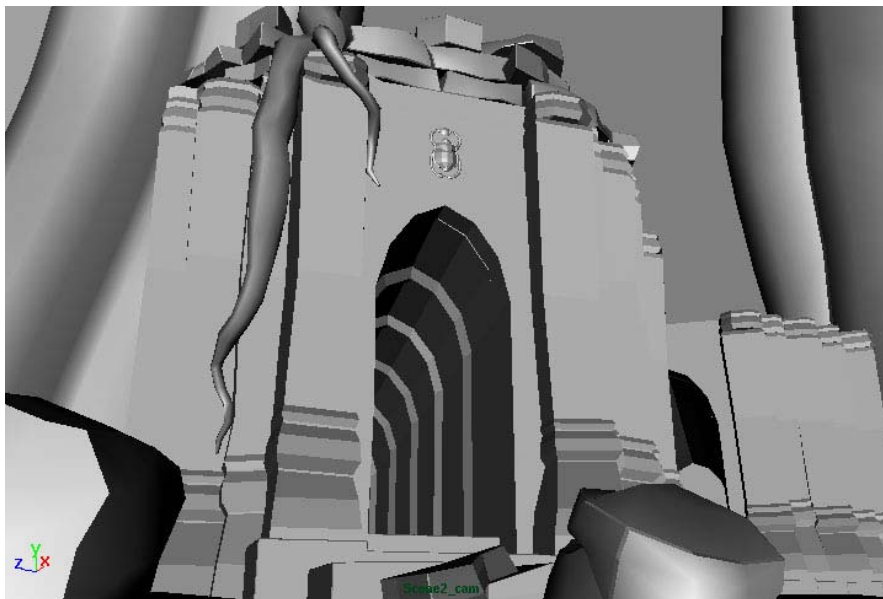


Fig. 42. Screen capture 2 from second camera

field, but here it is used to de-emphasize the foreground objects and draw attention to the background.

All the textures were painted in *Adobe Photoshop™* based on photographic reference of natural materials like wood grain, bark, stone, rust, and moss [37]. Displacement mapping on the smooth models enhanced the gritty textures, essentially perturbing the surface based on the gray-channel values in the painted textures (see Figure 43, Figure 44, Figure 45, and Figure 46). Figure 47 shows an example of a root texture colored in *Adobe Photoshop™* and Figure 48 shows its corresponding gray-channel displacement map. These textures were mapped onto the models using the shading utilities in *Alias Maya™*.



Fig. 43. Textured still 1 from first camera



Fig. 44. Textured still 2 from first camera



Fig. 45. Textured still 1 from second camera



Fig. 46. Textured still 2 from second camera



Fig. 47. Example of color map used to shade a root in the scene



Fig. 48. Example of displacement map used to displace root surface



Fig. 49. Example of specular map used to enhance root highlights

The lighting was used to enhance the rough textures and illuminate the models in a minimalist way. A few harsh key lights were placed above the set, off-screen, in both shots and pointed in the general direction of the camera. As a result, the foreground models displayed enhanced edge details. Figure 49 shows the specular map for the root above which specifies the locations of the strongest highlights. The white areas allow maximum highlights and the black areas allow minimum highlights. The key lights served as the primary source of illumination. To achieve the same effect as the establishing shots in the films analyzed, very few fill lights were used to simulate light bouncing from surface to surface. Overall, the majority of the frame remains dark with only a few bright areas. Figure 50 and Figure 51, blurred in *Adobe Photoshop™*, show the value distribution in a single frame from each shot.

The synthetic spotlights were tinted green to suggest light filtering through a thick leafy canopy overhead, but without a warm sun, the natural setting appears stale and uninviting. Atmosphere was added to the setting in the form of low-lying fog, suggesting a dawn or dusk time period. The fog creates an eerie mood as it obscures certain areas of the environment. It also reduces the contrast in the darker areas of scene making it more difficult to discern any details. Figure 52, Figure 53, Figure 54, and Figure 55 show the final rendered frames from both establishing shots.

The two shots were rendered in *Alias Maya™* in multiple passes to allow more control over the foreground, background, and fog in the environment. These layers were then composited using *Adobe AfterEffects™* to render the final visual. The analyses of the five contemporary films greatly influenced the decisions made during the creation of these original establishing shots.



Fig. 50. Value distribution in a blurred frame from the first shot



Fig 51. Value distribution in a blurred frame from the second shot



Fig. 52. Composite image 1 from the first shot



Fig. 53. Composite image 2 from the first shot





Fig. 54. Composite image 1 from the second shot



Fig. 55. Composite image 2 from the second shot

## IV.2. Evaluation of Results

The final visual was tested on various output devices such as monitors, televisions, and projectors. Although the setting was lit using *Alias Maya™* on a single machine, the visual varied greatly from device to device, appearing too dark on one monitor, too flat on a projector, and fairly good on a calibrated television screen. As a result, anyone viewing the final visual will need to calibrate the output device before the effect on mood can be appreciated. Since the projector was used to display the final visual for the thesis presentation, its brightness, contrast, and color settings were adjusted to obtain the optimum visual results.

The goal of this thesis was to analyze the visual components of establishing shots from five contemporary films, and create an original computer-generated establishing shot that successfully conveys a dark and ominous feeling. This paper discusses the steps taken to achieve this goal and the consequent effect on the mood. The scope of this thesis did not include a formal survey to judge the effectiveness of the visual output. However, an informal query of technically and artistically qualified members of faculty, staff, and students showed that the majority of the audience found that the visual piece did promote a feeling of mystery or apprehension about the environment. The two consecutive establishing shots show that visual elements such as models, lighting, atmosphere, color, and textures, combined with a dynamic camera, can enhance the specific characteristics of a setting that promote a dark and eerie mood.

## **CHAPTER V**

### **CONCLUSIONS AND FUTURE WORK**

#### **V.1. Conclusion**

Mood can be a very subjective topic as different life experiences, social influences, and personal identities can affect perception of a visual environment. However, there are some physiological properties and cultural ideologies shared between individuals that allow predictions to be made about the audience's reaction to the visual elements within an environment. As the mood of an establishing shot can be defined by the reaction of an audience, such predictions can be used to judge the effectiveness of the visual elements that contribute to the mood.

In terms of visual storytelling, this thesis noted that lighting, color, models, textures, atmosphere, and camera placement can each promote a tense, ominous mood of its own accord. Combining these visual elements solidifies the intent of the storyteller. Through the analysis of five establishing shots that can be categorized as eerie or ominous, this thesis successfully created an original computer-generated establishing shot that communicated a similar dark mood.

#### **V.2. Implications for Future Research**

Beyond the visual components of the scene, there are several other factors that can help define or enhance the mood. One such factor that can be taken into consideration is audience makeup. Even with common ideologies and shared experiences, two individuals can have vastly differing reactions to the same scene [22]. Although this research allows for some predictability in audience reaction, the thesis could be expanded to actually poll

the viewing audience to quantify the effectiveness of the establishing shot. The soundtrack of the establishing shot, which includes sound effects and musical score, can also be considered a variable that affects the mood. Further study could analyze various musical genres and their impact on audience reactions. The story or plot that surrounds the establishing shot can dramatically affect its mood. Future research could determine the effects of setting up the plot before presenting the visual. The majority of the shots analyzed contain one or more characters that have an added impact on the mood. The placement and presentation of these characters could be further studied to determine their importance.

A significant addition to this thesis would be the analysis of establishing shots with contrasting moods. By manipulating the visual elements in the environment, the artist could show two establishing shots, each with the same setting, but with two opposing moods. This final result would not only show the versatility of the visual components of mood, but also the artist's control over the scene.

The purpose of this thesis research was to understand and manipulate specific visual components of an environment to create an original establishing shot that successfully conveys a specific mood. The process used to achieve this goal can serve as a guide for future artists to create comparable work.

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