Application of Computer Technology in Broadcasting and Television Engineering (Postprint)

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Abstract

Broadcasting and television have provided Chinese residents with abundant spiritual life, not only fostering internal harmony among residents and establishing a humanistic environmental foundation for social development, but also directly accelerating stable development across economic, cultural, and political dimensions through the process of information transmission. The deep application of computer technology has enabled faster development of this industry, achieving simultaneous growth in both information transmission speed and quality, while substantially expanding its reach. This technology has progressed in close synchronization with the media industry, demonstrating strong correlation, and both have achieved favorable development outcomes. This paper first analyzes the important significance of this technology by integrating the current status of its application, then summarizes its application domains within the broadcasting and television industry, aiming to provide impetus for the development of the information media sector.

Full Text

Abstract

Radio and television provide Chinese residents with rich spiritual life, not only fostering internal harmony among citizens and providing a foundation of humanistic environment for social development, but also directly accelerating stable development across economic, cultural, and political dimensions through information transmission. The in-depth application of computer technology has enabled faster development in this industry, achieving simultaneous improvements in information transmission speed and quality while significantly expanding its reach. This technology has progressed largely in sync with the media industry, exhibiting strong correlation, and both have achieved favorable development outcomes. This paper first analyzes the significance of this technology by examining the current state of its application, then summarizes its application areas

in the broadcasting and television industry, aiming to provide impetus for the development of the information media sector.

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1. The Significance of Computer Technology

In recent years, computer technology has developed rapidly and been widely applied in various domains of social life. For broadcasting and television engineering, there is an urgent need to leverage computer technology to improve its quality, reduce labor and material costs to some extent, create greater value with limited resources, and deliver good audio-visual experiences and timely, effective information to the public.

1.1 Improving Broadcasting Technology Levels

For the public, improvements in broadcasting and television engineering quality concern the speed and efficiency of receiving external information. The primary metric for this engineering is its technological content. Due to its practical and stable characteristics, computer technology can be effectively integrated with broadcasting and television engineering, thereby comprehensively improving the quality of broadcasting and television engineering [1]. Fundamentally, broadcasting and television engineering transmission mainly involves audio-visual signal propagation, but these signals are unstable and susceptible to external interference during transmission, reducing propagation speed and affecting quality. The application of computer technology in this engineering effectively solves this problem by not only ensuring effective signal transmission but also improving the quality and speed of transmitted signals, making signal transmission more complete and clear. This compensates for deficiencies in traditional signal transmission methods and satisfies contemporary needs while promoting the development of broadcasting and television.

1.2 Adapting to Information Technology Development

The in-depth application of this technology in broadcasting and television has led to higher service quality. As traditional information transmission technologies can no longer meet the demands of modern society, the comprehensive application of computer technology has significantly enhanced the operational stability and efficiency of broadcasting and television engineering. Broadcasting and television rely not only on hardware such as television sets but also require

relevant software and technical support. The latter forms the foundation for the development of the broadcasting and television industry, improving information service levels while imposing higher requirements on hardware. Through the application of computer technology, both hardware and software have developed, thereby adapting to the evolution of various technologies in the industry, injecting new vitality, and promoting the long-term stable development of broadcasting and television. Furthermore, computer technology exhibits strong extensibility; through the application of certain hardware and software, broadcasting and television engineering has achieved access to various ports, expanding its reach. This absorption and application of advanced technology has broadened the scope of broadcasting and television engineering, providing residents with higher-quality services. Moreover, during the development of broadcasting and television, the information age has presented numerous opportunities but also many challenges. By aligning with advanced technology, the industry can seize these opportunities, confront challenges, overcome technical difficulties one by one, and achieve rapid development [3]. Additionally, economic system reform requires relevant enterprises to achieve technological innovation and service level improvements, all of which depend on the application of information technology and, consequently, computer technology.

1.3 Providing Quality Information Services

People's lives are becoming increasingly information-oriented, and information spreads very quickly, leading to higher demands for information services. Although traditional broadcasting and television have provided substantial amounts of life and entertainment information, conventional broadcasting technology levels can no longer meet people's diversified information needs. As technology continues to advance and the technological field continues to expand, the introduction of computer technology has made broadcasting and television engineering more efficient, providing us with quality information services. Traditional broadcasting and television engineering content suffered from transmission lag, and both transmission speed and information volume had certain limitations, with information distortion also occurring. After applying advanced computer technology, first, the speed of broadcasting content transmission can be accelerated, and computer technology can store large amounts of information, ensuring that information is not easily distorted during transmission. This effectively solves the problem of traditional broadcasting lag, enabling people to quickly and timely access large amounts of latest information; computer technology has improved information transmission efficiency. Second, on the basis of guaranteed timeliness of information transmission, new content and news elements can be promptly expanded, effectively increasing information dimensions and making information transmission more diversified, thereby attracting broadcasting audiences and increasing listener numbers.

2.1 Information Service Media Content

In recent years, the development of computer technology has permeated all areas of people's lives. Traditional television and broadcasting technology was limited by transmission frequencies, and audio transmission was affected by various physical factors, preventing guaranteed stability of information transmission. However, this physical problem has been completely solved with the increasing sophistication of computer network technology. Computer technology uses digital signals to transmit information, replacing previous audio signal transmission and greatly reducing the limitations of analog signal transmission, making information transmission more authentic and effective. Digital transmission also simplifies information conversion and facilitates operation [4].

The implementation of triple-network convergence in recent years has made information transmission more consistent. Computer technology has accelerated the progress of broadcasting and television engineering. This replacement processing of audio signals has reduced various interferences in the information transmission process, solved previous problems in television broadcasting information transmission, improved information transmission quality, and further accelerated the progress of triple-network convergence. The digital processing of information by computer technology has broadened the audience for television broadcasting information and effectively increased the geographical scope of information transmission.

Furthermore, the use of computer technology has enriched the content of broadcasting and television information transmission. Its digital processing of audio and video information can further increase the volume of audio and video information, thereby providing high-quality information services.

2.2 Information Service Media Networks

An important component of broadcasting and television engineering is the information transmission network, whose high efficiency and high stability form the foundation for industry development. Traditional information transmission and exchange methods were conducted through circuit signals, which not only had low stability but also created complex operating environments and low efficiency, greatly constraining broadcasting and television development. In contrast, computer technology, through the free exchange and transmission of data, has greatly improved the operational efficiency of information service networks and, based on this technological foundation, realized increased scalability [5]. Moreover, through the application of this technology, network resources have been effectively integrated with traditional resources, not only enhancing media network service capabilities and customer numbers but also reducing operational costs and achieving healthy industry development. For example, the current popularization of digital television has enabled information resources such as online videos and movies to enter TV sets, while television programs are also broadcast on the Internet. This has facilitated residents' lives and

realized improved economic benefits for both parties.

2.3 Information Transmission Operation Process

During the development of the broadcasting and television industry, residential users have continuously placed higher demands on it. In addition to meeting requirements for faster speed and higher stability, it must also adapt to the times and provide rich information content. This requires not only innovative integration by staff but also support from technology, hardware, and software to optimize its information processing and transmission processes and improve resource utilization rates.

First, computer technology's storage capabilities are extremely powerful, meeting the pace of data growth and keeping up with the times [6]. Second, its transmission speed has already exceeded broadcasting and television requirements and continues to be in a stage of development and ascent; however, current applications are not yet in-depth. Moreover, the development of computer technology has gradually shifted from quantitative data changes to qualitative transformations, with the development of intelligent computers in particular creating a more distant prospect for broadcasting and television engineering. It is foreseeable that artificial AI, which has emerged in recent years, will lead to a substantial increase in broadcasting and television service quality once the technology matures. Finally, this technology's utilization rate of energy and resources is increasing, meeting sustainable development requirements and improving economic benefits for relevant enterprises. Especially with the development of high-performance computers, not only is energy consumption saved, but various network resources are also deeply utilized. It can be anticipated that supercomputing and big data technologies, which have been preliminarily realized, will substantially improve the information service quality of broadcasting and television engineering in the future.

3. Conclusion

Through the research in this paper, we have summarized the current application status of computer technology in broadcasting and television, and discussed the necessity of its application from the perspective of its positive effects. Currently, this technology is mainly applied in information service media content, generally manifested in traditional media such as television and radio; the rise of online media in recent years and its integration with broadcasting and television also cannot be separated from the support of this technology. Additionally, the use of this technology in information processing and transmission processes has substantially improved service levels. The development of the broadcasting and television industry mainly relies on the research, development, and application of various technologies to meet the spiritual and material needs of Chinese residents. Therefore, the efforts of relevant technical personnel and staff are crucial to the development of the media industry.

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