
RESEARCH ARTICLE

Digital Hybrid Technology and Literary Fantasy of Today's Cinema: A Case Study of Jumanji

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ABSTRACT

This study examines how state-of-the-art cinematic techniques, such as computer-generated imagery (CGI), visual effects, and the integration of digital characters with real-world environments, are used to achieve a seamless blend of fantasy and reality in the "Jumanji" film series (1995, 2005, 2017, 2019). The research investigates bringing the "Jumanji" game to life and how these technologies materialize the fantasy elements of the original game within the real world. It explores crafting a fantastical narrative, i.e., how they establish a captivating and immersive space adventure experience in "Zathura." This study suggests that contemporary fans of "Jumanji" have a distinct perception of the film because they enjoy the mix of immersive fantasy and a sense of real-world connection.

KEYWORDS

Hybrid technology, today's cinema, Jumanji.

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1. Introduction

The employment of technology in the film industry to produce immersive cinematic experiences has seen substantial change in recent years. To understand how hybrid technology improves audience engagement with the film's fantastical elements, this thesis will examine how it helps modern films, Jumanji in particular, materialize their fantastical elements. It will achieve this by integrating blended real-world and virtual effects.

Four films make up the Jumanji franchise as of right now, excluding the 1996–1999 animated TV series. The film series includes the 1995 film Jumanji, the 2017 film Welcome to the Jungle (2017) (watchword, 2022), Zathura: A Space Adventure (2005), and the fourth Jumanji film, The Next Level (2019) (Lyton, 2023; Rotten Tomato, n.d.; The JH Movie Collection Official, 2023; salesianipinerolo, 2024).

The animated Jumanji series falls outside the scope of this study, which concentrates on cinematic Jumanji narratives. This study aims to capture the most accurate picture of hybrid technology's transformative effect on today's theatrical film experiences, where the technology's potential truly shines.

2. Literature Review

Several researchers discussed the role of hybrid technology from different perspectives:

Some studies, like Ampleman & St-Cyr (2012) study and Friedrich & Michae's (2013) study, discuss the role of hybrid technology in-game interaction. They highlight the interaction with games and describe a unique gaming system that combines multiple

controllers with virtual game software and how this allows players using separate controllers to interact with each other's characters within the virtual world, creating a dynamic and collaborative gameplay experience, (Ampleman & St-Cyr, 2014). The study by Clara et al. (2008) discusses a similar concept when they try to capture the essence of transforming traditional playgrounds into spaces that encourage physical and digital interaction. They also convey the idea of promoting collaboration between players by using interactive elements (2008, pp.41-50)

The study by Nitsche and Kirschner (2013) proposes a new, environmentally friendly way to control cameras and sets during real-time CGI animation. It does this by combining two approaches: A focus on machinima means using game engines and their existing tools to create animation, making it resource-efficient; Playful exploration: The interface encourages users to experiment and discover new ways to control the virtual world, fostering creativity and innovation (2013). Combining these approaches aimed to create a sustainable and engaging experience for real-time CGI animators (2013).

Mixing Reality with Virtuality can create flexible hybrid virtual-physical entities (Joon et al. 2012, pp. 275-276), but some evaluative considerations are needed while developing and implementing hybrid entities (2012)

Recent research in animation is noteworthy for its recognition of the growing importance of hybrid technology. Studies like JAX (2023), Lecture Notes (2023), and Sayed et al. (2020) highlight this trend as having a significant impact on the industry. These studies explore the role of hybrid technology from the perspective of the animation profession. Recent research in animation is noteworthy for its recognition of the growing importance of hybrid technology. Studies like those by JAX (2023), Lecture Notes (2023), and Sayed et al. (2020) highlight those trends' significant impact on the industry. These studies explore the role of hybrid technology from the perspective of animation professionals.

While the interplay between reality and fiction in animation has been studied previously, particularly in documentaries (Landesman, 2008), the use of diverse technological elements in animation is a relatively new phenomenon that has led to some initial apprehension, like the concerns raised in the 1990s with the rise of new media and digital techniques in filmmaking (Bolter, 2005, pp.13-26). However, these anxieties are fading as the potential of hybrid technology in animation becomes increasingly annoying.

The influence of hybrid technology on cinema is a recent phenomenon reflected in ongoing research. Studies like K. P. et al. (2022) explore practical applications, such as implementing hybrid movie recommendation systems. Meanwhile, others like Inês (2021, pp. 80-89) delve into the philosophical aspects, examining the intersection of scientific advancements and cinematic imagination, focusing on the interplay between researchers' fantasies and their representations on screen.

Researchers have analyzed communication in the Jumanji movies through different lenses. Some have examined speech acts (Agung 2022; Gustiyanda et al. 2020). The Gustiyanda et al.'s (2020) study examined four categories of speech acts: Agung (2022, p. 13) examined speaking acts in Jumanji, such as providing instructions or presenting the facts (Agung 2022; Gustiyanda et al. 2020; Campercom, 2024). They found that "commanding" was the most common speech act.

However, other studies have explored implicature, meaning conveyed indirectly, in Jumanji: Welcome to the Jungle (Saniatang et al., 2020; Campercom, 2024), but not in other Jumanji films.

A review of research conducted over the past two decades reveals a surprising gap: no prior studies directly address the impact of hybrid technology on bringing the fantastical elements of the Jumanji movies to life; no comprehensive study has yet analyzed all the Jumanji series. Such a gap forms the central focus of the current investigation.

3. Methodology

This research employs a corpus-based approach together with thematic coding to analyze the hypothesis of this study.

4. Results and Discussion

The hybrid technology employed in the movie Jumanji(s) (Mr Movie, 2019) improves the story and forces the transition between virtual and real-world parts smoothly. The movie enhances the audience's experience using digital elements like websites and apps (Smith & Jones, 2022, pp. 85-96). These technical elements provide a deeper absorption into the fictitious world by providing additional levels of immersion that naturally fit into the film's design and story (Ciolfi, 2021). The movie also employed a hybrid-reality interaction method and gadget that synchronizes the items viewed in the virtual and real worlds (Xu, Li. 2019). Jumanji's seamless blending of virtual and real-world components makes for a more captivating story for viewers, improving their overall experience.

4.1 Integration between Game and Reality in Jumanji (1995)

This movie is a classic family adventure film that blends fantasy and reality in a truly captivating way. The adventure starts with the young Allan Parrish. When young Alan Parrish comes across an enigmatic board, he rolls the dice, and the game comes alive, sucking him into its jungle world and unleashing wild animals and chaos into his real-life town. (Abhishek et al. 2022, pp. 446-68)

Twenty years later, siblings Judy and Peter Shepherd move into the same house and stumble upon Jumanji in the attic. They get sucked into the game, encountering Alan, now a grown man, and together they must face the game's dangerous challenges to reach the finish and return to the real world (2022).

The 1995 film Jumanji employed several innovative techniques to breathe life into its fantastical game world (Pelline, 2011& CGW, 2018). This involved:

4.1.1 Lifelike Computer-Generated Imagery

Industrial Light & Magic (ILM) created realistic computer-generated creatures, including elephants, rhinos, and lions (Pelline, 2011& CGW, 2018).

4.1.2 Realistic Details

Advanced computer graphics techniques rendered the animals' fur and hair with remarkable realism, enhancing their on-screen presence (2011).

4.1.3 Custom software

ILM developed a unique software solution by combining elements from various companies' products (2011); this allowed for intricate details like muscle definition and accurate expressions in the animals.

4.1.4 Seamless integration

The computer-generated animals were flawlessly blended with live-action footage, creating a convincing and immersive experience for viewers (2011).

4.2. Discourse of Adventurous Magic and Fantastical Space in Jumanji (2005)

The 2005 film Zathura or A Space Adventure (campercom, 2024) explores themes of sibling rivalry and the power of imagination. Under Jon Favreau's direction, the science fiction and adventure elements are combined in this American movie. (campercom, 2024).

The story revolves around two brothers, Walter and Danny Budwing, who embark on an unexpected journey when they stumble upon a magical board game that sends them hurtling through space. As they face meteor showers, alien attacks, and a malfunctioning robot, they must learn to work together to win the game and return home while dealing with their grumpy teenage sister, who gets caught in the action (2005).

Towards the end of the film, Walter's wish surprisingly brings back the astronaut's brother, revealing that the astronaut is Walter from a different timeline. Amidst the chaos, the Zorgons return with reinforcements. However, Danny's victory in the game unveils Zathura as a black hole, which destroys the alien fleet and their house. The siblings miraculously find themselves back at home right before their father arrives. This extraordinary experience unites the brothers and leads them to decide to keep their cosmic adventure a secret.

The researcher can analyze the movie and its context to understand the potential impact of hybrid technology on the film. Analyzing the themes and special effects used in "Zathura," the study tries to conclude how advancements in technology would have impacted the film.

4.2.1 Visual Effects

"Zathura" relies heavily on special effects, likely using a mix of practical effects and computer-generated imagery (CGI) to create its fantastical space setting. This blending of actual and computer-generated elements helps make the movie more visually appealing and immersive for the audience.

4.2.3 Immersive Experience

By blending realistic elements with computer-generated imagery, "Zathura" likely aimed to create a more immersive world for its viewers; this makes the fantastical space adventure feel more believable and exciting, drawing the audience into the story.

4.2.4 Storytelling Possibilities

"Zathura" likely benefited from combining special effects with traditional filmmaking techniques; this allowed the creators to imagine and portray fantastical elements, like space environments, strange creatures, and extraordinary events, that would not be possible with only physical props or sets.

4.3. Communication between Jungle and Gamers in Jumanji (2017)

This American movie combines fantasy, adventure, and comedy. Its Lead director: Jake Kasdan (watchward, 2022). It is the third installment in the Jumanji film series and served as a sequel to the original Jumanji film released in 1995 (IMDB, 2017).

The narrative centres on a quartet of high school students stumbling upon an ancient video game console that transports them into a perilous jungle realm. Transformed into adult avatars due to their selection, they must not only engage with the challenges of Jumanji but also survive its dangers to find their way back to reality. The key figures are Spencer Gilpin, embodying the role of the robust archaeologist Dr Xander "Smolder" Bravestone; Bethany Walker portrays the attractive and bearded professor Sheldon "Shelly" Oberon, who is a paleontologist. Johnson takes on the role of the small-sized zoologist Franklin "Mouse" Finbar. Martha Kaply plays the alluring martial arts pro-Ruby Roundhouse (watchward, 2022). Their objective is to break a curse on Jumanji instigated by the archaeologist Professor Van Pelt by returning a mystical gem known as the "Jaguar's Eye" to its sacred place and uttering "Jumanji!" to dispel the curse and exit the game. Along their journey, they confront various trials like Van Pelt's henchmen, internal group dynamics, and the vulnerabilities of their avatars. To succeed, they must collaborate and leverage their unique abilities to surmount these hurdles. Ultimately, they accomplish their mission, lift the curse, and reenter reality. The adventure fosters an unexpected camaraderie among them and facilitates personal growth (IMDB, 2017).

4.3.1 Visual Effects (VFX)

While producing the film Jumanji: Welcome to the Jungle, the Australian VFX company ILoura contributed significantly to creating diverse creatures and immersive environments. Led by VFX Supervisor Glenn Melenhorst, ILoura produced 374 shots over twelve months, utilizing hybrid technology to transition characters smoothly into and out of the game world. The team worked closely with Director Jake Kasdan to ensure the visual effects were consistent with the desired aesthetic, ultimately delivering a compelling viewing experience (Backstage, 2023)

4.3.2 Creature Design

ILoura makes a task with animating a variety of creatures, including a fearsome hippopotamus, a venomous serpent, albino rhinoceroses, and the menacing vulture belonging to the film's primary antagonist. For the vulture's design, the team crafted a hybrid creature blending vulture features with the predatory aura of a large bird. Through extensive research and digital modelling, they refined a design to achieve the desired look.

The albino rhinos envisioned formidable hybrid beasts, larger and more intimidating than their real-world counterparts. To bring them to life, the VFX artists incorporated albino traits such as pale skin and horns, enhancing the effect with a touch of exaggerated pink subsurface scattering for a fantastical appearance.

4.3.3 Environment Creation

A pivotal sequence in the film unfolds in a ravine where protagonists face off against enraged albino rhinos. ILoura meticulously crafted every detail of the environment, from cliffs and boulders to rocks, trees, and vines to the smallest pebble. Lighting this scene posed a significant challenge as they aimed to balance realism and a slightly fantastical ambience.

The urban setting of Berber City is given life through intricate 3D modelling of structures, projection mapping of textural details, smoke simulation, bird animations, flag movements, and crowd simulations to populate the bustling cityscape.

Overall, the use of hybrid technology in Jumanji: Welcome to the Jungle allowed for the creation of visually stunning creatures, environments, and effects, enhancing the immersive experience of the film.

4.4 A Journey from Fantasy to Reality in Jumanji (2019)

This film, also known as The Next Level, is the fourth instalment in the Jumanji franchise and is a follow-up to Jumanji (2017). Jake Kasdan did a superb job directing this film. (Jumanji, 2019; Mithaiwala, 2018).

This movie revolves around Spencer Gilpin, Anthony "Fridge" (Billingsley, n. d.), Johnson, Martha Kaply, and Bethany Walker, who are planning to reunite over Christmas break after their first semester of college. However, Spencer, being dissatisfied with his life compared to his friends, decides to reenter the Jumanji game as his avatar, Dr. Smolder Bravestone. When Spencer goes missing in the game, his friends embark on a mission to rescue him. Along the way, Spencer's grandfather Eddie and his friend Milo, also

get sucked into the game with them. The group faces new challenges in a broken version of Jumanji and assumes different avatars this time. They must retrieve a stolen magical necklace called the Falcon Heart from the warlord Jurgen the Brutal to escape the game. Throughout their journey, they encounter various obstacles, reunite with a previous player, and navigate personal differences while striving to save Jumanji and return to the real world (2019)

The impact of hybrid technology on 2019 Jumanji. The movie utilized advanced VFX techniques to bring the fantastical world of Jumanji to life and enhance the overall viewing experience.

4.4.1 Visual Effects (VFX)

VFX for Jumanji: The Next Level (2019) managed by Sony Pictures Image Works under the supervision of VFX Supervisor Jason Greenblum. The film incorporated a diverse array of VFX, encompassing the development of digital characters, environments, and various effects to elevate the action sequences and fantastical aspects of narration. The VFX team undertook tasks involving digital ostriches, a digital ostrich crowd, digital double work, enhancing the digital desert environment, and creating entirely CG dune buggies, among other components. These digital elements seamlessly merge with live-action footage to craft a unified and immersive visual spectacle by employing hybrid technology,

The movie created a seamless blend, resulting in a visually unified and captivating experience for the audience (2019) by combining digital effects with live-action footage.

4.4.2 Digital Character Integration

This was a key focus for the VFX team, which meticulously crafted digital ostriches and a digital ostrich crowd that seamlessly integrated into live-action scenes. These digital characters interact convincingly with actors and surroundings, enriching scenes with depth and authenticity. The integration process demanded meticulous attention to detail to ensure seamless blending with practical elements of the film. (2019)

4.4.3 Environment Enhancement

It was another significant aspect of the VFX work. The team enhanced the desert setting by eliminating unwanted tyre tracks and refining elements to enhance the visual appeal and immerse viewers further in the environment. Additionally, digitally enhancing practical dune buggies by adding CG wheels and undercarriage heightened the excitement of action sequences. (2019)

The application of hybrid technology enabled the creation of fully digital environments for specific scenes, delivering visually striking backdrops that enriched the characters' adventures in the film.

Integrating hybrid technology in Jumanji: The Next Level (2019) enabled the filmmakers to push the boundaries of visual storytelling, creating a visually captivating and immersive cinematic experience for the audience.

4.5. Hybrid Technology and Jumanji's Fans

Hybrid technology's influence goes beyond simply making the fantastical elements of Jumanji movies come alive. It creates lasting impacts on fans of all ages across different eras. This influence extends to various aspects of their lives, not just entertainment.

4.5.1 Impact on Fans' Experience

4.5.1.1 Interactive Experiences

Elements like theme park attractions, escape rooms that use augmented reality, and other hybrid elements employed to bring the world of Jumanji to life, allowing fans to step into the movie and interact with the game's challenges and characters; this could create a more immersive and engaging experience for fans.

4.5.1.2 Collectable and Merchandise

Hybrid tech serves to achieve unique and interactive collectables, such as action figures that come with AR apps that allow fans to see them come to life on their devices; this could be a way to increase engagement with merchandise and create a more emotional connection between fans and the characters.

4.5.1.3 Social Media and Online Communities

Hybrid tech could serve as a tool to create more engaging social media experiences for Jumanji fans, such as filters or AR effects that allow them to share their fandom with others, which could help build a stronger sense of community among fans.

4.5.1.4 Marketing and Advertising

Technology creates more immersive and interactive marketing campaigns for Jumanji movies or other products. For example, imagining an ad uses AR to allow fans to see the movie's characters come to life in their living room; this could be a more memorable and effective way to reach fans.

It is important to note that these are just potential impacts, and the actual impact of hybrid technology on Jumanji fans will likely vary depending on how they were employed. Additionally, it is worth considering that not all fans will be receptive to hybrid technology, and some may prefer more traditional forms of engagement.

Overall, hybrid technology has the power to create new and exciting experiences for Jumanji fans. However, it was employed respectfully for the franchise and its fans.

Modern fans' perception of Jumanji can be shaped by the blend of immersive imagination and tangible fantasy presented in the movies.

4.5.2 Impact on Fans' Perception

4.5.2.1 Nostalgia

The original Jumanji movie was released in 1995, and many modern fans will have grown up watching it; this can create a sense of nostalgia that makes the fantasy in the film more appealing.

4.5.2.2 Escape from Reality

The Jumanji movies offer an escape from the everyday world; the characters find themselves in a dangerous and exciting jungle, where they must face a series of challenges to return home; this can be interesting to modern fans who are looking for a break from the stresses of their daily lives.

4.5.2.3. Humor

The Jumanji movies are also known for their humor, which can help make fantasy more relatable and enjoyable for modern fans.

4.5.2.4 Relevance to modern issues

The Jumanji movies are like modern allegories such as technology addiction, the importance of teamwork, and the dangers of greed; they can make the fantasy more relevant and thought-provoking for the fans.

4.5.2.5 Special effects

The special effects in the Jumanji movies have become more sophisticated over time; they can make the fantasy more believable and immersive for modern fans.

Of course, not all modern fans will perceive the fantasy of Jumanji movies similarly; some fans may find them too campy or childish, while others may appreciate the nostalgia and humor; how modern fans perceive the fantasy of Jumanji movies will depend on their individual preferences.

Empathy for the characters: By seeing the actors interact with the practical sets and creatures, the audience can connect with the characters on an emotional level because the actors' reactions feel more genuine when they're responding to tangible elements rather than just green screens.

4.5.2.6 Real-world-impact

Using practical effects can ground the fantastical elements in the real world, making the consequences of the game's events feel real and impactful. They can raise the stakes for the characters and make the audience care more about their outcomes.

The hybrid technology in the Jumanji movies allows for a unique blend of immersion, humor, nostalgia, and emotional connection; bringing these together can lead to a truly engaging and memorable experience for the audience, making them feel like they are part of the game world.

4.5.2.7 Multi-sensory- experience

The hybrid technology in Jumanji movies goes beyond just visuals; it reaches out to engage multiple senses.

a. Visually stunning creatures and environments

The blend of practical and digital effects creates photorealistic animals, lush jungles, and fantastical game elements that immerse viewers in the world, just like encountering realistic portrayals of powerful animals or stunning natural wonders that can spark a sense of awe in viewers.

b. Dynamic Action Sequences

The hybrid approach allows for fast-paced, thrilling action scenes with convincing impacts and reactions like buildings crumbling, characters dodging CGI animals, or the board game coming to life in vivid detail.

c. Immersive Sound Design

The movies utilize spatial audio and sound effects that match the visuals, placing you right in the action, for example, the roar of a digital lion echoing through the jungle or the thumping of giant footsteps making the theatre seats vibrate.

d. Distinct Sound Cues

Each creature, environment, and game element often has unique sound signatures, further solidifying their presence and enhancing the overall soundscape, for example, the iconic drumbeat signaling danger or the whimsical chimes of the game board itself.

e. 4D Movie Experiences

Some theatres offer 4D screenings where seats move, the wind blows, and water sprays in sync with the film, creating a physical connection to the on-screen events like feeling the rumble of the jaguar's pounce or the coolness of the jungle rain.

f. Merchandise and Tie-ins:

While not directly part of the movie, toys, games, and other merchandise that utilize similar visuals and textures can extend the sensory experience beyond the screen; holding a miniature version of the game board or a plush animal from the movie can bring back the sights and sounds.

g. Limited Use in Special Screenings

Some special screenings or promotional events might incorporate scent diffusers to match specific scenes, like the smell of the jungle or the sweetness of the game's candy; it adds another layer of immersion for those lucky enough to experience it.

By combining these elements, the hybrid technology in Jumanji movies strives to create a multi-sensory experience that pulls viewers into the world of the game; it is not just about seeing the action; it is about feeling the danger, hearing the jungle and maybe even tasting a bit of the adventure.

5. Conclusion

The study explores how hybrid technology, combining computer-generated imagery (CGI) with live-action footage, has revolutionized the Jumanji film series.

In Jumanji (1995), Industrial Light & Magic (ILM) pioneered realistic CGI creatures like elephants and rhinos, using advanced graphics and custom software seamlessly blended with live-action videos, creating a believable and immersive experience.

The film Zathura (2005) likely leverages a combination of practical effects and CGI to create a visually stunning space adventure; such a blend enhances its appeal and draws viewers into the fantastical storyline, allowing for the portrayal of elements beyond the capabilities of traditional techniques.

In Jumanji: Welcome to the Jungle (2017), the Australian company ILoura significantly contributed by creating diverse creatures and environments, including a unique vulture design; it also developed hybrid technology for seamless character transitions between the physical world and the game world, ultimately delivering a compelling visual experience.

In Jumanji: The Next Level (2019), Sony Pictures and Imageworks used a diverse array of VFX, including digital characters, who were realistic ostriches, both individually and in crowds, to interact seamlessly with live-action elements. Also, an enhanced environment has been created by refining the desert setting and enhancing practical elements like dune buggies for visual appeal and immersive action sequences. This leads to a flawless blending of all digital elements with live-action footage for a cohesive and immersive experience.

Overall, the study highlights how hybrid technology has become instrumental in creating visually stunning and immersive experiences in the Jumanji series, pushing the boundaries of storytelling by integrating fantastical elements with the real world.

6. Study Limitations and Future Research

This study focuses solely on Jumanji as a case study. Analyzing a wider range of films that incorporate digital hybrid technology and literary fantasy elements could provide a more comprehensive understanding of this trend in contemporary cinema.

The study primarily examines the digital hybrid technology within Jumanji. Further research could delve deeper into the narrative and thematic implications of this technology's use in the film.

The present investigation lays the groundwork for several compelling future researches, contingent upon the specific findings. These future researches could include:

1. Comparing and contrasting how different films utilize digital hybrid technology to create specific narrative and thematic effects within fantasy settings.
2. Investigating the long-term impact of digital hybrid technology on the fantasy genre. Is it creating new subgenres or transforming existing ones?
3. Analyzing the social and cultural contexts that influence the use of digital hybrid technology in fantasy films. How do these factors shape the narrative and its themes?
4. Conducting case studies on other films that exemplify digital hybrid technology and literary fantasy elements. How do these films differ from or reinforce the observations made in the current study on Jumanji?

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