

广播与电视技术



Radio & TV Broadcast Engineering

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目次

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投稿平台 tougao.lieku.cn

中国邮政
微信订阅



2021年 | 第48卷 | 第1期

特别报道

- 10 2020年(第25届)全国广播电视技术能手竞赛圆满收官
- 17 2020年(第25届)全国广播电视技术能手竞赛决赛一等奖(监测监管专业)获奖选手风采
- 20 2020年(第25届)全国广播电视技术能手竞赛决赛一等奖(有线网络专业)获奖选手风采
- 25 2020年(第25届)全国广播电视技术能手竞赛决赛一等奖(网络安全专业)获奖选手风采

热点·论点

广电5G

- 29 广电5G NR覆盖性能研究 罗沛,刘光
- 35 中国广电700M频段5G近海覆盖项目实践 诸葛一鸣,冯光,刘敬刚,王卫征,阚中瑜,丰竹松

网络视听

- 39 基于本福特定律的短视频播放量合理性验证研究 李金龙,史惠

内容制播

- 43 标准动态范围和高动态范围转换方法研究与测试 周芸,郭晓强,王亚明
- 49 4K超高清电视远程制作应用研究 马正先,李动,范年辉
- 54 “中国蓝云”支撑下县级融媒体中心建设探索与实践 钱永江,闫燕勤,俞定国
- 58 安全可靠传输(SRT)协议在5G直播中的链路分析和部署策略 张博力
- 63 “中国共产党的故事”专题宣介会融媒体直播技术方案设计与应用 张建强,张林,王灏,李超,周士勇
- 69 文件化制播下电视节目送播方式的重构与实践 方钟鸣,马军

有线网络

- 75 基于广电网络的人工智能语音能力系统建设 胡俊,占亿民,冒海波,王世祥,潘彩霞
- 80 广播电视信源IP化后对网络传输架构适应性的研究 李婧



《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、各级广播电台、电视台、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。

目次

全国百种重点期刊 专业核心科技期刊
投稿平台 tougao.lieku.cn



中国邮政
微信订阅

2021年 | 第48卷 | 第1期

- 83 广电网络IT支撑及业务管理云平台建设 施清白
- 89 基于广电网络光缆线路监测保护系统的研究与应用 张月华
- 93 有线电视直播及离线转码的整合设计研究 印涛, 郝文月

无线覆盖

- 97 中波发射台自动化播控系统研究 朱兴华
- 104 基于射频数字化处理的地下停车场多频点调频覆盖系统 赵宏杰
- 110 利用并联加载与补偿网络技术提高中波天调网络带宽及稳定性的应用探讨 肖涛, 宋庆欣, 王威
- 115 自适应功率合成地面数字电视发射机的设计与实现 黄瑶, 覃晖

卫星传输

- 120 新一代直播卫星位置管理系统高并发设计与实现 张新强
- 126 C频段广播电视卫星接收站抗5G基站干扰兼容性评估及技术指标分析 杨帆, 代明, 刘飞飞, 高洋, 高杨, 屈娜

安全播出与监测监管

- 136 基于卷积神经网络的监控图像智能分析系统 郑凯辉, 黄培建
- 143 基于嵌入式采集前端的省级IPTV监管平台建设思路与实践 杨艇

论述·点评

- 150 非洲“万村通”项目建设期竣工验收方案研究 姚琼, 黎阳, 姚瑞虹
- 155 应急广播预案相关模型研究 王祥, 牟亚南

行业聚焦

- 158 探班《三十而骊》幕后 | EOS C300 Mark III助你乘风破浪

广告索引 P160



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2021年 | 第48卷 | 第1期

[29] 广电5G NR覆盖性能研究

中国广电5G网络建设覆盖情况一直是业界关注的焦点。目前,中国广电已在北京等地区建设了试验网络,本文以试验网测试数据为参考,对广电700MHz NR与4.9GHz NR的覆盖性能进行了测试分析,其方法和结论为广电5G无线网络规划与建设提供了参考。

[43] 标准动态范围和高动态范围转换方法研究与测试

我国4K超高清视频采用HDR技术来获得比SDR更好的视觉体验,而传统的高清电视系统则采用SDR技术,因此,在高清SDR向4K HDR过渡阶段,系统还存在大量的SDR和HDR转换需求。本文基于对当前SDR和HDR转换技术发展现状的跟踪研究,梳理场景参考映射和显示参考映射两类转换的转换流程,并采用测试信号对转换效果进行评估,给出实际应用中转换方法的选择建议,可供从事相关工作时参考。

[75] 基于广电网络的人工智能语音能力系统建设

人工智能语音交互是一种新的用户UI,人和电视进行交互对话成为人工智能广电落地的典型场景。本文利用“语音识别+自然语言处理”技术,研发了人工智能语音能力系统,实现了电视操控和用户体验的深度交互融合,推进了用户由“看电视”向“用电视”的转型升级,为今后将有线电视机顶盒打造成智慧广电家庭入口做了积极的技术储备。

[97] 中波发射台自动化播控系统研究

自动化改造的中波发射台多采用自动化播控方式,一旦播控平台发生故障,可能造成多个频率设备停播的严重后果“分散控制、集中管理”的中波台的自动化播控方式,机房控制台不直接参与控制发射机的自动化播出,自动化改造后的发射机具备完善的自动化播控功能,由此提升中波发射台自动化播控系统的安全性。

[120] 新一代直播卫星位置管理系统高并发设计与实现

北斗导航作为我国自主知识产权的卫星导航系统,将逐步在我国各行各业得到应用。国家广播电视总局卫星直播管理中心开发建设了以北斗定位为基础,以地图为支撑的新一代直播卫星业务运营系统,推出新一代北斗卫星定位机顶盒。本文研究了地理信息空间数据组织、空间索引建立以及计算分析策略等内容,较好的解决了新一代系统需求中海量地理空间信息实时计算分析与高并发实时在线业务运营之间的矛盾。



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Contents

One of Hundred National Key Periodicals
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January 2021 No.1

Special Reports

- 10 2020 (the 25th) National Competition of Radio and Television Technicians was successfully held
- 17 First Prize Winner Show of 2020 (the 25th) National Competition of Radio and Television Technicians (Monitoring and Supervision)
- 20 First Prize Winner Show of 2020 (the 25th) National Competition of Radio and Television Technicians (Cable Network)
- 25 First Prize Winner Show of 2020 (the 25th) National Competition of Radio and Television Technicians (Network Security)

5G in Radio and TV

- 29 Research on Coverage Performance for 5G NR in Radio and Television By Luo Pei, Liu Guang
- 35 Practice of 5G Offshore Coverage Project with 700M Band by China Broadcasting Network By Zhuge Yiming, Feng Guang, Liu Jinggang, Wang Weizheng, Kan Zhongyu, Feng Zhusong

Internet Audio & Video

- 39 Research on Rationality Verification of Short-video Playback Amount Based on Benford's Law By Li Jinlong, Shi Hui

Content Production & Broadcasting

- 43 Study and Test on Conversion Methods Between SDR and HDR By Zhou Yun, Guo Xiaoqiang, Wang Yaming
- 49 Research on 4K UHD Remote Production Application By Ma Zhengxian, Li Dong, Fan Nianhui
- 54 Exploration and Practice of County-level Converged Media Center Construction under the Support of "China-blue Cloud" By Qian Yongjiang, Yan Yanqin, Yu Dingguo
- 58 Link Analysis and Deployment Strategy of SRT Protocol in 5G Live Broadcasting By Zhang Boli
- 63 Design and Application of Converged Media Live Broadcasting Technology Scheme for Thematic Presentation "Story of the Communist Party of China" By Zhang Jianqiang, Zhang Lin, Wang Hao, Li Chao, Zhou Shiyong
- 69 Reconstruction and Practice of TV Program Delivery Mode Under File-based Production and Broadcasting By Fang Zhongming, Ma Jun

CATV

- 75 Construction of Artificial Intelligence Speech Capability System Based on Radio and Television Network By Hu Jun, Zhan Yimin, Mao Haibo, Wang Shixiang, Pan Caixia
- 80 Research on Adaptability of Network Transmission Architecture for IP-based Radio and TV Source By Li Jing
- 83 Construction of IT Support and Business Management Cloud Platform in Radio and TV Network By Shi Qingbai
- 89 Research and Application of Optical Cable Line Monitoring and Protection System Based on Radio and Television Network By Zhang Yuehua
- 93 Research on Integrated Design of Live Broadcasting and Offline Transcoding of Cable TV By Yin Tao, Hao Wenyue

Wireless Coverage

- 97 Research on Automation Broadcast Control System of MW Transmitting Station By Zhu Xinghua
- 104 Multi-frequency FM Coverage System of Underground Parking Lot Based on RF Digital Processing By Zhao Hongjie
- 110 Discussion on Application of Parallel Loading Technology and Compensation Network Technology to Improve Bandwidth and Stability of MW Antenna Tuning Network By Xiao Tao, Song Qingxin, Wang Wei
- 115 Design and Implementation of Adaptive Power Synthesis DTMB Transmitter By Huang Yao, Qin Hui

Satellite Transmission

- 120 Design and Implement on High Concurrency of Satellite TV Geographic Position Management System By Zhang Xinqiang
- 126 Compatibility Evaluation and Technical Index Analysis of C-band Broadcasting Satellite Receiving Stations Against 5G Base Station Interference By Yang Fan, Dai Ming, Liu Fefei, Gao Yang, Gao Yang, Qu Na

Safety Broadcasting & Monitoring

- 136 An Intelligent Analysis System of Monitoring Image Based on Convolution Neural Network By Zheng Kaihui, Huang Peijian
- 143 Thoughts and Practice of Province-level IPTV Supervision Platform Construction Based on Embedded Collection Front End By Yang Ting

Elaboration & Commentary

- 150 Study on the Method of Completion Acceptance of "Wancuntong" Project in Africa By Yao Qiong, Li Yang, Yao Ruihong
- 155 Research on Correlation Model of Emergency Broadcasting By Wang Xiang, Mou Yanan



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Index

One of Hundred National Key Periodicals
A Core Professional Sci-Tech Periodical
tougao.lieku.cn

January 2021 No.1

[29] **Research on Coverage Performance for 5G NR in Radio and Television**

5G network construction coverage of China Broadcasting Network has always been the focus for the industry. At present, China Broadcasting Network has built a test network in Beijing and other areas. Based on test data of test network, this paper tests and analyzes coverage performance of 700MHz NR and 4.9GHz NR. Methods and conclusions in this paper provide reference for planning and construction of 5G wireless network.

[43] **Study and Test on Conversion Methods Between SDR and HDR**

4K UHD video uses HDR technology to obtain a better visual experience than SDR in our country, while SDR technology is used in traditional HD TV systems. Therefore, in transition stage from HD SDR to 4K HDR, there are still a large number of SDR and HDR conversion requirements in the system. Based on tracking research of current development status of SDR and HDR conversion technology, this paper sorts out conversion process of scene-referred mapping and display-referred mapping, and uses test signals to evaluate conversion effect, and gives suggestions for the selection of conversion methods in practical applications, which can be used for reference in related work.

[75] **Construction of Artificial Intelligence Speech Capability System Based on Radio and Television Network**

Artificial intelligence speech interaction is a new user UI, and interactive dialogue between humans and TV has become a typical scenario for AI radio and television. This paper uses "speech recognition + natural language processing" technology to develop an AI speech system, which realizes in-depth interactive integration of TV and user experience, and promotes transformation and upgrading of users from "watching TV" to "using TV", which makes positive technical reserves for making CATV set-top box to be the entrance of smart radio and TV homes.

[97] **Research on Automation Broadcast Control System of MW Transmitting Station**

After automation transformation, MW transmitting station mostly adopts automatic broadcast and control mode. Once broadcast and control platform fails, it may cause serious consequences of multiple frequency equipment stopping broadcasting. In this paper, automatic broadcast and control mode of MW station with "decentralized control and centralized management" is adopted. Control console in computer room is not directly involved in controlling automatic broadcasting of the transmitter. The transmitter after automatic transformation has a complete automatic broadcast and control function, which improves the security of automatic broadcast and control system in MW transmitter.

[120] **Design and Implement on High Concurrency of Satellite TV Geographic Position Management System**

Beidou Navigation, as a satellite navigation system with independent intellectual property rights, will gradually be applied in all walks of life in my country. Based on Beidou positioning, Administrator Center for DTH Service of NRTA has developed and constructed a new generation of live satellite service operating system supported by maps, and launched a new generation of Beidou satellite positioning set-top boxes. This paper studies geographic information data organization, spatial indexing and calculating analysis strategy, and solves contradiction between real-time calculation and analysis of massive geospatial information and high-concurrency real-time online business operations in new generation system requirements.