

Applied Research on Common Video Technologies in Broadcast Television: Postprint

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Abstract

With the rapid development of computer technology today, broadcasting and television have gradually entered people's daily lives. To effectively meet people's information needs, this paper mainly analyzes commonly used video technologies in broadcasting and television technology, and proposes common formats and interfaces for video technology, aiming to provide valuable references and assistance for relevant practitioners.

Full Text

A Brief Discussion on the Application of Common Video Technologies in Broadcasting

Abstract: With the rapid development of computer technology, broadcasting and television have gradually become integral to people's daily lives. To effectively meet public information needs, this paper primarily analyzes common video technologies in broadcasting and television technology, and proposes standard formats and interfaces for video technology, hoping to provide valuable references and assistance to relevant practitioners.

Keywords: broadcasting and television technology; video technology; format; interface

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With China's rapid economic growth and rising material living standards, public demand for cultural and artistic content has increased significantly, particularly regarding broadcasting and television. In broadcasting technology, employing appropriate video technologies can effectively ensure video quality and satisfy

viewers' visual expectations. Based on the continuously growing number of internet TV users, applying advanced and rational video technologies can effectively guarantee network signal security and meet people's visual demands. The application of advanced computer technology in broadcasting not only enhances network signal security but also enables video restoration. During video decompression, websites transmit corresponding video information, including computer data and network cards, uploading computer information directly to the network where video information can be effectively restored and finally delivered to signal receiving stations for presentation to viewers.

1. The Significance of Video Technology Application in Broadcasting

As science and technology develop rapidly, the application scope of broadcasting technology continues to expand. Employing rational video technology in broadcasting can provide viewers with excellent visual experiences and, to a certain extent, promote the rapid development of broadcasting. By applying robust video technology, broadcasting professionals can receive better support and ensure optimal utilization of broadcasting technology. Throughout this process, staff must implement scientifically sound solutions to address existing problems in broadcasting technology, ensuring full utilization of resources while meeting viewers' visual demands. Moreover, applying rational video technology in broadcasting helps relevant personnel better understand and master the actual operation of broadcasting systems, continuously improving signal security and further ensuring broadcast safety. Video technology offers advantages such as simple operation and low running costs, giving it broad development prospects in broadcasting applications. To ensure better application of video technology, practitioners must combine it with the actual operational conditions of broadcasting systems and adopt advanced, appropriate technologies to enhance overall system efficiency.

2. Analysis of Current Video Technology Applications

In today's rapidly developing broadcasting landscape, employing rational video technology plays a crucial role. With continuous scientific and technological progress, effectively integrating advanced internet technology with video technology can ensure video quality and content integrity, further improving audience satisfaction. Additionally, applying advanced video technology in broadcasting helps staff better understand system operations and continuously improve signal security. Due to the high signal conversion rate in broadcasting, ensuring video shooting effects requires continuously improving video information integrity and developing rational design schemes based on internal hard drive circuitry. Furthermore, digital video compression technology is widely applied; adopting robust digital video compression technology not only ensures broadcasting signal security but also guarantees stable system operation, laying a solid foundation for the healthy development of China's media industry.

3. Common Video Formats and Interfaces

3.1 Common Video Formats

Research indicates that compressed formats serve as the primary video mode in broadcasting technology. Due to their simple operation and small data footprint, these formats have been widely adopted by practitioners. Proper compression formats ensure better video signal stream compression and effectively eliminate redundant video codes. Common compression formats in broadcasting technology mainly include M-JPEG and DV, both of which can effectively guarantee video data security and ensure effective video technology application [1]. During video technology application, digital video recorders in the system perform data acquisition and corresponding compression to ensure data accuracy and improve broadcasting video quality. Additionally, adopting appropriate video formats can effectively guarantee signal transmission quality and reduce signal loss. During signal transmission, advanced video formats enable better signal transmission and improve signal utilization rates, especially given the large volume of signals.

Beyond compressed video formats, uncompressed video formats also show promising development prospects. Uncompressed video mode refers to recording and organizing video information by preserving original video codes to continuously improve raw data integrity [2]. During compressed video technology application, staff must combine the actual operational conditions of broadcasting systems and adopt appropriate uncompressed video modes to ensure system stability. Uncompressed video modes have gradually evolved into multiple series during development, with the most widely applied series being D1, D5, D2, and D3. Among these, D1 and D5 are primarily digital components, while D2 and D3 are digital composites. To ensure better application of uncompressed video technology, relevant personnel must adhere to video parameter standards based on actual system operation conditions and continuously improve signal conversion rates.

3.2 Common Video Technology Input and Output Interfaces

To ensure better transmission of broadcasting signals, corresponding signal receivers must be adopted for different broadcasting signals to further improve signal security. In practice, relevant staff must select appropriate signal receivers based on actual system operation conditions to ensure signal safety and stability while continuously improving reception quality. Additionally, personnel can select reasonable input and output ports according to signal reception equipment operation status to guarantee signal integrity.

The IEEE1394 interface, commonly known as iLINK, is primarily a DV digital video standard interface. Due to its ability to receive multiple signal types and high acceptance rate for broadcasting video signals, employing the IEEE1394 interface plays an important role in ensuring received signal security. The SDTI interface finds wide application, primarily utilizing a single video line to ensure

video signal transmission quality while continuously improving stable signal operation and fundamentally ensuring better utilization of all transmitted signals. Due to the high signal transmission rate of the SDTI interface, staff must appropriately adjust the diameter of signal receiving ports according to interface models during practical application [4].

Composite interfaces are also widely applied. During practical application, staff must adopt reasonable signal transmission pathways based on primary cable operation conditions to fundamentally guarantee signal transmission quality. Chrominance-luminance crosstalk issues frequently occur when applying composite interfaces. To effectively resolve this problem, BNC and RCA interfaces can be employed in broadcasting technology to ensure transmission signal reliability. The S-Video interface utilizes two video lines for signal transmission, effectively ensuring picture integrity and meeting viewers' visual requirements [5].

The component YUV interface features high brightness and high information resolution, finding extensive application in some analog video equipment and providing viewers with excellent visual effects. The SDI interface, a digital interface, uses a single video line for signal transmission, effectively ensuring video transmission quality and has been widely applied in broadcasting technology. To effectively guarantee video signal processing quality, relevant staff should adopt advanced video technology in practical work to ensure effective broadcasting technology application and continuously improve video resource utilization while maintaining stable broadcasting system operation.

In summary, analyzing common video technologies, formats, and input/output interfaces in broadcasting can ensure better video technology application and further improve information security. However, practitioners still encounter many problems in practical work, requiring them to continuously learn advanced broadcasting video technologies from both domestic and international sources to promote more rapid development of China's media industry.

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