



全民阅读

ISSN 1672- 6944

CN 32-1675/TN

2021 24 第18卷 Vol.18

无线互联科技

WIRELESS INTERNET TECHNOLOGY

中国核心期刊（遴选）期刊

中国学术期刊网络出版总库（中国知网）全文收录

万方数据 - 数字化期刊群全文收录

中文科技期刊数据库（维普网）全文收录

ISSN 1672-6944



9 771672 694217

主管：江苏省科学技术厅

主办：江苏省科学技术情报研究所

万方数据

无线互联科技 WUXIAN HULIAN KEJI

2004年创刊

2021年第24期
(总第220期)

第18卷
半月刊

2021年12月25日

主 管: 江苏省科学技术厅

主 办: 江苏省科学技术情报研究所

编辑出版: 《无线互联科技》杂志社

社 长: 李 敏

副社长: 李克贵

主 编: 严文强

副主编: 汤 涅

编辑部主任: 王雪芬

本期责任编辑: 何 琦

编 委: (按姓氏笔画为序)

马永浩 孙 斌

金福兰 周晓明

黄水清 薛 飞

目 次

通信观察

- | | |
|------------------------------|---------------|
| 1 电子政务外网与5G移动通信网融合研究 | 边伟成, 王光鑫 |
| 5 基于Client/Server模式的进程通信实现研究 | 蔡坤琪, 赵安学, 邢洁清 |
| 7 智能配网运维5G+VR/AR的融合创新研究 | 候培培 |
| 9 5G技术在城市交通中的应用 | 王 卉 |

无线天地

- | | |
|----------------------------|-----|
| 11 基于无线数字覆盖技术的广电工程项目优化路径研究 | 吴进春 |
| 13 地面数字电视发射机的维护及检修分析 | 王立福 |

网络地带

- | | |
|----------------------------------|---------------|
| 15 基于IPv6+的电子政务外网能力提升方法研究 | 夏国光, 吴 欣 |
| 19 大数据背景下计算机网络安全风险与防范研究 | 郑 洲 |
| 21 融合CNN-BiLSTM和注意力机制的网络入侵检测方法探究 | 杜 坤, 黄永林, 罗振宇 |
| 23 计算机网络安全问题及其防范措施研究 | 王亚丽 |
| 25 工业互联网在局域网中的安全问题研究 | 宋新远 |
| 27 自媒体时代网络直播现状分析与展望 | 秦丽娟 |
| 29 基于统一身份认证的信息系统整合实践研究 | 张 楠 |
| 31 网络平台在增加大学生就业中的作用研究 | 巴晓娜 |

软件透视

- | | |
|------------------------|----------|
| 33 基于SRGM的可靠性分析 | 毛子剑 |
| 35 计算机软件开发技术的应用及展望 | 朱金诺 |
| 37 大数据背景下软件工程关键技术分析 | 程平远, 李浩田 |
| 39 面向智能化软件开发的开源生态大数据探析 | 王 峥, 程平远 |
| 41 职业院校校企合作智慧服务平台研究 | 卢 娜, 沈友华 |

设计分析

- | | |
|---|-------------------------|
| 43 基于光电开关的铁路道口检测系统设计与实现 | 孔繁军 |
| 46 基于大数据分析的海量信息软件系统设计与开发 | 刘 军, 曹小平, 孙 暖 |
| 48 基于无线网络的人脸识别门禁系统设计与实现 | 陈保国 |
| 50 基于LoRa农业物联网智慧大棚的设计与实现 | 姚茂璇, 罗怡辰 |
| 54 基于MATLAB的FIR数字滤波器仿真设计研究 | 关云静 |
| 57 基于JSP技术的人力资源信息管理系统设计 | 张 舒 |
| 59 基于公有云的医院备份系统设计 | 胡 颖 |
| 61 基于Web的人口结构预测网站设计与实现 | 梁 辰, 江小静, 严竞雄, 段和恒, 贾龙豪 |
| 63 基于SLAM的家庭服务机器人设计 | 郭祖庆, 姚伟为, 黄烽晋, 郑静纯, 林宇轩 |
| 66 嵌入式智能运输小车的设计 | 楼琼蕙 |
| 68 结合微信小程序与JavaWeb框架的前后端分离平台的设计与实现 ——以KEBO运动平台为例 | 赵圆圆, 陈润辉 |
| 70 基于物联网的校园一卡通建设 | 高雨桐 |
| 72 大型医院双活数据中心的建设与应用 | 李满堂 |
| 76 吉林省小微企业云会计信息系统构建研究 | 陈 悅, 孙雪梅 |

技术应用

| | |
|---------------------------------|--------------------|
| 78 计算机程序设计的多应用型开发分析 | 刘 奕 |
| 80 人工智能背景下计算机技术的应用 | 王艳然, 杨鹏飞 |
| 82 大数据反爬虫技术的应用分析 | 李嘉恩 |
| 84 信息时代背景下计算机科学技术的应用 | 张 敏 |
| 86 VR虚拟现实技术在高职院校实践教学中的应用 | 杨杭行 |
| 88 工业过程控制自动化中的智能控制应用 | 陈永生 |
| 90 3D打印技术及应用趋势研究 | 杨 勇 |
| 92 电气试验在变压器故障分析中的应用 | 余心悦 |
| 94 人工智能在计算机软件开发中的应用 | 李浩田, 王 峥 |
| 96 计算机多媒体技术在职场管理制度中的应用探索 | 肖承望 |
| 98 大数据技术在智慧交通管理平台中的应用 | 隋志纯, 于晓晴 |
| 100 基于Zabbix的企业级监控系统建设探索与应用 | 秦国华, 李 良 |
| 102 计算机虚拟仿真技术在学科竞赛中的应用与实践 | 马 宏, 尚腾蛟, 田 阳, 刘春东 |
| 104 海量数据背景下数据库优化技术的研究与应用 | 何历怀 |
| 106 分层技术在计算机软件开发中的运用 | 罗福侠 |
| 108 高频开关电源技术在智能变电站中的运用 | 肖 霄 |
| 110 大数据时代人工智能技术在网络空间安全中的应用研究 | 于淏璇 |
| 112 计算机安全监控系统的关键技术研究 | 陈贵兰 |
| 114 计算机服务器安全与网络故障维护技术分析 | 薛 飞 |
| 116 基于智慧技术的线上医保查房制度在医保精细化管理中的应用 | 沈慧子 |

实验研究

| | |
|-------------------------|----------|
| 118 变电站继电保护二次回路隐患排查方法研究 | 黄光鑫 |
| 120 基于深度学习的交通标志检测方法研究 | 吴 鑫, 刘云沄 |
| 124 智能变电站运维隐患分析 | 王泽润 |
| 126 对抗样本的攻防算法研究 | 刘子龙 |

数字教育

| | |
|--|---------------|
| 130 湖南省网络教学资源共建共享机制实施策略研究 | 魏 翔 |
| 132 O2O教育模式下网络学习空间资源的构建 | 周 香 |
| 134 教育信息化背景下智慧教室的建设探索与实践 | 孔晓宇 |
| 136 微信平台在高校计算机专业教学中的应用探讨 | 黄 炜 |
| 138 高阶思维导向的智慧课堂教学设计 | 李美林 |
| 142 基于SPOC的高校计算机基础教学实践探究 | 刘亚刚 |
| 145 基于产教融合的“电工电子技术”课程抖音模式形成策略的探究 | 伍玲密 |
| 148 信息化教学能力培训对教师信息素养的提升作用研究 | 贺 丽 |
| 150 BOPPPS模式在“模拟电子技术”实验教学中的应用 | 王玉菡 |
| 152 新形势下民办高校混合式教学改革实践 ——以“计算机与网络基础”课程为例 | 颜 萌 |
| 154 翻转课堂模式下“计算机应用基础”的教学实践分析 | 徐振宇 |
| 156 基于校企合作的“BIM建筑信息化”课程实训项目体系开发研究 | 杨晓东, 李晓光 |
| 158 “MySQL数据库”课程教学中常见问题探析 | 冯 凯 |
| 160 “MySQL数据库安全”课程教学方法优化分析 | 陈 洁 |
| 162 “1+X证书”背景下高职交互式Web前端开发课程标准制定设计 | 赵美花 |
| 164 SCS创客教学法在高职“电子技术”课程中的应用 | 李银露, 张海红, 吴 杰 |
| 167 技能大赛与常规教学相结合的“计算机网络技术”课程教学模式改革探究 | 雷承鑫 |

中国标准连 ISSN 1672-6944
续出版物号: CN 32-1675/TN

邮发代号: 28-473

发行范围: 公开

发 行: 江苏省报刊发行局

印 刷: 南京百花彩色印刷广告制作
有限公司

定 价: 40.00元

《无线互联科技》杂志社

社 址: 江苏省南京市龙蟠路171号

电 话: (025)-85433097

(025)-85410361

邮 编: 210042

投稿网址: <http://qkcb.jssti.cn>

电子邮箱: hlkj@sti.js.cn

户 名: 江苏省科学技术情报研究所

账 号: 4301012509001028301

开 户 行: 工商银行南京市板仓支行

WIRELESS INTERNET TECHNOLOGY

No.24 2021 (Total No.220)

CONTENTS

| | |
|---|--|
| Research on the integration of e-government extranet and 5G mobile communication network | Bian Weicheng, Wang Guangxin (1) |
| Implementation of process communication based on Client/Server mode | Cai Kunqi, Zhao Anxue, Xing Jieqing (5) |
| Research on integration and innovation of 5G+VR/AR in intelligent distribution network operation and maintenance | Hou Beibei (7) |
| Application of 5G technology in urban transportation | Wang Hui (9) |
| Study on radio and TV project optimization path based on wireless digital coverage technology | Wu Jinchun (11) |
| Maintenance and overhaul analysis of terrestrial digital TV transmitter | Wang Lifu (13) |
| Research on improving the external network capability of e-government based on IPv6 + | Xia Guoguang, Wu Xin (15) |
| Research on computer network security risk and prevention under the background of Big Data | Zheng Zhou (19) |
| Research on network intrusion detection method integrating CNN-BiLSTM and attention mechanism | Du Kun, Huang Yonglin, Luo Zhenyu (21) |
| Research on computer network security problems and preventive measures | Wang Yali (23) |
| Research on the security problems of industrial Internet in LAN | Song Xinyuan (25) |
| Analysis and prospect of webcast development in the era of we media | Qin Lijuan (27) |
| Research on information system integration practice based on unified identity authentication | Zhang Nan (29) |
| Research on the role of network platform in increasing college students' employment | Ba Xiaona (31) |
| Analysis of SRGM reliability | Mao Zijian (33) |
| Application and future prospect of computer software development technology | Zhu Jinnuo (35) |
| Analysis of key technologies of software engineering under the background of Big Data | Cheng Pingyuan, Li Haotian (37) |
| Analysis of open source ecological Big Data for intelligent software development | Wang Zheng, Cheng Pingyuan (39) |
| Research on intelligent service platform for school enterprise cooperation in vocational colleges | Lu Na, Shen Youhua (41) |
| Design and implementation of railway crossing detection system based on photoelectric switch | Kong Fanjun (43) |
| Design and development of mass information software system based on Big Data analysis | Liu Jun, Cao Xiaoping, Sun Nuan (46) |
| Design and implementation of face recognition access control system based on wireless network | Chen Baoguo (48) |
| Design and implementation of intelligent greenhouse for agricultural Internet of Things based on LoRa technology | Yao Maoxuan, Luo Yichen (50) |
| Research on simulation design of FIR digital filter based on MATLAB | Guan Yunjing (54) |
| Design of human resource information management system based on JSP technology | Zhang Song (57) |
| Design of hospital backup system based on public cloud | Hu Ying (59) |
| Design and implementation of a web-based population structure forecast website | Liang Chen, Jiang Xiaojing, Yan Jingxiong, Duan Heheng, Jia Longhao (61) |
| Design of home service robot based on SLAM | Guo Zuqing, Yao Weiwei, Huang Fengjing, Zheng Jingchun, Lin Yuxuan (63) |
| Design of embedded intelligent transportation vehicle | Lou Qionghui (66) |
| Design and implementation of front-end and back-end separation platform combining WeChat applet and JavaWeb framework: taking KEBO motion platform as an example | Zhao Yuanyuan, Chen Runhui (68) |
| Construction of campus one-card based on Internet of Things | Gao Yutong (70) |
| Construction and application of active-active data center in large hospitals | Li Mantang (72) |
| Research on construction of cloud accounting information system for small and micro enterprises in Jilin province | Chen Yue, Sun Xuemei (76) |
| Multi application development and analysis of computer programming | Liu Yi (78) |
| Application of computer technology in the background of artificial intelligence | Wang Yanran, Yang Pengfei (80) |

| | |
|--|--|
| Application analysis of Big Data anti-crawler technology | Li Jiae (82) |
| Application of computer science and technology in the information age | Zhang Min (84) |
| Application of VR technology in practice teaching in higher vocational colleges | Yang Hangxing (86) |
| Application of intelligent control in industrial process control automation | Chen Yongsheng (88) |
| Research on 3D printing technology and application trend | Yang Yong (90) |
| Application of electrical test in transformer fault analysis | Yu Xinyue (92) |
| Application of artificial intelligence in the development of computer software | Li Haotian, Wang Zheng (94) |
| Application of computer multimedia technology in vocational school management system | Xiao Chengwang (96) |
| Application of Big Data technology in intelligent traffic management platform | Sui Zhichun, Yu Xiaoqing (98) |
| Exploration and application of enterprise monitoring system based on Zabbix | Qin Guohua, Li Liang (100) |
| Application and practice of computer virtual simulation technology in discipline competition | Ma Hong, Shang Tengjiao, Tian Yang, Liu Chundong (102) |
| Research and application of database optimization technology under mass data | He Lihuai (104) |
| Application of layered technology in computer software development | Luo Fuxia (106) |
| Application of high frequency switching power supply technology in intelligent substation | Xiao Xiao (108) |
| Research on the application of artificial intelligence technology in cyberspace security in the era of Big Data | Yu Haocong (110) |
| Computer network security problems and preventive measures | Chen Guilan (112) |
| Technical analysis of computer server security and network fault maintenance | Xue Fei (114) |
| Application of online medical insurance ward round system based on intelligent technology in fine management of medical insurance | Shen Huizi (116) |
| Research on hidden trouble investigation method for secondary circuit of substation relay protection | Huang Guangxin (118) |
| Research on traffic sign detection method based on deep learning | Wu Xin, Liu Yunyun (120) |
| Analysis of hidden dangerous points in operation and maintenance of smart substation | Wang Zerun (124) |
| Study on adversarial attacks and defenses for adversarial examples | Liu Zilong (126) |
| Research on the implementation strategy of the co-construction and sharing mechanism of network teaching resources in Hunan Province | Wei Xiang (130) |
| Construction of network learning space resources in O2O education mode | Zhou Xiang (132) |
| Exploration and practice of smart classroom construction under the background of educational informatization | Kong Xiaoyu (134) |
| Discussion on the application of WeChat platform in the teaching of computer specialty in colleges | Huang Wei (136) |
| Research on instructional design of smart class oriented by high order thinking | Li Meilin (138) |
| Discussion on the teaching practice of computer foundation in colleges and universities based on SPOC | Liu Yagang (142) |
| Research on the strategy of shaking mode formation in the course of “Electrician and Electronics Technology” based on tiktok integration | Wu Lingmi (145) |
| Research on the role of information teaching ability training in improving teachers’ information literacy | He Li (148) |
| Application of BOPPPS mode in experimental teaching of “Analog Electronic Technology” | Wang Yuhan (150) |
| Practice of mixed teaching reform in private universities under new situation: taking “Computer and Network Fundamentals” as an example | Yan Meng (152) |
| Analysis on the teaching practice of “Fundamentals of Computer Application” under the flipped classroom mode | Xu Zhenyu (154) |
| Research on the development of “BIM Building Informatization” course training project system based on school enterprise cooperation | Yang Xiaodong, Li Xiaoguang (156) |
| Analysis on common problems in “MySQL Database” curriculum teaching | Feng Kai (158) |
| Analysis on the optimization of teaching methods of “MySQL Database Security”course | Chen Jie (160) |
| Design of curriculum standard of interactive Web front-end development under the background of “1+X certificate” | Zhao Meihua (162) |
| Application of SCS maker teaching method in “Electronic Technology” course in higher vocational | Li Yinlu, Zhang Haihong, Wu Jie (164) |
| Research on the teaching mode reform of “Computer Network Technology” course based on the combination of skill competition and conventional teaching | Lei Chengxin (167) |