



全民阅读 最刊

ISSN 1672-6944

CN 32-1675/TN

无线
互
联
科
技

2022 05 第19卷 Vol.19

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

第
五
期

二〇二二年三月

ISSN 1672-6944



05>

主管：江苏省科学技术厅

主办：江苏省科学技术情报研究所

2004 年创刊
2022 年第 5 期
(总第 225 期)
第 19 卷
半月刊
2022 年 3 月 10 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:汤 昊

副主编:黄 斌

编辑部主任:王雪芬

本期责任编辑:何 琳

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 5G 技术支持下的应用场景安全应对措施 张 洁
3 5G 无人机自动巡线技术在电力输电线路巡检的实现策略
蒋 畅,陈凤翔,谢皓凌,石 蕾,顾 泽,李文涛

无线天地

- 5 中波发射机播控系统抗干扰方法研究 王华波
7 低压真空接触器工作原理及其在 DF100A 短波发射机中的应用 赵 波

网络地带

- 9 5G 时代网络信息安全问题及对策研究 裴宜春
11 局域网网络环路故障排查及解决措施 张靓晶,钮大骞
13 大数据时代计算机网络安全防范路径研究 曾宏志
15 网络信息化下的高校网络安全建设探析 周建美
17 数字化背景下工业园区安全管理信息化体系建设研究 钱城江,张 瑜,王安娜
20 大数据时代计算机信息处理方式分析 王婷婷
22 基于大数据技术的配电网运行可靠性分析 杨 洋
24 大数据背景下电力建设工程监察信息化水平提升策略研究 夏华希

软件透视

- 26 基于 LSB 算法的图像数字嵌入技术软件系统设计 罗 娜
28 计算机软件开发技术特点及应用方向分析 邓 韬
30 计算机软件安全问题的防御措施探究 陈 豪
32 软件工程化在现代电机控制技术中的应用 张晓娟
34 课堂教学互动软件的设计与实现 郁 烨,龚鹏飞
37 基于单片机的智能恒温器设计 周家奇
39 数据挖掘技术背景下高校智慧办公系统的实现路径研究 刘 斌
41 Excel 软件在日常办公中的实战技巧应用 王景珊
43 智慧校园信息化运行支撑平台的建设研究 黄启欣
45 基于云平台的温室大棚环境数据采集与控制系统研究
杨青青,秦 芹,巩倩倩,王 岩,赵 倩
47 C-SVM 动态仿真模型下的光伏建筑一体化板块投资策略研究
裴智明,靳谦诚,张 迪

设计分析

- 49 基于单片机的蓝牙遥控小车设计 肖 涛
51 基于人体生命特征的健康信息检测与显示系统设计 朱 浩,王 娟
53 基于单片机的电子密码锁系统设计 邹 健
55 基于单片机和 GSM 模块的智能火灾报警系统设计 陈之酉
57 开放性实验室的网上预约系统设计 张文韬
59 智能手环心率监测系统设计 孙皓楠,梁东云
61 基于 STM32 的无线对讲机系统设计 吴元庆
63 家庭财务管理系统的设计与实现 温馨雨
65 AI 机器人农作物播种机的设计 尹向东,王 政
67 基于单片机的多功能路灯设计 王 宇,刘福华,党宏涛,林柏宇,宋振凯,朱 浩
69 基于 51 单片机的医院住院呼叫系统设计 盘新辉

71 石油平台自控仪表系统安全设计

岳沛霖

技术应用

73 基于计算机技术的 GIS 技术研究

张 冉,张丽娟

75 基于区块链的车联网隐私保护技术研究

乔 瑞

77 电子信息数据传输关键技术探究

朱 琳

79 面向市场需求的计算机技术应用研究

荀 珂,冉翠翠

81 ETL 技术的装备大数据治理应用

周浩成

83 高精度无人机在变电站巡检中的应用优势探究

姜鹏彦,陈凤翔,刘陵轶,陈海华,周小红

85 物联网技术在开放实验室建设中的应用

李瑞利,黄卓忻,宋俊慷

87 工业机器人技术及其在电气控制领域的应用

肖 潇

89 深度学习在遥感图像处理中的应用

蒋 睿,杨靖欣,桂承熙

93 图像识别系统在数据大屏展示系统中的应用

董志勇,李方方,徐志恒

96 互联网下的计算机终端数据安全保护技术研究

杨蕴睿

98 VR 技术在旅游资源开发中的应用

李 甜

100 计算机安全管理的数据备份和恢复技术应用

郑永奇

102 人工智能在电子信息领域中的应用探究

王 赧

104 智能机器人数控技术在机械制造业中的应用

宋广舒

106 智能信息处理技术的应用与发展探讨

李 庆

108 时间最优 PID 控制算法在水电厂监控系统功率调节中的应用

殷召生

111 电气自动化工程中的节能设计技术探究

张亚琼

113 远程费控系统在电力营销中的应用

张佳祺,张秋辉,周信行,罗智慧

实验研究

116 基于 Matlab 仿真的四旋翼自抗扰控制算法的研究

刘灵童,王 旭,王大海,郑 凯,尹晓娇

121 基于粒子群算法的可再生能源供给系统优化设计

董 晶

123 Web 前端开发技术以及优化方向分析

兆 晶,杨晓宇

125 水电站监控系统中的设备调试方法分析

高泰刚

数字教育

127 网络学习资源的建设问题及对策分析

蔡 琴

130 疫情期间“电子线路 CAD”线上“金课”研究

张 俊

132 “以学为中心”的大学计算机基础课程线上线下混合式教学的探索与实践

蔡丽艳

135 职业本科院校数据库课程体系建设研究

赵 旭

137 高校计算机网络化教学设计分析

李 赟

140 云计算辅助教学在高职计算机教学中的应用

蔡 豪

142 计算机科学与技术专业实践教学的应用研究

程晓磊

144 基于移动学习模式的高职院校学生自主学习策略研究

崔军林,刘 韬,李菁菁

146 新工科背景下教学模式及人才培养探索

——以电子信息工程专业为例

罗大鹏,余蓓蓓,张祥莉,程 卓,黄田野

148 “电工电子技术”课程教学改革探究

王民明

151 职校“电子技术基础”课程虚拟仿真实验教学设计

张 莉

153 视觉传达“云课堂”中 PS 软件解构教学新法研究

高 华

156 基于项目教学的“网页设计”课程设计

朱嵩宇,韩 东

158 信息时代下在线教学模式探讨

——以“概率论与数理统计”为例

郝一新

160 基于职教云平台的移动学习课程设计研究

——以高职“信息技术”课程为例

高慧娟

162 基于虚拟仿真平台的“单片机应用技术”课程教学改革探索与实践

郭 庆

165 基于超星泛雅教学平台的课程资源建设的研究与实践

——以电商专业“网店美工”课程为例

杨亚萍

167 混合式教学在“信息技术”课程中的实践研究

——以“计算机硬件”为例

周 挺

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:江苏苏创信息服务中心

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: hkij@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. 5 2022 (Total No. 225)

CONTENTS

Application scenario security countermeasures supported by 5G technology	Zhang Jie(1)
Implementation strategy of 5G UAV automatic line patrol technology in the power transmission line inspection	Jiang Chang, Chen Fengxiang, Xie Haoling, Shi Lei, Gu Ze, Li Wentao(3)
Research on anti-jamming method of medium wave transmitter broadcasting and control system	Wang Huabo(5)
Operating principle of low-voltage vacuum contactor and its application in DF100A short-wave transmitter	Zhao Bo(7)
Research on network information security problems and countermeasures in 5G era	Pei Yichun(9)
Troubleshooting and solutions of LAN network loop	Zhang Liangjing, Niu Daqian(11)
Research on the path of computer network security in the big data era	Zeng Hongzhi(13)
Analysis on the construction of network security in colleges and universities under network informatization	Zhou Jianmei(15)
Research on the construction of safety management information system in industrial park under the background of digitization	Qian Chengjiang, Zhang Yu, Wang Anna(17)
Analysis of computer information processing methods in the age of big data	Wang Tingting(20)
Operation reliability analysis of distribution network based on big data technology	Yang Yang(22)
Research on the informatization strategy of power construction project supervision under the background of big data	Xia Huaxi(24)
Design of image digital embedding technology software system based on LSB algorithm	Luo Na(26)
Analysis of the technical characteristics and application direction of computer software development	Deng Tao(28)
Research on defense measures of computer software security	Chen Hao(30)
Application of software engineering in modern motor control technology	Zhang Xiaojuan(32)
Design and implementation of software for interactive teaching	Yu Ye, Gong Pengfei(34)
Design of intelligent thermostat based on SCM	Zhou Jiaqi(37)
Research on the implementation path of intelligent office system in universities under the background of data mining technology	Liu Bin(39)
Application of practical skills cases of Excel software in daily office	Wang Jingshan(41)
Research on the construction of intelligent campus information operation support platform	Huang Qixin(43)
Research on greenhouse environmental data acquisition and control system based on cloud platform	Yang Qingqing, Qin Qin, Gong Qianqian, Wang Yan, Zhao Qian(45)
Research on investment strategy of integrated photovoltaic building sector under C-SVM dynamic simulation model	Pei Zhiming, Jin Qiancheng, Zhang Di(47)
Design of Bluetooth remote control car based on SCM	Xiao Tao(49)
Design of health information detection and display system based on human life characteristics	Zhu Hao, Wang Juan(51)
Design of electronic code lock system based on single chip microcomputer	Zou Jian(53)
Design of intelligent fire alarm system based on single chip microcomputer and GSM module	Chen Zhiyou(55)
Design of online reservation system for open laboratory	Zhang Wentao(57)
Design of smart bracelet heart rate monitoring system	Sun Haonan, Liang Dongyun(59)
Design on wireless intercom system based on STM32	Wu Yuanqing(61)
Design and implementation of family financial management system	Wen Xinyu(63)
Design of AI robot crop planter	Yin Xiangdong, Wang Zheng(65)
Design of multifunctional street lamp based on single-chip microcomputer	Wang Yu, Liu Fuhua, Dang Hongtao, Lin Baiyu, Song Zhenkai, Zhu Hao(67)
Design of hospital inpatient call system based on 51 MCU	Pan Xinhui(69)
Safety design of automatic instrument system of petroleum platform	Yue Peilin(71)
Research on GIS technology based on computer technology	Zhang Ran, Zhang Lijuan(73)
Research on the privacy protection technology of the Internet of Vehicles based on blockchain	Qiao Rui(75)
Exploration of task-driven teaching method based on computer in innovation and entrepreneurship teaching	Zhu Lin(77)

Research on application of computer technology facing market demand	Xun Ke, Ran Cuicui(79)
Equipment big data governance application of ETL technology	Zhou Haocheng(81)
Application advantages of high-precision UAV in substation inspection	Lou Pengyan, Chen Fengxiang, Liu Lingyi, Chen Haihua, Zhou Xiaohong(83)
Discussion on the application of the Internet of Things technology in the construction of an open laboratory	Li Ruili, Huang Zhuoxin, Song Junkang(85)
Industrial robot technology and its application in the field of electrical control	Xiao Xiao(87)
Application of deep learning in remote sensing image processing	Jiang Rui, Yang Jingxin, Gui Chengxi(89)
Application of image recognition system in data large screen display system	Dong Zhiyong, Li Fangfang, Xu Zhiheng(93)
Research on computer terminal data security protection technology under Internet	Yang Yunrui(96)
Application of VR technology in tourism resource development	Li Tian(98)
Application of data backup and recovery technology of computer security management	Zheng Yongqi(100)
Application of artificial intelligence in electronic information technology	Wang Geng(102)
Application of intelligent robot numerical control technology in machinery manufacturing industry	Song Guangshu(104)
Application and development of intelligent information processing technology	Li Qing(106)
Application of time-optimal PID control algorithms in hydropower station computer monitoring system	Yin Zhaosheng(108)
Exploration on energy saving design technology in electrical automation engineering	Zhang Yaqiong(111)
Application of remote fee control system in power marketing	Zhang Jiaqi, Zhang Qiuhui, Zhou Xinxing, Luo Zhihui(113)
Research on four rotor flight control algorithm based on Matlab simulation	Liu Lingtong, Wang Xu, Wang Dahai, Zheng Kai, Yin Xiaojiao(116)
Optimal design of renewable energy supply system based on particle swarm optimization	Dong Jing(121)
Web front-end development technology and optimization direction analysis	Zhao Jing, Yang Xiaoyu(123)
Analysis of the equipment debugging method in the monitoring system of the hydropower station	Gao Taigang(125)
Problems and countermeasures of network learning resources construction	Cai Qin(127)
Research of online “Golden Course” on “Electronic Circuit CAD” during the COVID-19 period	Zhang Jun(130)
Exploration and practice of “learning centered” online and offline hybrid teaching of college computer basic courses	Cai Liyan(132)
Research on the construction of database curriculum system in vocational undergraduate colleges	Zhao Xu(135)
Design and analysis of computer network teaching in universities	Li Yun(137)
Research on the application of cloud computing-assisted teaching in computer teaching in higher vocational education	Cai Hao(140)
Application on practical significance of practical teaching in computer science and technology	Cheng Xiaolei(142)
Research on higher vocational college students’ autonomous learning strategy based on mobile learning mode	Cui Junlin, Liu Tao, Li Jingjing(144)
Exploration on teaching mode and talent training under the new engineering background;taking electronic information engineering major as an example	Luo Dapeng, Yu Beibei, Zhang Xiangli, Cheng Zhuo, Huang Tianye(146)
Exploration on teaching reform of “Electro and Electronic Technology”	Wang Minming(148)
Virtual simulation experiment teaching design of the “Electronic Technology Foundation” course in the vocational school	Zhang Li(151)
Research on PS software deconstruction teaching method combined with visual communication theory	Gao Hua(153)
Course design of “Web Design” based on project teaching	Zhu Songyu, Han Dong(156)
Discussion on the online teaching model in the information age;taking “Probabilistic Theory and Mathematical Statistics”as an example	Hao Yixin(158)
Research on mobile learning curriculum design in higher vocational colleges based on vocational education cloud platform; taking “Information Technology” course as examples	Gao Huijuan(160)
Exploration and practice of the course teaching reform of “MCU Application Technology” based on the virtual simulation platform	Guo Qing(162)
Research and practice of the curriculum resource construction based on the superstar generic teaching platform; taking the course of “Online Shop Artists” in an e-commerce major as an example	Yang Yaping(165)
Practical research on hybrid teaching in “Information Technology” course;taking “Computer Hardware” as an example	Zhou Ting(167)