# The Application of CG Technology in Chinese Cinema: A Case Study of *L.O.R.D: Legend of Ravaging Dynasties* (Postprint)

**Authors:** Zhou Xinyue

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## Abstract

CG technology constitutes a fundamental technique for animation production, frequently employed in the creation of science fiction films. This technology initially emerged in large-scale foreign science fiction productions, exemplified by works such as *The Lord of the Rings* and *The Matrix*. In Chinese science fiction cinema, however, applications have been largely limited to basic techniques, with the integration and implementation of more complex forms remaining comparatively underdeveloped. This paper primarily examines the application of CG technology in Chinese films, utilizing the two film series adapted from the novel *L.O.R.D*—*L.O.R.D: Legend of Ravaging Dynasties* and *L.O.R.D: The Fatal Feast*—as case studies to conduct an in-depth analysis of the advantages and disadvantages of CG technology utilization in these productions. Notably, the *L.O.R.D* series employed full-performance CG technology throughout the entire production process, incorporating motion capture technology for human characters. Although the films have generated considerable controversy due to factors related to the director and the casting of popular actors, it must be acknowledged that this production nonetheless represents a significant advancement for Chinese science fiction film technology.

## Full Text

### The Application of CG Technology in Chinese Cinema: A Case Study of *L.O.R.D*

**Zhou Xinyue**
Wuhan Sports University, Wuhan, Hubei 430079

**Abstract:** CG technology is a fundamental technique for animation production, frequently employed in science fiction filmmaking. Initially prominent in major foreign productions such as *The Lord of the Rings* and *The Matrix*, Chinese

sci-fi films have traditionally utilized only basic techniques, with integrated and complex applications remaining relatively underdeveloped. This paper examines the application of CG technology in Chinese cinema, using the film series *L.O.R.D: Legend of Ravaging Dynasties* and *L.O.R.D: The Cold-Blooded Feast* —both adapted from the novel *L.O.R.D*—as case studies to analyze the strengths and weaknesses of CG implementation in these works. Notably, the *L.O.R.D* series employed full live-action CG technology throughout, combined with motion capture. Despite controversy surrounding the director and cast, these films undeniably represent a significant advancement for Chinese sci-fi cinema technology.

**Keywords:** CG technology; motion capture; film production; media aesthetics; *L.O.R.D*

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The special effects presented by CG technology generally fall into two categories: traditional CG effects and visual effects. The term "CG" is an abbreviation for Computer Graphics. CG technology refers to the use of computer-aided techniques to produce animation, while CG films are those shot with real scenes and actors, subsequently enhanced with CG technology to add appropriate virtual elements to effects and characters. This approach is commonly employed in science fiction films to infuse realistic foundations with fantastical qualities.

Most sci-fi films utilize CG technology to immerse audiences in an experience that blurs the boundaries between reality and fiction, creating a permeable perception where truth and illusion intertwine. Simultaneously, outstanding CG films require both actors' nuanced expression of emotion and demeanor, as well as sophisticated operational and post-production techniques—both elements are indispensable. The *L.O.R.D* series has attracted significant public attention and discussion precisely because it pioneered this approach as China' s first full live-action CG film. During production, to accomplish motion capture, each actor wore head-mounted cameras and had tracking markers placed on their faces, capturing every minute detail including subtle changes in eye movement or eyebrow twitches. In reality, all filming was completed against green screens, requiring actors to imagine the script' s scenes and settings while relying on subsequent CG technical processing.

## 1. Current Development Status of CG Technology in Chinese Cinema

In domestic science fiction cinema, CG films integrated with motion capture technology remain relatively rare. The *L.O.R.D* series, as China' s first full live-action CG production, employed motion capture throughout its entire production process, generating remarkable impact within China' s sci-fi film community. The recently released *L.O.R.D: The Cold-Blooded Feast* pursued the creative goal of a pure CG film, utilizing specialized costumes and props to capture actors' movements and expressions.

Scanning a single character' s head model required eight hours, and after principal photography concluded, over 400 engineers spent one and a half years completing post-production. This capture technology produces more vivid and lifelike characters than computer-generated figures alone, possessing human expressions and demeanors while transcending ordinary appearances to create a "divine" quality.

## 2. Advantages of CG Technology Application

### 2.1 CG Technology Enriches Visual Composition

Scenes captured directly with cameras sometimes fail to meet the predetermined requirements of science fiction filmmaking, necessitating CG enhancement. CG-augmented visuals exhibit greater chromatic richness and more pronounced sci-fi aesthetics. Light and shadow distribution achieves perfection, with cool and warm tones harmoniously integrated without any jarring color clashes or contradictory palettes. Instead, dreamlike effects are superimposed onto realistic foundations, intertwining reality and illusion. Furthermore, distinct color highlighting can create different atmospheres, and CG technology intensifies environmental ambiance to align with narrative development. In the opening sequence of *L.O.R.D: Legend of Ravaging Dynasties*, a scene depicts the protagonist running through a forest, where a beam of six o' clock morning sunlight pierces the dense darkness, shifting and transforming with the character' s movement. The interplay of light and shadow and the environmental aesthetics are rendered exquisitely—the morning sunlight conveys a sense of rebirth, mirroring the plot point where the protagonist Qi Ling obtains his soul circuit and becomes the disciple of the Seventh Lord Yin Chen, embarking on a new life trajectory. This effect thus incorporates cool tonal elements consistent with the film' s overall mood while emphasizing character and plot development.

### 2.2 CG Technology Enhances Spatial Hierarchy

Our physical world exists in three-dimensional space, yet conventional screens present only two dimensions—precisely why 3D films are so popular among audiences. The integration of CG technology adds stereoscopic and multi-dimensional qualities to every frame, constructing surreal landscapes that incor-

porate spatial imagination into scenes and visuals to create intersecting spatial dimensions. This allows viewers to experience visual impact and tension more directly, while character portrayals become more three-dimensional, with facial features rendered as perfectly as if stepping out of a comic book. In *L.O.R.D: Legend of Ravaging Dynasties*, during the film' s climax when all characters join the battle, the combination of monsters in the sky, undulating mountain peaks, and swaying ocean waves creates substantial spatial layering. The appearance of the "Goddess' s Skirt" (a silk-like special effect) adds yet another dimension to an already three-dimensional scene. Similarly, in the opening sequence of *L.O.R.D: The Cold-Blooded Feast*, when the Third Lord must escape from an enclosed mountain, multi-dimensional space emerges through the mountain' s random protrusions combined with the Third Lord' s own ability to alter spatial dimensions, with rotating visuals enriching the spatial hierarchy.

### 2.3 CG Technology Creates Immersive Audio

This immersive quality manifests not only in environmental background sounds but also in character voices and even on-site synchronous audio. For environmental audio, CG technology renders sounds more powerful and ethereal; for character voices, CG-enhanced vocals become more captivating and transparent, eliminating the ordinariness and monotony of natural human voices. Emotional shifts in the narrative no longer rely solely on human emotional buildup or outburst but can be expressed through tonal manipulation via CG post-production. In the *L.O.R.D* series, the characters "Second Lord" and "Fourth Lord" embody dark evil, yet actress Amber Kuo' s natural voice is relatively high-pitched and bright, necessitating CG technology to deepen and roughen her vocal quality. Moreover, the characters in *L.O.R.D* transcend ordinary humans, existing as god-like beings whose voices cannot be as thin as normal speech but must possess echoing, ethereal qualities, with tones and intonations that convey immense power and intimidation. Additionally, CG technology renders the sounds of weapons striking and colliding more crisp and bright, enhancing the conflicting and intense atmosphere of combat scenes. In *L.O.R.D: The Cold-Blooded Feast*, most fight sequences involve Lords attacking each other not only with their abilities but primarily through their respective "soul weapons." The Seventh Lord' s ability allows him to create numerous soul weapons, and the sound of countless weapons clashing and sparking, enhanced by CG technology, delivers substantial impact without being harsh, allowing audiences to perceive intense conflict.

### 2.4 CG Technology Accentuates Kinetic Aesthetics

Science fiction films invariably feature combat sequences, and CG technology renders characters' movements more fluid and their motion paths clearer. Since some effect transitions are directly produced through CG technology, these sci-fi actions achieve seamless flow. Indeed, characters in sci-fi films possess superhuman athletic abilities or extraordinary powers, demanding exceptionally high

standards for movement smoothness, fluidity, and even aesthetic beauty—requirements that CG technology fulfills and guarantees. As a crucial component of kinetic aesthetics, CG technology also accentuates the beauty of characters' physical power. In *L.O.R.D*, during combat sequences, characters' leaping, spinning, jumping, turning, flipping, dodging, and attacking are all executed with remarkable continuity, free from any stuttering or hesitation. The collision of fists and the sparks from clashing blades are rendered with fullness and richness, intensifying visual conflict. In *L.O.R.D: The Cold-Blooded Feast*, a scene depicts two groups engaged in a fierce rooftop chase, with characters leaping between buildings or sliding down roof edges, all while simultaneously attacking and defending against enemies. CG technology facilitates seamless connection and presentation of these movements, achieving remarkable smoothness. Furthermore, CG technology allows characters' power to transcend the screen, enabling audiences to perceive it more vividly and directly. For instance, at the beginning of *L.O.R.D: The Cold-Blooded Feast*, a fight sequence featuring the Third Lord employs slow-motion and light-wave effects to magnify and decelerate his punches, allowing viewers to feel the impact of each blow as if struck themselves, thereby enhancing sensory engagement.

## 3. Disadvantages of CG Technology Application

### 3.1 Time and Cost Intensive

While CG technology undoubtedly enhances sci-fi qualities and visual richness, its application is an extremely time-consuming and costly endeavor. CG film production involves pre-production filming, mid-production object effect creation, and post-production image compositing and 3D model scene construction—all demanding substantial time investment to achieve perfection. For *L.O.R.D: Legend of Ravaging Dynasties*, to render China' s first full live-action CG animated film more vivid, concrete, and realistic, the director created models of all characters and props before filming. The long hair model alone utilized tens of thousands of guide curves, while the wing feathers of Qi Ling' s mythical beast "Cangxue Zhiya" were individually placed, taking three months of intermittent work. During initial modeling scans, each of the film's eleven actors required synchronized capture using approximately 60 high-definition cameras, and a mere ten-minute dynamic forest sequence consumed 160,000 hours of post-production rendering. This demonstrates that achieving CG film perfection inevitably entails excessive consumption of time, money, and effort.

### 3.2 Lack of Coordination and Realism in Character Design

Although CG technology renders character images fantastical, as if stepping out of an anime, sci-fi films are not anime. Characters should originate from real life, their proportions should conform to ordinary human standards and mainstream aesthetic sensibilities. Particularly in live-action CG films, the fusion of effects with actors' real appearances results in characters that appear both human and non-human—more three-dimensional than real human features,

yet prone to stiff facial contours resembling wax figures. The *L.O.R.D* series, renowned as live-action CG films, suffers severely from this issue. Several main characters exhibit distorted proportions, with extremely small heads atop excessively elongated bodies, creating bizarre ratios like "eighteen heads tall," along with stick-thin limbs and necks that produce strange visual impressions. In the second installment, *L.O.R.D: The Cold-Blooded Feast*, the character Guishan Lianquan, portrayed by Fan Bingbing, underwent modeling modifications due to certain circumstances, resulting in particularly distorted features that prevented audience association with the actress. While the film' s original character design intended to portray nobility in a magical realm, even ordinary citizens' appearances and gaits appear peculiar upon closer inspection. This fundamentally undermines the film' s realism in character portrayal and impedes audience immersion in the narrative.

### 3.3 Overemphasis on Technical Execution at the Expense of Narrative Content and Acting

While foreign sci-fi films have mastered CG and motion capture technologies, Chinese cinema remains in an exploratory phase. Consequently, some productions prioritize post-production technical craftsmanship, neglecting narrative content and acting performance. Moreover, since CG technology can directly synthesize actors' appearances and voices with real settings through technical processing, acting skill is not positioned as a critical element. Using *L.O.R.D* as an example, despite substantial efforts to create an innovative full live-action CG animated film, many viewers felt that certain actors' performances were constrained by stiff facial expressions, while the narrative exhibited obvious discontinuities. Those familiar with the source material know both *L.O.R.D: Legend of Ravaging Dynasties* and *L.O.R.D: The Cold-Blooded Feast* were adapted from the novel *L.O.R.D*. Many novel readers acknowledged the films' faithfulness to the source, but the absence of preliminary exposition, complex character relationships, and distinct soul techniques for each Lord and disciple resulted in disjointed plot connections, unconnected clues, and abruptly terminated character arcs for direct viewers, leaving them confused. The film' s content lacked depth and substance, with inconsistent themes reducing it to mere technical showmanship. In the second installment, *L.O.R.D: The Cold-Blooded Feast*, the plot centers on a group' s quest for truth to rescue the First Lord, with loyalty thematically expressed by the conclusion. Though clearer than the first film' s theme, the narrative content and development remain somewhat hollow. Furthermore, due to the comprehensive CG implementation requiring actors to perform without physical references, some exhibited stiff facial expressions, flat line delivery, underwhelming emotional expression, and inadequate emotional rendering.

## Conclusion

Compared to foreign film industries' mastery of CG technology, Chinese cinema resembles an adolescent in the exploratory stage, attempting to learn and flexibly apply these techniques. Consequently, this application of full live-action CG technology in Chinese film represents both a significant breakthrough and a meaningful innovation. Indeed, this breakthrough contains numerous shortcomings and audience-disappointing flaws, but this should not lead to abandoning CG technology in filmmaking. Undeniably, CG technology renders films more vivid and dynamic, delivering intensified visual and auditory impact through color, space, sound, and motion. Our next step requires a "two-pronged approach, cultivating both internally and externally" —prioritizing both spectacular effects and narrative coherence alongside elevated thematic substance. Only then can Chinese science fiction films shine on the world stage.

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## Author Bio

**Zhou Xinyue** (2000-), female, Wuhan, Hubei, undergraduate student. Research interests: Journalism, Communication Studies.

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*Note: Figure translations are in progress. See original paper for figures.*