DECIPHERING THE UNCANNY VALLEY IN JAPANESE 3D ANIMATION: A CASE STUDY OF *RESIDENT EVIL: DEATH ISLAND*

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Abstract:

The Uncanny Valley (UV) phenomenon refers to an eerie feeling when the viewers are confronted with artificial human-like figures with high realism that resemble very closely to humans but lack specific natural attributes, causing a sense of unease and discomfort. This study presents an in-depth analysis of the Japanese 3D animation film *Resident Evil: Death Island* directed by Eiichiro Hasumi in 2023, exploring its depiction of characters and the potential manifestation of the UV phenomenon achieved through skillful anthropomorphism. The research uses a case study method to examine the film's character design, visual aesthetics, and narrative complexity with the objective of accessing the extent to which the UV elements shaped by anthropomorphic traits are present. Data for the case study was collected through qualitative observations of the selected scenes from the film, capturing crucial moments highlighting the environmental settings, character appearances, and interactions. Furthermore, this paper explores the existing literature on the UV phenomenon and its implication in animation and establishes a theoretical framework to comprehend the emotional responses elicited by characters from the animation film. Findings suggest that while the film successfully achieves realism in its animation and character portrayal, it also treads a fine line between lifelike representation and the unsettling sensations associated with the UV phenomenon. The implications of this analysis shed light on the challenges faced in creating compelling characters without triggering discomfort in the viewers. Understanding the nuances of the UV effect can facilitate the development of more emotionally resonant and engaging content in the future.

Keywords: uncanny valley, animation film, anthropomorphism, visual aesthetics, humanoid

1. Introduction

The term Uncanny Valley (UV) phenomenon was introduced by Masahiro Mori as *Bukimi no Tani Gensho* in 1970. It alludes to the perception of things that are human-like in appearance, but

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not human. This category spans across various entities, such as monkeys, dolls, corpses, animals, animations, reflections, humanoid robots, wax figures, mannequins, virtual avatars, anthropomorphic machines, androids, human sculptures or statues, and animatronics (Thompson, 2023; Pollick, 2010). The concept of the UV has swiftly piqued the prominence and interest across robotics and other scientific circles as well as in the spectrum of popular culture. Some researchers have delved into its ramifications for human-robot interaction and computer graphics animation, while others have investigated its biological and social origins, contributing to a multifaceted understanding of the concept (Masahiro, 2012). Mori *et al.*, 2012 put forth the idea that the amalgamation of motion and form could result in a separate measure of acceptability as opposed to realism. For example, the motion could deepen the valley since form sets up expectations in an observer and if other factors such as motion do not match these expectations, then there is a further rejection of the entity (Pollick, 2010).

In the realm of storytelling, one of the most effective artistic techniques for effortlessly creating eerie or unsettling effects is to maintain an aura of ambiguity regarding a specific character's true nature. This ambiguity is crafted in a manner that doesn't immediately draw the reader's attention but rather lingers, leaving behind a distinct emotional impact (Jentsch, 1997). The augmentation of realism hasn't consistently translated into heightened acceptance from the public, leading to the invocation of the term UV to elucidate this phenomenon (Pollick, 2010). Hence, the uncanny sensation can be readily elicited when one endeavors to reexamine an inanimate object as an integral component of a living entity, particularly when approached through a poetic or fantastical lens, often taking on anthropomorphic qualities (Jentsch, 1997). An alternative interpretation of the eerie sensation arises primarily from questioning whether things exhibit animate or inanimate characteristics, or, to be more precise, whether they display abnormal vitality when in motion (Jentsch, 1997).

For the last 30 years, a significant volume of research has been conducted to unravel the UV concept that has laid foundations and resurfaced as technology inched towards increasing levels of sophistication in computer graphics and robotics. This increase in sophistication makes it possible for greater and greater realism to be attained (Pollick, 2010).

Furthermore, access to the possibility of realism in 3D facilitated the filmmakers to immerse viewers in their narratives, and this often involves creating characters that are as lifelike as possible to facilitate emotional engagement. Consequently, the concept of the UV gained popularity in animation films following the release of the computer-generated films *Final Fantasy: The Spirits Within* (2001), *The Lord of the Rings: The Fellowship of the Ring* (2001), *The Polar Express* (2004), *Beowulf* (2007), *Ex Machina* (2014) and lately *Resident Evil: Death Island* (2023). These films aimed for high realism but received a lukewarm response due to the falling into the UV. However, examples of these films suggest the existence of the UV, but they don't provide a comprehensive explanation of what it is from a 3D animation perspective and the critical conditions that lead to it.

It is essential to comprehend the underlying factors and critical conditions that contribute to the UV phenomenon within computer-generated animation film productions, as well as to devise effective strategies enabling filmmakers to navigate this complex terrain while ensuring the creation of narratives that elicit profound emotional engagement from audiences.

Therefore, it can be seen that in 3D animation films no matter the production quality advancement there is still the existence of the UV. Also, there is a limited exploration of how anthropomorphism traits and the UV phenomenon is commonly employed in 3D animation films. Hence, the purpose of this research is to explore the current situation of the existence of the UV phenomenon by analyzing the content of the animation film *Resident Evil: Death Island* released in the year 2023.

The following set of research questions are framed:

RQ 1: How prominently does the UV phenomenon manifest in the characters of *Resident Evil: Death Island*?

RQ 2: What are the visual and narrative elements in *Resident Evil: Death Island* that trigger the UV sensation, and how do these elements establish a theory of the UV phenomenon?

Thus, this research delves into the aspects of human perception and the UV phenomenon. Understanding the elements that can cause viewers to react with unease and discomfort when confronted with human-like yet not-quite-human characters. Furthermore, this research provides insight into the role of anthropomorphism in achieving the UV effect. This is a critical aspect for 3D animation artists, as it helps them navigate the balance between creating realistic 3D characters and avoiding the eerie sensation associated with the UV.

This paper is organised into five key sections following the introduction. The literature establishes the theoretical framework and context for the study. The methodology section describes the research methods and techniques employed, detailing data collection and analysis procedures. The analysis section presents the findings of the study followed by the conclusion section to interpret and summarize the key findings and their significance.

2. Overview of the UV theory

The word "uncanny" originated from the German word "unheimlich", which is a combination of "un-" (meaning "not") and "Heimlich" (meaning "familiar" or "homely"). "Heimlich" can also carry connotations of "secret" or "hidden"(Jentsch, 1997). Ernst Jentsch, a German psychiatrist wrote of an influential essay titled "On the Psychology of the Uncanny" ("Zur Psychologie des Unheimlichen") in 1906 explored the psychological aspects of what makes something feel uncanny or eerie. Sigmund Freud's later essay on the same topic, titled "The Uncanny" ("Das Unheimliche"), published in 1919 was based on the groundwork provided by Ernst Jentsch. Freud drew upon and expanded upon Jentsch's ideas in his own exploration of the uncanny. Freud explored the psychological aspects of the uncanny, describing it as something that is both familiar and strange, which can evoke a feeling of discomfort or eeriness. Freud's work helped establish the term "uncanny" in the English language and contributed to its usage in discussions of unsettling or mysterious phenomena.

To gain a deeper understanding of the core of the uncanny, it is prudent to refrain from inquiring about its fundamental nature directly. Instead, one should delve into the psychological intricacies that are responsible for the emotional intensity associated with the uncanny and examine the specific prerequisites necessary for the sensation of the "uncanny" to manifest (Jentsch, 1997). Tzvetan Todorov's book "The Fantastic" mentions uncanny is in the center of

hesitation and on the brink between (real and unreal). In this sense, the Uncanny creates a sense of ambiguity and doubt in the reader and is characterized by a tension between rationality and irrationality, naturalism and supernaturalism, and familiarity and strangeness (Peel, 2023). Whereas, Victor Tuausk relates uncanny to schizophrenia and provides a psychological perspective on the presence of a doppelgänger (a double or a twin) (Tausk, 1993). This concept can be related to the discomfort that arises when a humanoid robot or animated character closely resembles a human but is not quite identical. Hence, it can be summarised that the uncanny not only has its fundamental nature but also has psychological complexities responsible for its strong emotional impact.

In Figure 1, the graph depicts a curve where the horizontal-axis represents the degree of human likeness, ranging from non-human to highly human, and the vertical-axis represents the affinity, ranging from negative to positive. "Affinity" refers to the degree of emotional connection or likability that a person feels toward a humanoid robot or animated character as its appearance becomes more human-like and "Human likeness" refers artificial entity that resembles a real human being in terms of appearance and behavior. It's the extent to which the artificial entity looks and acts like a human (Kätsyri *et al.*, 2015). The curve often shows that as a robot or character becomes more human-like, the emotional response from humans becomes more positive and empathetic, up to a certain point. However, when the likeness becomes almost but not quite human, there is a sharp drop in the emotional response, creating a "valley" in the graph. A "valley" is referred to a low-lying area or a depression in this context. This dip in the graph represents the "uncanny valley". Therefore, in this case, the appearance of the prosthetic hand is quite humanlike, but the level of affinity is negative (Mori *et al.*, 2012).

Figure 1: Graphical representation of the UV phenomenon (Robertson, 2020)
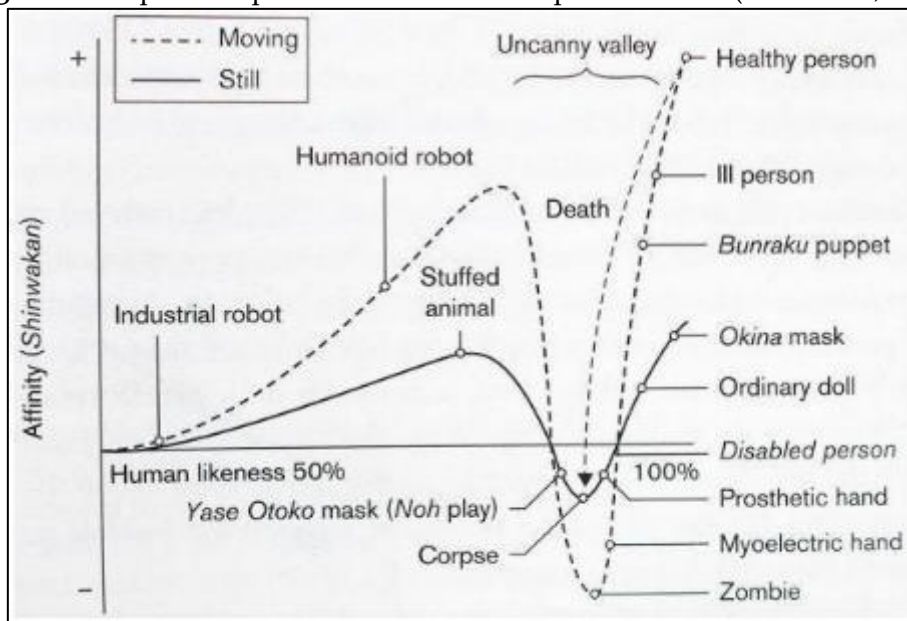
UV is also termed as the "Valley of Eeriness" (Chattopadhyay & MacDorman, 2016; Kätsyri *et al.*, 2015). "Eeriness" is a term used to describe a feeling of strangeness or unease, often

associated with something unsettling or mysterious. It's a sense of discomfort or spookiness that can be experienced when encountering something that doesn't quite fit with one's expectations or understanding. Moreover, the valley itself is not a fixed geological feature, but rather it is created by the person who suddenly perceives something as disconcerting. It is not a universal response, as people may react differently to a given stimulus depending on factors such as physical and cognitive abilities, age, sex, gender, sexuality, ethnicity, education, religion, and cultural background (Robertson, 2020). The book "Robots: Fact, Fiction, and Prediction" by Jasia Reichardt in 1978 extended the understanding of this phenomenon to some extent. It explored the cultural and societal aspects of robots in science fiction and reality. As the robot or character becomes even more indistinguishable from a human, the feeling of eeriness diminishes, and acceptance or comfort returns.

2.1. Previous research on the UV in animations and films

Over the years studies on the UV phenomenon in animations and films have grown, particularly in the context of how humanoid robots or computer-generated characters are designed and portrayed in a way that triggers discomfort due to their almost-but-not-quite-human appearance (Łupkowski & Gierszewska, 2019). The classic science fiction film *Westworld* in 1973, directed by Michael Crichton featured how androids closely resemble humans in a futuristic theme park. As the androids become more human-like, they start to exhibit unsettling behaviors, exemplifying the concept of the Uncanny Valley. Similarly, Ridley Scott's iconic film *Blade Runner* in 1982, shows humanoid robots that are nearly indistinguishable from humans. The film explores themes of identity and what it means to be human, and the replicants' human-like appearance and behavior create an eerie atmosphere. Japanese anime films such as *Ghost in the Shell* in 1995 directed by Mamoru Oshii delve into themes of identity, artificial intelligence, and the human-machine interface with highly realistic prosthetic bodies and cyborg enhancements. *Cyborg She* in 2008 directed by Jae-young Kwak presents the story of a man who meets a cyborg from the future. The uncanny nature of the cyborg's appearance and behavior plays a central role in the story.

Moreover, in video games such as *Death Stranding* in 2019 directed by Hideo Kojima and *Silent Hill* series created by Keiichiro Toyama feature highly realistic facial expressions and body movements, making them a notable example of how technology in video games can approach the edge of the UV. UV phenomenon in the realm of films and animation has experienced substantial growth over the years. Hence, it is not limited to one medium; it extends its reach across both classic and contemporary works of cinematic and animated art.

2.2. Anthropomorphism and its role in UV

Anthropomorphism and the UV are closely connected because they both pertain to the design and portrayal of entities, such as robots, animated characters, religious and mythological figures, brand mascots, emoticons and emoji, children's toys, stuffed animals, artificial intelligence, chatbots or any objects, that possess human-like qualities or characteristics. Anthropomorphism is typically characterized as the assignment of uniquely human emotions, mental states, and behavioural attributes to entities that lack consciousness, encompassing inanimate objects,

animals, and, more broadly, natural phenomena and supernatural beings (Salles *et al.*, 2020; Airenti *et al.*, 2019). Anthropomorphism comes into play with the concept of UV when a human-like robot or animated character becomes increasingly positive and empathetic that it triggers discomfort. The closer the mimicking of human-like qualities the more likely anthropomorphism comes falls into the Uncanny Valley. However, Epley *et al.* (2008) raise a compelling argument that challenges our perception of the world around us. Further, the author mentions that anthropomorphism isn't about explaining how things actually look or act. Instead, it's about how we see them in a human-like way, even if it's not exactly what we can see directly.

Another element that triggers the UV response in anthropomorphism is the inclusion of subtle imperfections in character design, animation, or behaviour to create a more realistic and relatable experience. When a character looks almost identical to a human but has minor deviations in facial expressions, eye movements, or speech, it can create a feeling of discomfort because the human brain is highly sensitive to these details (Salem *et al.*, 2013). Thus, anthropomorphism and the UV have interconnection based on the portrayal of human-like attributes. The degree of anthropomorphism plays a pivotal role in emphasizing the human-like interpretation rather than the actual appearance or the entities' behaviors.

2.3. Realism and Human-likeness

In the UV phenomenon, realism and human likeness play pivotal roles in eliciting strong emotional responses. Achieving a human-like and realistic representation of an artificial human not only captivates the viewers but also engenders a deep sense of empathy and connection (Tinwell *et al.*, 2011; Kaye & Giannachi, 2011). This lifelike depiction can bridge the gap between the virtual and real world, immersing the audience in a way that encourages them to engage on a profound emotional level. Such immersion can be a powerful catalyst for evoking strong negative emotional responses (Tinwell *et al.*, 2011), as it blurs the lines between the artificial and the authentic, making the viewer more susceptible to feeling genuine fear, empathy, or even revulsion when confronted with the uncanny and eerie.

Realism in the context of robotics, computer graphics, and animation refers to how closely an artificial representation approximates the appearance and behavior of a real human (Hamilton & Nowak, 2009). This can include factors like accurate rendering of facial features, body movements, and skin texture. The more realistic a representation becomes, the more it approaches the appearance of a real human.

According to Ferwerda (2003) in computer graphics, there are three types of realism: physical, photo-realism, and functional realism. Physical realism is a standard of realism used to evaluate computer graphics images. The image has to be an accurate point-by-point representation of the spectral irradiance values at a particular viewpoint in the scene. Photo-realism refers to the goal of creating an image that is indistinguishable from a photograph of a scene. This definition requires that the image has to produce the same visual response as the scene, even though the physical energy coming off the image may be different from the scene. In other words, the image has to be photo-metrically realistic. Lastly, functional realism refers to the ability of an image to provide the observer with much of the same visual information that they would receive if they were experiencing a real-world situation. This type of realism is

defined in terms of the fidelity of the information the image provides, and it allows for a wide range of rendering styles, from physically-based simulation through photo-realism, to more abstract approaches such as non-photorealistic rendering. Examples of functional realism in computer graphics include images used in flight simulators, which allow the observer to learn skills that then transfer into the real world.

Additionally, Zell *et al.* (2015) mention shape and material as the two important factors for the realism of an artificial human. The realistic representation of these attributes is integral to creating a believable artificial human that can evoke strong emotional responses, as it directly impacts the viewer's ability to relate and empathize with the artificial entity. Furthermore, in 3D animation and computer games, there are three levels of realism, which are cartoonish, semi-realistic, and realistic (Katsyri *et al.*, 2017). Each level of realism offers a unique visual and experiential journey, catering to diverse preferences and purposes within the world of digital entertainment.

Whereas, Human likeness refers to the degree to which an artificial entity, such as a robot or animated character, resembles a human in terms of physical appearance and behavior. High human likeness implies a realistic physical appearance in the entity that closely resembles a real person in its form, movement, and expressions (Kim *et al.*, 2022), such as humanoid robots or lifelike dolls. Zitzewitz *et al.* (2013) define a network of parameter fields that can be used to evaluate the degree of human likeness in robots. These parameters cover a range of visual and behavioral aspects to assess the resemblance to humans. Rothstein *et al.* (2021) mention about the cognitive likeness where a psychological construct related to anthropomorphism explores how humans attribute human traits to non-human entities. The author explains people relate to and perceive artificial agents that mimic human qualities.

Additionally, behavior also increases the traits of human likeness. Entities that can mimic human behaviors and perform tasks such as virtual assistants exhibit human-like behaviors. Whereas, in symbolic likeness symbols or icons represent human figures such as signs at restrooms with gender symbols or pedestrian crossing signs (Sun & Botev, 2021). Moreover, symbolic likeness expands further to culture and mythology. Human-like figures are depicted in religious or cultural contexts such as spirits, totems, and gods. In terms of computer graphics cues such as real skin texture, detailed character features, realistic eyes and the overall human-like appeal of the character show human likeness (Kätsyri *et al.*, 2015).

In UV there is a critical point in the continuum of realism and human likeness where the discomfort and negative emotions are most pronounced. As the entity's human likeness is improved beyond this point, the emotional response becomes positive again, and the entity is perceived as even more human and relatable. Hence, achieving the right harmony between realism and human likeness is essential when it comes to crafting artificial entities that are persuasive and emotionally resonant with people within the context of the uncanny valley. Low human-likeness and low realism would not elicit a strong emotional response whereas when entities become more human-like and realistic the viewers can respond and relate to it. Hence, slight discrepancies can create a sense of uncanniness and evoke feelings of discomfort in the viewer.

3. Methodology

A case study research approach is used to focus on the research questions. Various aspects of the film such as the narrative structure, characters, visual style, and thematic elements are discussed. Furthermore, mise-en-scène analysis is used to conduct a thorough analysis of the film's visual elements such as facial expression, costume, and body movement of the characters to underunderstand the visual language in eliciting the emotional response.

The data collection includes selected scenes and visual elements from different sequences in the film. The collected data were analyzed and interpreted in relation to the research question.

The data is analyzed in three categories
1) Visual aesthetics in Human Likeness details,
2) Animation style and narrative complexity
3) Scene Analysis: lighting, textures, and environment design.

The criteria for the selection of video clips from the film was based on the key elements of mise-en-scène such as change of the environment ie., changes in the set and location, changes in characters' costumes, changes of lighting that create a different mood, the composition of visual elements, color palette, and characters movement. Considering these criteria in choosing the clips provided a well-rounded representation of the film's mise-en-scène and allowed for a comprehensive and insightful analysis. This ensures that the analysis is focused and targeted.

4. Analysis of the *Resident Evil: Death Island*

4.1. Overview of the film and its director Eiichiro Hasumi

Over the past 25 years, *Resident Evil* has been a popular and long-running franchise known for its blend of horror, action, and science fiction. Cutting-Edge Animation: Advanced animation technologies such as photorealistic CGI. This film has a Potential for UV study: Characters that are on the boundary between human and non-human, with various degrees of mutation and experimentation (Switzer, 2023). The film is directed by Eiichirō Hasumi a Japanese director known for his action-related films and written by Makoto Fukami. His previous popular films were *Assassination Classroom* (2015), *Mozu* (2014), *Assassination Classroom: The Graduation* (2016), and *Resident Evil: Infinite Darkness* (2021) (Wojnar, 2021).

Resident Evil: Death Island unites five iconic heroes from the *Resident Evil* franchise. Leon's mission is to locate the missing Dr. Antonio Taylor and bring him to Alcatraz. Concurrently, Chris Redfield, Jill Valentine, Claire Redfield, and Rebecca Chambers are immersed in investigating a novel outbreak, with the island serving as the singular link among the infected. Collaborating is imperative for the team as they strive to dismantle a menacing new villain with sinister plans, potentially marking him as their most formidable adversary to date (Tyrrell, 2023).

4.2. Motion analysis of the film's animation style

The film employs a hyper-realistic animation style. It strives for a level of realism that borders on photorealism, especially in terms of character design and environments. This attention to

detail helps immerse the audience (Hodgkinson, 2009). The use of motion capture technology-based animation can be seen in the animation. The characters' facial expressions are expressive and convey a wide range of emotions, enhancing the storytelling. The accurate depiction of physics, lighting, textures, and how things interact are done in detail.

The natural flow of motion and the effects of gravity are presented convincingly throughout the film. Moreover, the real-life movements of the characters resemble lifelike in their mannerism (Lankoski *et al.*, 2003). Understanding the biomechanics of living beings is crucial for realistic movement. Muscle movements and joint rotations accurately portray the dynamics of human motion. Realistic facial expressions and behavior were used to show the emotions of the characters. Realistic animation takes into account the principles of weight and gravity. Hence, subtle movements of the face and body can be seen several times. Incorporation of naturalistic gestures and movements that people make in everyday life such as hand gestures, head movements, and other non-verbal cues that contribute to the authenticity of character animation were also shown in the film. Furthermore, the camera animation techniques also added more towards realism by resembling a live-action filmmaking style.

4.3. Narrative complexity

A narrative complexity for an animation film pertains to the material that constitutes the storyline of the animation (Chang & Chen, 2018). Narrative complexity comes from narrative elements that are the building blocks of the narrative plot. Most of the narrative plots follow patterns in their narrative structure. In narratology, Aristotle mentions that the main parts of a story are its plot or structure, which is like the plot in a poem or drama. He believed that tragedy, a specific kind of story, is the highest form of artistic expression (Barthes & Duisit, 1975). Similar narrative elements can be seen in *Resident Evil*.

Resident Evil is known for its darker and more mature themes compared to typical animated films. A film's visual language and graphic elements are significant in defining the animation narrative, expressing emotions, and the scene's mood (Chang & Chen, 2018). In *Resident Evil* the integration of realism in the scene and animation adds depth to the alluring plot of the film. Furthermore, the multi-layered plot of the film helps convey the violence and intensity of the story. The story revolves around the outbreak of a viral infection, leading to the creation of mutated creatures and zombies. The film employs various narrative devices to create suspense and surprise. These include elements like foreshadowing, flashbacks, and the gradual revelation of information to maintain viewer interest. However, the continuity in the nonlinear storytelling of the film does not break. Over time, the depth of the plot and pieces of the story's puzzle embed together.

4.4. Character design and depiction in the film

Table 1: Characters from the Film

Characters								
Names	Jill Valentine	Chris Redfield	Leon S. Kennedy	Claire Redfield	Rebecca Chambers	Maria Gomez	Dylan Blake	JJ

Source: https://residentevil.fandom.com/wiki/Category:Resident_Evil:_Death_Island_characters

Table 2: Observations Visual Aesthetics: Human Likeness details. Table 2 Design Asadul Islam 2023 ©

Names/ Criteria	Skin Textures	Facial Expressions	Eyes and Gaze	Realism of Character Appearances	Body Movement	Total	Percentage
Jill Valentine	9	9	9	9	10	46	92%
Chris Redfield	8	9	9	9	10	45	90%
Leon S. Kennedy	8	7	7	8	9	42	84%
Claire Redfield	9	8	9	8	8	42	84%
Rebecca Chambers	7	7	8	7	7	36	72%
Maria Gomez	6	7	7	8	8	36	72%
Dylan Blake	9	8	8	8	7	40	80%
JJ	8	7	8	7	7	37	74%

Jill Valentine and Chris Redfield stand out as the most likely to evoke the UV phenomenon. Both scores exceptionally high in skin texture, facial expressions, eyes, realism, and body movement, with ratings of 92% and 90% respectively. This indicates an incredibly realistic portrayal, making them almost indistinguishable from real humans. Leon S. Kennedy and Claire Redfield, while still highly realistic with an 84% rating, show slight variations in design that might mitigate the UV effect.

Rebecca Chambers and Maria Gomez have ratings of 72%, suggesting a somewhat lower level of realism, while Dylan Blake (80%) and JJ (74%) fall in-between, demonstrating a strong human resemblance with subtle distinctions that may make them less likely to trigger the UV response.

4.5. Scene Analysis: Visual aesthetics and cinematography

The environmental scenes from the film and objects replicate the look of real-world materials. Whether it's the surface of the clothes worn, facial details, hair, or the play of hyper-realistic lighting and shadow on different surfaces. The scenes are categorized into three sections lighting (atmosphere, realism, storytelling), textures (detail, variety, aging, and decay), and environment design (design, immersion, consistency) for analysis.

Table 3: Analysis of the Film

Scene Sequence 01	Time Details: 09:03 - 10:20
Screenshots from the film's visuals	**Lighting** **Atmosphere:** Bright lighting during the midday creates high contrast in the ambiance, accentuating noticeable shadows. **Realism:** The details on the giant fish's carcass and seagulls chirping on it establish a natural and realistic tone. **Storytelling:** A development of suspense and curiosity is conveyed by dialogues and interaction of the characters in the scene.
	Textures **Detail:** The textures on the clothing of the characters are meticulously detailed. Moreover, the hair of Claire Redfield contributes a lot to the realism. **Aging and Decay:** The carcass of the giant fish imparts an aging appearance to the scene.
	Environment Design **Design:** The silent beachside setting brings an element of uncanny to the scene as many onlookers are curiously gazing towards the giant dead fish. **Immersion:** The build-up of the tension in the narration unfolds steadily. There is a mix of curiosity and unease. **Consistency:** There was a seamless flow in the stories unfolding without any disruptions.

Scene Sequence 02	Time Details: 16:30 - 19:30
Screenshots from the film's visuals	**Lighting**
	Atmosphere: Dim indoor lighting is characterized by a closed-door shooting range. **Realism:** Notable mid-level details are observable. Bright light from the refrigerator serves as secondary lighting to enhance the overall environment. **Storytelling:** The interplay of the flash of lights from the shooting and the inclusion of fog lights from the roof encourages a feeling of grief in the narrative
	Textures **Detail:** The texture details are very high-quality particularly intricate depictions of the clothes details of Chris Redfield. **Aging and Decay:** The walls with the dark tone of the lights evoke an aging effect.
	Environment Design **Design:** The environment is very minimalist with a few details such as chairs and tables around. **Immersion:** The narration gradually unfolds and delves into the past of Jill. Basic but intentional body movements such as passing the water bottle contribute depth to the characters. **Consistency:** The narration has a subtle tone. However, by the end of the scene's conclusion, the tempo intensifies again where it started with Jill.

Scene Sequence 03	Time Details: 21:30 - 22:57
Screenshots from the film's visuals	**Lighting** **Atmosphere:** Bright ambient indoor light is used to illuminate the scene. **Realism:** The brightness of the lights shows the optimum visibility of the gestures and movements of the characters. Additionally, blurred reflections of the characters can be seen on the glass walls. **Storytelling:** The scene lighting establishes a short meeting setting impacting future decision-making.
	Textures **Detail:** The textures and materials of the clothes exhibit a high level of intricacy and detailed nuances. All the characters' facial features are portrayed very realistic. **Aging and Decay:** There are minimal aging and decaying elements with few signs of deterioration in the scene
	Environment Design **Design:** The setting is an office space with regular office-based objects such as computers, files, and desks. **Immersion:** A conversation delves into the T-virus and its impacts on people by establishing connections. **Consistency:** A sequence of events unfolds about the origins and causes behind the virus.

Scene Sequence 04	Time Details: 30:12 - 35:12
Screenshots from the film's visuals	**Lighting** **Atmosphere:** Diffused lighting with soft shadows creates an overall darker ambiance. **Realism:** Sea water enhances the realism of the island entrance scene. **Storytelling:** The utilization of dark lighting is effective in the sequence of fight scenes to portray people affected by the T-virus and the sea creatures.
	Textures **Detail:** The appearance of the textures is very gritty and rusty. Several shots depict blood wounds throughout the sequence. **Aging and Decay:** A constant rustiness is evident, due to the location of the island, resulting in the metallic structures' dark brown color.
	Environment Design **Design:** Indoor and underground scenes are shown featuring aged walls and dark surroundings in design. **Immersion:** The rapid action sequences captivate the attention of the viewer. **Consistency:** The seamless flow of the narration and dramatic unfolding of the events in the sequence is evident.

Scene Sequence 05	Time Details: 1:06:02 - 1:09:00
Screenshots from the film's visuals	**Lighting**
	Atmosphere: Indoor lighting is featured in the scene.
	Realism: The lighting enhances realism and directs the focus to the characters.
	Storytelling: A series of action sequences unfolds and the non-dramatic lighting captures it distinctly.
	Textures
	Detail: The textures on the characters' clothing, ships, and the inside of the factory exhibit a high level of realism.
	Aging and Decay: The aging and rustiness of the metallic objects are visible at a very large scale, contributing to a sense of weathering.
	Environment Design
	Design: The environment looks very realistic with giant mechanical units reminiscent of the inside of a factory.
	Immersion: The engagement level is low, primarily because of the action sequence within the same premise.
	Consistency: The antagonist comes in front asserting dominance over all the characters in his territory contributing cohesiveness in the story.

Scene Sequence 06	Time Details: 1:24:46 - 1:26:21
Screenshots from the film's visuals	**Lighting** **Atmosphere:** The warm and soft light of the golden hour can be seen casting a diffused illumination. **Realism:** In comparison with other sequences from the film the level of realism is relatively low. **Storytelling:** This golden hour lighting enhances the storytelling and introduces a sense of joy among the characters.
	Textures **Detail:** There is not much of an intricacy in the textures and the scene is in an open area. **Aging and Decay:** The textures look rusty and grungy in appearance.
 	Environment Design **Design:** The environment is simplistic by featuring very minimal details. **Immersion:** As this is the closing sequence, the narrative's immersion level is notably low. **Consistency:** The environment adds to the resolution of the story. As the elements are very subtle and less detailed.

5. Conclusion

Resident Evil aims for a high level of realism in the design, visuals, gestures, and behavior of the characters. However, pushing too close to hyper-realism risks triggering the UV effect, where some characters appear almost human but not quite right. There are subtle discrepancies in appearances and movements, which creates a sense of eeriness. The facial expressions of the characters are attuned to be highly human but trigger an instinctual aversion to realism. Characters such as Jill Valentine and Chris Redfield appear very real whereas, characters with subtle imperfections such as Rebecca Chambers, Maria Gomez, Dylan Blake, and JJ lacked genuine in representing the right emotions. Stiff and robotic movements can be seen in some instances of the film. This created a sense of dissonance. Hence, very fluid, human-like character movements are required to avoid the UV because of the phenomenon. Even though the characters can look real by visual appearance but if exhibit unnatural movements it can contribute to an uncanny valley.

The human brain is attuned to interpreting natural and nuanced motions. When animated characters create a perceptual mismatch then a sense of uneasiness appears. Intricacies of realistic human motion, including subtle gestures, facial expressions, and body language are required to enhance authenticity without creating a gap between the artificial and real appearances. In the film, the attribution of anthropomorphism characteristics is exhibited in the characters' personalities and the conveying of emotions. This contributed to creating visually captivating and enduring scenes. Hence, the more the visuals are seamless and engage the viewers' experience the minimum the UV effect. Achieving a balance between realism and human likeness is a complex task, requiring careful attention to factors like facial features, skin texture, movement, behaviour, and context. Subtle details and the nuances of the facial expressions, eyes, and skin texture can have a significant impact on how a character is perceived. Furthermore, on the technical side, the realism in the rendering can create more convincing three-dimensional characters in computer graphics.

In the film, few settings can feel authentic and relatable without veering into the unsettling territory of the Uncanny Valley. However, unrealistic elements in the film such as zombies and mutated bioengineered creatures are less realistic and emphasizing the feeling of eeriness. The mix of realism and fantasy with subtle deviations can be seen throughout the film. Ultimately, the film's success in navigating these complexities hinges on maintaining a delicate equilibrium between realism and the fantastical, recognising the intricate dynamics that influence humans' perception and emotional engagement.

Conflict of Interest Statement
The author declares no conflicts of interest.

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