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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。

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〔10〕 5G+4K/8K+AI重构电视媒体制播体系

当前，电视媒体正处于从高清向超高清升级换代的新阶段，亟需吸取标清向高清发展的经验教训，充分运用 5G、AI、大数据和云技术，创新 4K/8K 超高清电视制播模式，不断优化全媒体制播流程，推动电视媒体向超高清及全媒体转型升级。本文着重介绍了中央广播电视总台利用 5G+4K/8K+AI 技术，重构电视媒体制播体系方面的思考与实践，值得业界同仁参考借鉴。

〔25〕 广播电视和网络视听商用密码应用与安全性评估

广电总局高度重视商用密码在广播电视和网络视听领域的应用，2017 年启动了数字版权保护、应急广播和可下载条件接收系统（DCAS）密码应用试点，并在多项标准中对于商用密码的应用给出了明确的要求。本文介绍了密码在安全防护中作用、商用密码的发展、商用密码在广播电视和网络视听领域的应用以及商用密码应用安全性评估，可为开展此项工作提供参考。

〔36〕 基于不同节目类型的媒资AI编目探索

目前，国内大多数传媒机构普遍采用人工方式进行媒资的编目工作，具有一定的局限性。在媒体融合向纵深发展的行业大背景下，媒资管理顺应发展要求，也需要向及时性、碎片化、扁平化、知识性升级。大数据、云计算和人工智能等新技术的快速发展，也为媒资编目从人工向智能转化提供了可能性。本文基于不同节目类型，介绍了上海广播电视台开展媒资 AI 编目的技术路线及具体实现，可资参考借鉴。

〔73〕 基于国干网MSTP网络传输4K超高清信号的仿真测试

随着视频技术的进步、业务的发展，以及人们对视觉体验的不断追求，4K 超高清视频的发展和应用呈现加速态势，以 IP 格式传输广播电视信号的需求与日俱增。国干网为适应广播电视的发展趋势，本着更好服务于广播电视安全播出传输的目的，提前开展基于 MSTP 网络传输 IP 格式视频流的探索与仿真测试，为即将开展的大规模传输 4K 超高清信号做了一定的准备。本文介绍了仿真测试情况以及测试结果，可为国干网未来发展 4K 超高清等业务提供一定依据和实践参考。

〔96〕 基于IP组播架构的地面数字电视前端系统的设计与优化

IP 组播技术已经成为数字电视底层传输技术发展的主要趋势，基于 IP 信号传输的数字电视前端信号平台已成为各个电视台播出部门搭建前端信号系统的首选方案。本文以山东广播电视台燕子山发射台地面数字电视信号分配系统为例，介绍了其前端信号源系统的基本结构，探讨了其构建原理和优化措施，可为同类系统的设计建设提供借鉴。

〔122〕 基于IP传输的4K超高清视频质量监测分析

4K 超高清视频高带宽、高码率、高动态范围的特征，使其传输需要更大的带宽、更小的延迟，对视频服务器、IP 承载网、用户终端的实现复杂度和性能管理提出了更高的要求，对其业务传输质量的监测及运行维护也提出了新的挑战。本文搭建了基于 IP 网络的 4K 超高清传输系统，研究网络传输对 4K 超高清视频质量的影响，得出丢包对不同码率或不同视频的影响是大致相同的结论。



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[10] Reconstruction of TV Media Production and Broadcasting System with 5G+4K/8K+AI

At present, TV media is in a new stage of upgrading from HD to UHD. It is urgent to learn from experience and lessons of SD to HD development, make full use of 5G, AI, big data and cloud technology, innovate 4K / 8K UHD TV production and broadcasting mode, continuously optimize omni-media production and broadcasting process, and promote transformation and upgrading of TV media to Ultra HD and omni-media. This paper mainly introduces thinking and practice of reconstructing TV media production and broadcasting system by using 5G + 4K / 8K + AI technology in China Media Group, which is worthy of reference by colleagues in the industry.

[25] Application and Security Assessments of Commercial Cryptography for Radio, Television and Network Audiovisual Fields

NRTA attaches great importance to the application of commercial cryptography in broadcasting, television and network audiovisual fields. In 2017, NRTA launched a pilot program for digital copyright protection, emergency broadcasting and downloadable conditional access system (DCAS) cryptography applications, and gave clear requirements for the application of commercial cryptography in multiple standards. This paper introduces the role of cryptography in security protection, the development of commercial cryptography, the application of commercial cryptography in radio, television and network audio-visual fields, and security evaluation of commercial cryptography applications, which can provide references for carrying out this work.

[36] Exploration of Media Asset AI Cataloging Based on Different Program Types

At present, most domestic media organizations generally use manual method to catalogue media resources, which has certain limitations. In context of the industry's in-depth development of media convergence, media asset management conforms to development requirements, and also needs to be upgraded to timeliness, fragmentation, flatness and knowledge. Rapid development of new technologies, such as big data, cloud computing and artificial intelligence, also provides the possibility for media asset cataloging to transform from manual to intelligent. Based on different program types, this paper introduces technical route and specific implementation of media AI cataloging in Shanghai Radio and Television Station, which can be referred for reference.

[73] Simulation Testing of 4K UHD Signal Transmission Based on MSTP Network of National Backbone Network

With advancement of video technology, business development, and people's continuous pursuit of visual experience, development and application of 4K UHD video is accelerating, and demand on transmitting radio and TV signals in IP format is increasing day by day. In order to adapt to development trend of radio and television and better serve safe broadcasting and transmission of radio and television, national backbone network has carried out exploration and simulation test of transmitting IP format video stream based on MSTP network in advance, which made certain preparation for upcoming large-scale transmission of 4K UHD signal. This paper introduces simulation test situation and test results, which can provide a certain basis and practical reference for future development of 4K UHD services in national backbone network.

[96] Design and Optimization of Terrestrial Digital TV Front-End System Based on IP Multicast Architecture

IP multicast technology has become main trend in the development of digital TV transmission technology. Digital TV front-end signal platform based on IP signal transmission has become preferred scheme for broadcasting department of each TV station to build front-end signal system. This paper takes terrestrial digital TV signal distribution system of Yanzishan transmitting Station of Shandong Radio and Television Station as an example, introduces basic structure of its front-end signal source system, and discusses its construction principles and optimization measures, which can provide reference for design and construction of similar systems.

[122] Analysis of 4K UHD Video Quality Monitoring System Based on IP Transmission

4K UHD video has the characteristics of high bandwidth, high bit rate, and high dynamic range, which makes its transmission need more bandwidth and less delay. And it puts forward higher requirements on implementation complexity and performance management of video server, IP bearer networks and user terminal, and also poses new challenges to monitoring and operation and maintenance of its service transmission quality. This paper builds a 4K UHD transmission system based on IP network, studies network transmission impact on 4K UHD video quality, and concludes that the impact of packet loss on different bit rates or different videos is roughly the same.