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《广播与电视技术》是由国家广播电视总局主管，国家广播电视总局广播电视规划院主办，《广播与电视技术》编辑部编辑出版的国家级技术期刊；是发布广播电视科技政策，反映事业建设成就，介绍高新技术，交流工作经验，传播各种信息的重要媒体。本刊主要面向各级广播电视行业主管部门、各级广播电视台及融媒体中心、网络公司、发射台、微波站、卫星站、节目制作单位及电教系统，同时对企业、工矿、学校、部队等具有公共广播电视设施的管理人员、技术人员也有参考价值。

为繁荣学术交流，本刊已加入《中国学术期刊网络出版总库》、“万方数据”和“维普中文科技期刊数据库”，有权选取部分论文在本刊关联平台（如广电猎酷网 www.lieku.cn、“广电猎酷”微信公众号等）发布，作者著作权使用费已随论文稿酬一次性给付。本刊充分尊重作者的原创成果并合理保护作者享有的权利，如作者不同意本刊之外其他形式的发布，请在来稿中声明，本刊将作适当处理。本刊及主办单位对本刊已发布作品的内容和观点不持有任何立场、不做任何承诺或保证、不承担任何责任。

导 读

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〔14〕 基于人工智能的沉浸式演艺系统在冬奥会开幕式中的应用

为充分发挥科技冬奥的创新理念，作者单位立足多年的研究经验和成果，运用“计算机视觉”、“人工智能神经网络”、“实时图形渲染”、“精准时钟同步”、“HDR”等技术开发出一套面向大型演出的“人工智能实时特效系统”，为北京冬奥会开闭幕式工作部与导演团队提出的真实演员与虚拟影像实时互动创意提供了技术解决方案，实现了国家级演出活动中前所未有的大规模实时互动视觉特效。论文所述及做法对业界同仁有一定的参考借鉴价值。

〔28〕 基于智能算法的视频修复及超高清重制技术应用研究

近年来，人工智能技术生成内容（AIGC）成为网络视听和广播电视行业内容生产新趋势。论文结合行业历史资料开发利用和超高清内容生产需要，开展基于智能算法、自主可控的视频修复及超高清重制技术应用研究，通过人工智能神经网络，对视频帧空间及时间维度内容相关性进行建模，结合注意力机制、全局与局部信号建模技术，构建划痕噪斑分割、区域填补、自适应去噪、基于参考帧上色及多维度分辨率提升等AI算法模型，创建修复参数用户可配置调节的“AI+人工”视频增强修复模式，可以更好地满足文化数字化、全媒体传播环境下海量媒资的开发利用需求。

〔72〕 广电网络综合业务智能网管的开发与实现

人工智能与广电网络综合业务网管系统的结合是大势所趋。论文在这方面开展了较为成功的探索实践，取得了比较理想的实践效果，在全程监测数字电视信号安全、实时持续检测设备状态、提前发现安全隐患等方面发挥了突出作用，可资业界同仁参考。

〔107〕 关于FM广播天线系统方向图赋形设计的研究

随着城市建设的快速发展，城区面积不断扩大，有些区域和方向上的发展更加突出。由于原有的天线系统覆盖范围已经无法满足正常的收听需求，因此需要通过调整调频天线阵列方向图来实现对城区重点区域的增强覆盖。本文研究了阵列天线方向图的设计，并分别对调频发射天线系统的水平面和垂直面的方向图赋形技术进行了深入研究，提出了多种方向图赋形的技术方法，不仅可以提高天线系统的技术保障能力，同时也可以达到节能增效的目的。

〔124〕 融媒体监测监管大数据分析技术研究

在媒体融合时代，数据存在于媒体生产传播的各个环节，如何从监测监管的角度对海量数据进行挖掘分析，获取数据衍生价值，是融媒体监测监管面对的一项重要课题。本文分析了媒体生产、传播过程中监测监管对各种数据的需求，以及各种处理数据的关键技术，可为融媒体产业大数据赋能提供借鉴参考。



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[14] Application of Immersive Performance System Based on Artificial Intelligence in the Opening Ceremony of the Winter Olympics

In order to give full play to the innovative concept of scientific and technological Winter Olympics, based on years of research experience and achievements, the author unit has developed a set of "artificial intelligence real-time special effect system" for large-scale performances by using "computer vision", "artificial neural network", "real-time graphics rendering", "precise clock synchronization", "HDR" and other technologies, which provides a technical solution for the real-time interactive creativity between real actors and virtual images proposed by the work department and the director team at the opening and closing ceremonies of the Beijing Winter Olympics, and realizes the unprecedented large-scale real-time interactive visual effects in national performance activities. The methods described in this paper have certain reference value for colleagues in the industry.

[28] Research on Application of Video Repair and UHD Reproduction Technology Based on Intelligent Algorithm

In recent years, AIGC (artificial intelligence technology generated content) has become a new trend of content production in the audio-visual network and radio and television industry. Combined with the development and utilization of industry historical data and the needs of ultra-high definition content production, this paper carries out the application research of video repair and ultra-high definition reproduction technology based on intelligent algorithm. Through artificial intelligence neural network, it models the content correlation of video frame space and time dimension, and combines attention mechanism, global and local signal modeling technology, building AI algorithm models, such as scratch noise segmentation, region filling, adaptive denoising, reference frame coloring and multi-dimensional resolution enhancement, and creating an "AI+manual" video enhancement repair mode with user configurable repair parameters, which can better meet the development and utilization needs of massive media resources in the environment of cultural digitization and omnimedia communication.

[72] Development and Implementation of Integrated Service Intelligent Network Management in Radio and Television Network

It is the trend of the combination of artificial intelligence and radio and television network integrated service network management system. This paper has carried out a relatively successful exploration and practice in this area and achieved ideal practical results. It has played a prominent role in the whole process of monitoring the safety of digital TV signals, real-time continuous detection of equipment status, and early detection of potential safety hazards, which can be used as a reference for colleagues in the industry.

[107] Research on the Beamforming Techniques of FM Broadcasting Antenna System

With the rapid development of urban construction, the urban area continues to expand, and the development in some regions and directions is more prominent. Since the coverage of the original antenna system has been unable to meet the normal listening needs, it is necessary to adjust the FM antenna array pattern to achieve enhanced coverage of key areas in the urban area. In this paper, the design of array antenna pattern is studied, and the beamforming technology of the horizontal plane and vertical plane of the FM transmitting antenna system is deeply studied. A variety of beamforming technical methods are proposed, which can improve the technical support ability of the antenna system, save energy and increase efficiency.

[124] Research on Big Data Analysis Technology of Converged Media Monitoring and Supervision

In the era of convergence media, data exists in all aspects of media production and communication. How to mine and analyze massive data from the perspective of monitoring and supervision, and obtain data derived value, is an important issue facing the monitoring and supervision of convergence media. This paper analyzes the demand of monitoring and supervision for various data in the process of media production and dissemination, as well as the key technologies for processing data, which can provide reference for the big data empowerment of the convergence media industry.

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