A Brief Analysis of Production Techniques and Development of Chinese Science Fiction Films (Postprint)

Authors: Xilin Zhou

Date: 2023-10-08T00:00:00+00:00

Abstract

Producing outstanding science fiction films is an inevitable path for the future development of Chinese cinema. This paper addresses the objective trends in the development of domestic science fiction films, proceeds from the problems currently faced by Chinese science fiction cinema, analyzes and discusses the production technological achievements of mature European and American science fiction films, and explores the future development path for domestic science fiction films.

Full Text

Preamble

Abstract: Producing excellent science fiction films represents an inevitable path for the future development of Chinese cinema. This paper examines the objective trends in domestic sci-fi film development, analyzing current challenges facing Chinese sci-fi cinema while exploring the technological achievements of established European and American sci-fi productions and outlining prospective pathways for the future growth of domestic sci-fi films.

Keywords: Science Fiction; Film and Television Special Effects; Traditional Chinese Culture; Hollywood Model

Since the reform and opening-up policy, China' s film industry has flourished, achieving breakthroughs in narrative perspective, cinematography, and aesthetic approach. Film artists from the third-generation director Xie Jin to the fifth-generation director Chen Kaige have witnessed China' s cinematic evolution from black-and-white to color, from art films to commercial productions, demonstrating the industry' s remarkable progress. Concurrently, the Chinese film market has expanded dramatically, with the number of screens growing

rapidly and total box office growth since 2000 surpassing many developed nations to reach a world-leading position [1]. Yet beneath this prosperity lies a relatively weak domain: Chinese science fiction cinema. Domestic sci-fi productions remain scarce, with truly outstanding films being even rarer.

1 Current State of Chinese Sci-Fi Film Production

1.1 Development History of Chinese Sci-Fi Films Since the Founding of the PRC

1.1.1 Data Analysis The genesis of Chinese sci-fi cinema can be traced to the 1980 film *Death Ray on the Coral Island*, adapted from an award-winning novel of the same name published in 1978. The film tells the story of scientist Chen Tianhong, who invents a high-tech product that draws him into an economic struggle between major powers. When Chen attempts to return to China with his invention, his plane crashes in the Pacific Ocean, but both he and his product are rescued by Dr. Ma Tai, a Chinese-American scientist who joins forces with Chen to counter the commercial competition from the major power. *Death Ray on the Coral Island* became a pioneering work that generated tremendous public response [2]. However, rather than building upon this foundation, Chinese sci-fi cinema gradually faded into obscurity. To this day, it has yet to produce a fully mature work, with the domestic market still dominated by American sci-fi films.

Statistics reveal the stark disparity: between 1995 and 2008, the United States produced 222 sci-fi films, while China produced only one—*Thru the Moebius Strip* —representing a ratio of 1:200. *Thru the Moebius Strip* tells the story of a white child named Jack who travels through a space-time tunnel called the "Moebius Strip" to find his father. From the protagonist' s character design to the narrative structure, the film completely imitates Western models. Despite a five-year production period, an investment of 130 million RMB, and the involvement of over 400 animators, the film earned only 3 million RMB domestically. Although its production team comprised top-tier global 3D animation talent and achieved world-class technical standards, the film received mediocre responses both internationally and domestically. As of 2018, five of the top twenty highest-grossing films in China were American sci-fi productions: *Avengers: Infinity War* (5th place, 2.39 billion RMB), *Venom* (7th place, 1.866 billion RMB), *Aquaman* (8th place, 1.732 billion RMB), *Ready Player One* (11th place, 1.397 billion RMB), and *Ant-Man and the Wasp* (19th place, 831 million RMB). This demonstrates both strong Chinese audience demand for sci-fi films and the enormous potential of the domestic sci-fi market, prompting critical reflection on the shortcomings and future direction of Chinese sci-fi cinema.

1.1.2 Content Production: Script and Visual Expression The success of sci-fi films depends on compelling scripts and stunning visual effects. While Chinese sci-fi films have achieved considerable visual effects quality, outstanding stories remain rare. The 2006 film *Thru the Moebius Strip*, for instance, was criticized for its wholesale imitation of Western narratives, with audiences

expressing confusion and rejection toward a Chinese-produced film featuring a foreign child as the protagonist. Such unaccepted stories inevitably lead to poor box office performance. In contrast, the 2019 release *The Wandering Earth* achieved both commercial and critical success, enriching domestic film genres and demonstrating the immense potential of Chinese sci-fi storytelling when viewed through a Chinese lens and creative perspective. Telling Chinese sci-fi stories with Chinese characteristics is what resonates with audiences.

1.1.3 Production Tools: From Traditional Filmmaking to Digital Technology Since the founding of the PRC, China' s film industry has made significant technological advances, and Chinese sci-fi cinema is no exception. Despite limited output, Chinese sci-fi films have achieved substantial technical breakthroughs, keeping pace with global standards. The 1980 film *Death Ray on the Coral Island* utilized rudimentary filming equipment and basic special effects tools that appear primitive by today' s standards. However, contemporary Chinese sci-fi has transitioned from traditional production methods to computer-based digital technologies, incorporating advanced equipment such as motion capture systems and render farms.

Nevertheless, the development of Chinese sci-fi films has been slow, not due to technical limitations—China already possesses many mature film production companies—but rather because of high production costs. Major domestic studios have not prioritized this genre, instead focusing on low-investment, high-return art films [4]. Consequently, most Chinese sci-fi productions are animated or online films targeting children, such as *Happy Planet 36* and *Magic Charm*. These child-oriented sci-fi films face a narrow development path due to their limited audience demographics, which naturally restricts box office performance. Meanwhile, online sci-fi films' revenues are not counted in theatrical box office figures.

1.1.4 Audience Evolution: From Children to All Ages A film' s audience demographic often determines its success; broader appeal indicates greater inclusivity. Chinese sci-fi films from the 20th century through 2014 exhibited juvenile-oriented narratives, primarily targeting children [3]. Productions like *Happy Planet 36* and *Magic Charm* exemplified this trend. However, this began to change after 2014, when domestic studios started experimenting with sci-fi productions, mostly as online films such as *Kelp*, *Twin Spirit Detective*, and *Water Drop*. The early 2019 box office hit *The Wandering Earth*, which grossed 2 billion RMB during the Spring Festival holiday, marked a breakthrough in creating all-age sci-fi cinema and generated significant public discourse.

1.2 Strengths and Weaknesses of Chinese Sci-Fi Films

1.2.1 Significant Progress in Visual Effects Technology During the development of film hardware infrastructure, China has kept pace with global standards. Increasing numbers of films now employ visual effects—a new cin-

ematic technology that combines live-action footage with computer-generated imagery (CGI) to create virtually realistic scenes. Films like *Transformers*, *The Hobbit*, and Marvel' s live-action movies utilize this advanced technology. In *The Hobbit*, the dragon Smaug was created through facial and body motion capture performed by British actor Benedict Cumberbatch, combined with CGI. The resulting character was so lifelike and majestic that audiences saw only the convincing dragon, not the actor' s features. Chinese special effects technology has similarly advanced; the 2014 Chinese sci-fi box office champion *The Door of Rebirth* received audience acclaim for its visual effects, representing a peak in Chinese sci-fi effects production and demonstrating that Chinese sci-fi cinema has secured its technical foundation.

1.2.2 Film Studios' "Lack of Priority" Since the reform and opening-up policy, Chinese sci-fi film development has progressed slowly, not due to technical deficiencies but because of high investment costs. Major Chinese film production companies have not focused their core efforts on this genre, instead concentrating on low-investment, high-return art films [4]. As a result, most Chinese sci-fi films remain animated or online productions targeting children, such as *Happy Planet 36* and *Magic Charm*. These child-oriented sci-fi films face a narrow development path due to their limited audience demographics, which naturally restricts box office performance. Meanwhile, online sci-fi film revenues are not included in theatrical box office figures.

2 Achievements of American Sci-Fi Cinema

2.1 The Hollywood Model: Character-Centered Narrative Development

The Hollywood model represents the fundamental formula for American sci-fi films, industrializing cinema production. With most major American sci-fi blockbusters employing this approach, the model centers on protagonists who drive narrative development through well-structured plot progression [5]. Recent popular Marvel superheroes like Spider-Man, Captain America, Iron Man, and Wolverine all follow this pattern. These hero films typically establish a central character who propels the story forward, incorporating elements of love, friendship, and family, culminating in the hero' s victory and the villain' s defeat. Studios also cast Hollywood' s most popular stars in leading roles. Robert Downey Jr.' s portrayal of Iron Man, for instance, enhanced the film' s box office appeal. Recognizing the importance of character-centered storytelling, American sci-fi production companies invest heavily in star casting, leveraging lead actor appeal to ensure commercial success.

2.2 Mature Production Teams

American sci-fi film production teams represent the world's most mature, with sophisticated processes from scriptwriting through post-production. Unlike China'

s individual screenwriting approach, American scriptwriting operates as a team-based system comprising lead writers and specialized professional screenwriters [6]. For example, the 2014 sci-fi film *Interstellar* was written by director Christopher Nolan and his brother Jonathan Nolan, who developed the initial story before consulting Caltech physicist Kip S. Thorne. Thorne' s research on theoretical wormholes and time travel added scientific authenticity to the screenplay. American sci-fi productions are typically backed by major studios with secure funding. During filming, directors can employ their preferred methods, whether shooting on film or digital. *Interstellar* used film stock, while *Captain America* utilized digital cinematography. In post-production, American companies like Industrial Light & Magic and DreamWorks lead the world in special effects technology.

2.3 Sophisticated Market Promotion

As the final and most crucial step, American sci-fi film marketing is highly sophisticated. US studios target not just the domestic market but global audiences. For instance, the 2013 blockbuster *Pacific Rim* and 2014' s *Transformers 4* underperformed in North America and Japan but achieved remarkable success in China, reversing their near-loss financial situations. This demonstrates the effectiveness of American sci-fi films' global market promotion strategies.

3.1 Creative Development Level

3.1.1 Script Originality: Finding a Distinctive Path for Chinese Sci-Fi

Currently, Chinese sci-fi films follow the American model of character-centered narrative development. However, since Hollywood has perfected this approach, mere imitation cannot achieve significant success—audiences would rather watch authentic American sci-fi than Chinese imitations. Chinese sci-fi cinema must forge its own path. Since 2018, many Chinese filmmakers have turned their attention to sci-fi, with projects like *The Three-Body Problem*, *Era of the Supernova*, and *Micro-Era* announced by China Film Co., while renowned directors Zhang Yimou and Ning Hao have also expressed interest. Unlike previous low-budget efforts, these upcoming productions' outcomes remain uncertain. To tell uniquely Chinese stories, sci-fi films should emphasize Chinese characteristics and realities. *The Three-Body Problem*, for example, features compelling plots closely connected to Chinese contemporary reality.

3.1.2 Technical Innovation: Developing Indigenous Chinese Filmmaking Technology

The pinnacle of film technology has long resided in the United States. To produce high-quality sci-fi films, China must develop its own special effects capabilities rather than merely imitating or importing technology. China should invest in research and development of advanced proprietary effects technologies. For instance, *Avatar* introduced 3D cinema to global audiences, making it a

popular new format. China should similarly develop innovative filmmaking technologies for future sci-fi development, strengthening originality and pursuing its own technological path.

3.2 Market Level

3.2.1 Rational Utilization of the Domestic Exhibition Market

In 2014, China' s total box office surpassed that of the United States for the first time, making it the world's largest film market. This indicates that the domestic market alone can satisfy the revenue requirements of high-budget Chinese sci-fi films. Data shows that in 2014, foreign sci-fi films accounted for only 5% of screenings in China yet generated 30% of total box office revenue, while domestic sci-fi films contributed less than 300 million RMB. With China' s market protected by the State Administration of Radio and Television' s import quotas limiting the number of foreign sci-fi films, this presents a significant advantage for domestic productions. Chinese sci-fi films should capitalize on this opportunity to produce audience-favorite films and capture a larger share of the domestic market.

While stabilizing the domestic market, Chinese sci-fi cinema should actively develop overseas markets. With North American and European markets becoming saturated, China should target Asian and African countries, with which it maintains strong cultural exchanges. Exporting quality Chinese sci-fi films to these developing markets represents a viable strategy that could positively impact China' s future overseas film market expansion.

References

[1] Zhong Dafeng, Shu Xiaoming. *History of Chinese Cinema* [M]. Beijing: China Radio & Television Press, 2004.

[2] Guan Jun. A Brief Discussion on the Development of Chinese Sci-Fi Films [C]. *Drama Periodical*, 2013.

[3][4] Hu Jing. A Brief Analysis of the Reasons for the Absence of Chinese Sci-Fi Films [J]. *Literature Circle (Theory Edition)*, 2011.

[5] John Belton (US). *American Film Culture* [M]. Shanghai: Shanghai People' s Press, 2010.

[6] Christian Blackman (US). *History of World Science Fiction Cinema* [M]. Beijing: China Film Press, 1988.

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