

Analysis and Application of Film and Television Technology in the New Media Era (Postprint)

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Abstract

In recent years, the application and promotion of film and television technology have continuously evolved. The channels through which people acquire information have gradually shifted from traditional television broadcasting to new media such as the internet, smartphones, and in-vehicle television. From a developmental perspective, information dissemination has gradually transformed from passive reception to effective interpersonal interaction. Based on this, this paper primarily analyzes the application of film and television technology in the new media era.

Full Text

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Abstract: In recent years, the application and promotion of film and television technology have undergone continuous transformation, with information acquisition channels shifting from traditional television and radio to new media platforms such as the internet, smartphones, and in-vehicle television. From a developmental perspective, information dissemination has gradually evolved from passive reception to effective peer-to-peer interaction. Based on this context, this paper primarily analyzes the application of film and television technology in the new media era.

Keywords: New media; Film and television technology; Analysis; Application

With the advent of the new media era, the general public has experienced both a scientific and technological breakthrough and a far-reaching media transformation. Viewing film and television technology merely as technical optimization

would deviate from the original intention of technological innovation. Therefore, it is necessary to analyze the application of film and television technology within the context of the new media era, continuously enhancing its intrinsic value alongside technological optimization to lay a solid material foundation for contemporary development.

1. Film and Television Technology in the New Media Era

Film and television technology primarily encompasses digital audio technology, data compression and decompression technology, information encoding technology, film and television media transmission technology, storage technology, and production technology. With film and television production technology as its material foundation and the full integration of computer image processing technology, a digital film and television production system centered on CG technology has been comprehensively constructed. In fact, the evolving demands of society have vigorously propelled the development of China's film and television technology industry, giving rise to numerous branches across different industries, development directions, and focus areas, resulting in increasingly sophisticated final images. Meanwhile, the convergence of film and television technology with literature and art has become increasingly apparent, presenting promising development prospects. Particularly, digital media led by IT and CG technologies have served as a driving force for China's film and television cultural industry [1].

The emergence of video production equipment such as computers, digital cameras, video editing systems, switchers, 3D special effects machines, control panels, lighting control systems, and non-linear editing has provided robust support for the development of contemporary film and television culture. Artificial intelligence operations based on information technology have opened entirely new development pathways for film and television program production. Digital television has now entered millions of households, and China has initially achieved the development goals of "three-electronics integration" and "three-networks convergence," enabling audiences to enjoy high-quality entertainment services anytime and anywhere while effectively enriching people's leisure lives.

2. Basic Characteristics of Film and Television Technology

Intelligent Openness. The use of intelligent computers has made office operations more convenient, allowing people to complete film and television creation through this medium at any time, effectively transforming traditional work models. Additionally, the wide variety of related software, characterized by rapid updates, has made film and television production more flexible. In particular, it can satisfy the diverse cultural needs of production staff and align with the developmental demands of film and television culture. By utilizing integrated workstations that combine special effects machines, audio editing systems, and subtitle generators, creators can design works according to their own artistic

vision.

Shareability. As long as they have the necessary permissions, production staff can freely access others' resources and achieve online resource sharing via the internet [2]. Comparing digital film and television technology with traditional film and television technology reveals inherent advantages in compatibility. This unique advantage helps film and television works secure a position in the fiercely competitive market. From a macro perspective, not only film and television media but all information media require sharing. However, traditional information media in the past failed to recognize the value of resource sharing. In the new media era, film and television technology must emphasize this element during application. For instance, by establishing certain information exchange channels, audiences can leave comments, granting them greater choice and participation rights. Simultaneously, audiences can select or order programs according to their own viewing needs. From the perspective of shared value, digital film and television creation in the new media era is designed for audiences.

Synchronization. To ensure the maturity of film and television technology, special attention must be paid to the synchronization of film and television works. As a microcosm of real life, lens language integrates sound and image, which share an inseparable relationship. On the surface, synchronization appears to be a reverse process, but in essence, it involves the decomposition, processing, and editing of video clips. Additionally, during the application of film and television technology, its interactive characteristics must be emphasized. Only by fulfilling these requirements can the humanistic qualities of works be fully highlighted.

Intelligence. Current film and television multimedia devices integrate computers, television broadcasting, and electronic communication functions, combined with video editing software to produce works that embody human creativity. The commonly used non-linear editing systems today fully leverage the intelligent functions of control systems. Meanwhile, the rise and development of creative industries represented by CG technology have further demonstrated the intelligence of film and television technology.

3. Technical Applications

3.1 2D Film and Television

The most distinctive feature of contemporary 2D film and television animation is its avoidance of real people or physical elements, instead utilizing graphic design elements to create required characters, events, and objects. While shot composition typically remains static, the movement or transformation of planar elements creates realistic animation effects. Such works produced through computer technology are known as 2D animation, which possesses strong multi-layer compositing capabilities. Although the production process involves numerous dynamic materials, the final result consistently conveys a sense of planar design—a timeless artistic style that represents a commonly employed produc-

tion method. Taking subtitles and backgrounds as examples, designing with this technology provides audiences with continuous visual impact. The production process involves several stages of traditional animation creation, yet differs in certain aspects. Through the effective application of digital technology, the production workflow has been streamlined, making creation more convenient, improving work efficiency, and further reducing costs.

When processing special effects for film and television works, After Effects software is employed to add effects on existing layers and perform reasonable editing of keyframe animations. During processing, production staff can use different subjects and categories to participate in software-based rendering tests. On this foundation, After Effects is utilized to ensure effective information output. Simultaneously, staff must back up video files in advance to prevent file loss during later modifications. Once editors finalize and complete the editing, they can save the composited film files. This workflow represents the basic process for creating videos using After Effects software.

Currently, the most commonly used elements in film and television advertisement design include filming, 3D graphics, and planar elements. Through post-production video compositing software, these video materials and elements undergo compositing processing to generate digital film and television advertisement works broadcast on television. This demonstrates the value of post-production compositing technology in digital film and television advertisement production. Contemporary film and television advertisement production is closely related to information media, with the use of compositing technology, special effects, and non-linear editing providing more efficient services for post-production revision of advertisement works.

3.2 3D Animation

The popularization and promotion of 3D animation technology hold irreplaceable value for the reform and development of film and television technology. With the continuous development of information technology, related animation production software has emerged rapidly. Taking 3D animation production software as examples, currently widely used programs include MAYA and 3DS Studio MAX. Among these, the most familiar to the general public with the largest customer base is 3DS Studio MAX software produced by AutoDesk for PC platforms. Due to the rapid development of computer hardware culture, software originally limited to graphics workstations can now be flexibly used on PCs, giving 3D animation broader development prospects than 2D animation [4].

When using 3DS Studio MAX software to establish geometric models, it can quickly produce three-dimensional beveled effects. Additionally, this software features a wide variety of plugins that enable staff to effectively enrich animation visuals. MAYA has a relatively short history but has developed rapidly, renowned for its NURBS modeling that provides creators with extensive creative

space. MAYA also possesses a robust dynamics system that ensures precision in video imagery.

3.3 Digital Compositing Technology

Dynamic images involve multiple factors including shot scale, rhythm, and angle. Based on shot direction, specific considerations for picture editing must be determined. During picture editing, image and sound must be integrated to ensure both logical coherence and unified lighting. When editing films, staff must consistently adhere to the principle of unified rhythm, using synchronized images to render the film's theme and thereby continuously enhance the artistic appeal of film and television works.

Chroma keying is common in film and television works and represents a crucial technique in compositing technology. During keying, coordination between foreground and background must be ensured. Typically, keying involves rendering other colors on blue or green backgrounds. Directly compositing background and images after keying would cause severe “disconnection” issues, resulting in a stiff and artificial appearance. Taking keying control as an example, its edge feathering and edge contraction capabilities can effectively resolve these problems. Numerous intelligent keying tools have emerged in the market, significantly enhancing compositing effects.

4. Conclusion

In summary, through effective analysis of film and television technology in the new media era, we recognize that new media represents a critical pathway for media evolution and transformation, providing an integration platform for the development of film and television technology. Therefore, we must actively apply film and television technology within the context of the new media era, integrating multiple information processing technologies to produce optimal film and television works.

References: [1] Liu Zhuoyan. The Dissemination Role of Digital Animation Technology in the New Media Era[J]. Computer Fan, 2017(01): 198. [2] Li Na. The Integration of Legal Literature and Film/Television Media in the New Media Era[J]. Journal of Guizhou Police Officer Vocational College, 2017(03): 125-128. [3] Zhen Jiaying. Analysis of Drama and Film/Television Creation in the New Media Context[J]. Voice of the Yellow River, 2017(07): 125. [4] Li Gengpo. Development and Application of Broadcasting Technology in the New Media Era[J]. New Media Research, 2017(02): 27-28.

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