



ISSN 1672- 6944  
CN 32-1675/TN

无线互联科技

2022 04 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

第四期

ISSN 1672-6944



04>  
9 771672 694224

主管：江苏省科学技术厅      主办：江苏省科学技术情报研究所

# 目 次

2004 年创刊  
2022 年第 4 期  
(总第 224 期)  
第 19 卷  
半月刊  
2022 年 2 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:汤 溥

副主编:黄 斌

编 辑 部 主 任:王雪芬

本期责任编辑:王永超

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

## 通信观察

- 1 5G 技术在通信基础设施中的优化分析 蓝炳志  
3 700 M 5G 承载网络全面覆盖通信方案分析 张存喜,薛其林  
5 小卫星通信系统中的终端主机设计与实现 严俊  
8 一种多接口通信模块测试试验设备的设计 徐玉杰,孟博,钱军琪

## 无线天地

- 10 DF100A 短波发射机备份器件的维护和管理分析 赵 波  
12 基于软件无线电的通用调制器设计和实现 王 赢

## 网络地带

- 15 云计算技术环境下计算机网络安全探讨 赵元沛  
17 计算机网络安全防护技术和策略研究 施卫民  
20 校园 IT 平台向云端迁移的策略研究 赵利芳  
23 通过交换机检测解决网络环路的探索 范 敏,魏书伟,张海霞  
26 医疗卫生系统信息化建设的发展研究 杨 丹  
28 档案网站建设存在的问题及对策研究 加孜拉·黑那亚提  
30 警情预测时空关联分析研究 ——以广西壮族自治区为例 刘莉莉,贡晓静,秦 概  
32 公共图书馆计算机和互联网免费使用的影响及思考 范曦匀

## 软件透视

- 34 信息时代下计算机软件工程的管理与应用研究 宋舒晗,王莹  
36 计算机软件系统维护中的问题及对策探究 贺伟忠,张卫强  
38 CAD 系统软件在半导体芯片设计中的应用 朱祖建  
40 基于超图软件的土地利用规划数据库建设探讨 申 婕  
42 开放大学科研管理平台建设研究 郭 楠,任春野  
44 基于无线互联的高校线上线下混合式学习支撑平台建设研究 徐成波  
46 手持式校园行动轨迹追溯系统研究 洪雨昕,吴言言,查 璇

## 设计分析

- 48 一种 PCIe 接口 AFDX 端系统的设计与实现 王晨博,孟博,张楠  
50 一种支持 PCIe 和 PCI 主机接口的模块测试平台设计 孟博,徐玉杰,冯思桐  
52 基于微表情追踪的课堂教学效果即时反馈系统设计 崔小洛  
55 基于物联网技术的校园智能安防系统设计 陈 芹,陆桂龙,蔡银,李家成,郭丹丹,黄 瑞  
57 基于物联网的智慧教室设计 王 建,刘欣彤,王 猛,马晶晶  
59 基于医院数据平台的门诊运营监控系统设计 谭鸿智  
61 降压式 DC-DC 电源管理芯片中振荡器电路的设计与研究 钟方媛,毛 群  
64 大数据环境下智慧旅游管理平台的设计与实现 曾 妍  
66 中高职移动学习平台设计与开发 王读红

## 技术应用

- 68 高通量计算机的图算法优化技术研究 贾子昂

70 智慧农业发展背景下物联网技术在设施农业中的应用	刘雪超
72 校园网环境中 ARP 防火墙技术的应用	石 峰
74 大数据时代下人工智能的应用	陈文静,孙远灿,牛鑫科
76 人工智能在无人驾驶中的应用	王 虢,左海春
78 机器人技术在智能仓储物流中的应用	许 琴
80 红外技术在电梯和自动扶梯上的应用	余海璐
83 信息化技术在建筑工程技术体系中的应用	李晓光,刘任峰,曹 洋
85 计算机信息技术在医疗保障事业中的应用	刘伟辉
87 智慧城市中物联网及云计算技术的运用探究	张 浩
89 “ASP. NET”技术在企业网站设计中的应用	宋雅飞
91 遥感技术在自然灾害综合风险普查工作中的应用	王向春
93 云计算技术在企业大型数据中心中的应用	杜舒静,陈荣华
95 计算机与 Web 技术在高校教学管理中的应用	黄俊淇
97 区块链及其在博物馆中的应用场景探究	张杰奎

## 实验研究

99 移动机器人路径规划融合算法研究	杨伟煌,王容霞
102 改进的虹膜图像分割算法研究	钟 彩,彭春富
104 基于区间值犹豫模糊形式背景的信息提取方法研究	张嘉德,金子涵

## 数字教育

107 “数智”时代高校“业财融合”实训中心建设研究 ——以吉林省 X 高校为例	孙雪梅
109 混合式教学模式的高效利用研究	吕英海,崔志芳,高中政
112 OBE 理念下计算机科学与技术专业课程体系的构建研究	邬 雄,王 宇
114 以赋能为目标的“计算机基础”混合式教学探究	段瑞波
116 职校计算机课堂教学管理的优化策略探究	吴 江
118 信息化技术在高职机械类实训课程教学中的应用	郑如玉
120 移动学习模式在高职院校学生自主学习中的应用	崔军林,刘 韶,李菁菁
122 基于“书籍设计”MOOC 课程的数字化混合式教学改革探索与实践	黄梦喆
125 信息化背景下高校计算机教学改革研究	杨宁宁
127 线上线下混合式教学模式改革探究 ——以应用型本科院校电子商务专业课程建设为例	吴丽丽
130 基于 OBE 理念的“虚拟仪器技术”教学改革	张 晨
133 “1+X 证书”制度下职业院校计算机应用专业课程体系的建设实施	曹 蕾
135 面向创新创业的“大学计算机基础”课程教学改革研究	王 欣
137 “互联网+移动”视角下技能竞赛与“计算机实践教学”课程体系改革研究	杨焱生
139 “信创”背景下“C 语言程序设计”线上线下混合教学模式的探究与实践	江 燕
142 “信息安全技术”课程的教学改革研究 徐胜超,毛明扬,霍永良,张 静,黄梦莹,何璐琪	
147 嵌入式技能竞赛在高职课程建设中的融合与实施 ——以“STM32”课程为例	刘庆华
150 基于岗位技能的“云计算与自动化运维”课程群构建研究	刘 春,王 健,缪丽萍,张丽华,孙 涛,程晓旭
153 以学生为中心的混合教学模式研究 ——以“面向对象程序设计”课程为例	郭晓惠,王 芳
155 高校“人工智能”课程开设及人工智能专业建设探究	丁海涛,李兰兰,王 慧
157 “计算机”课程教学中创新能力的培养研究	王惊雷
159 基于“C++程序设计”的在线课程开发与应用	王玉君,胡五音
161 “网络管理”课程教材建设研究	赵婧如
163 大数据时代下的“网页设计”课程教学改革探讨	刘雪芳
165 基于“两性一度”的“工业机器人编程与调试”金课建设	秦 娟

中国标准连 ISSN 1672-6994  
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: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. 4 2022 ( Total No. 224)

## CONTENTS

Optimization analysis of 5G technology in communication infrastructure .....	Lan Bingzhi(1)
Analysis of 700 M 5G bearer network full coverage communication scheme .....	Zhang Cunxi, Xue Qilin(3)
Design and implementation of terminal host in small satellite communication system .....	Yan Jun(5)
Design of test equipment for multi-interface communication module .....	Xu Yujie, Meng Bo, Quan Junqi(8)
Analysis on the maintenance and management of the backup devices of the DF100A short-wave transmitter .....	Zhao Bo(10)
Design and implementation of general modulator based on software radio .....	Wang Ying(12)
Discussion on computer network security under the environment of cloud computing technology .....	Zhao Yuanpei(15)
Research on the technology and strategy of computer network security protection .....	Shi Weimin(17)
Research on migration of campus IT platform to cloud .....	Zhao Lifang(20)
Exploration of solving network loop by switch detection .....	Fan Min, Wei Shuwei, Zhang Haixia(23)
Research on the development of information construction of medical and health system .....	Yang Dan(26)
Research on the problems and countermeasures of archives website construction .....	Jiazila Heinayati(28)
Space-temporal correlation analysis of alert prediction:taking Guangxi Zhuang Autonomous Region as an example .....	Liu Lili, Gong Xiaojing, Qin Gai(30)
Influence and thinking of free use of computer and Internet in public library .....	Fan Xiyun(32)
Discussion on the management and application of computer software engineering in the information age .....	Song Shuhan, Wang Ying(34)
Problems and countermeasures in computer software system maintenance .....	He Weizhong, Zhang Weiqiang(36)
Application of CAD system software in semiconductor chip design .....	Zhu Zujian(38)
Discussion on the construction of land use planning database based on SuperMap software .....	Shen Jie(40)
Research on the construction of scientific research management platform in open university .....	Guo Nan, Ren Chunye(42)
Research on the construction of online and offline hybrid learning support platform in colleges and universities based on wireless Internet .....	Xu Chengbo(44)
Research on handheld campus action track tracing system .....	Hong Yuxin, Wu Yanyan, Zha Meng(46)
Design and implementation of a PCIe interface AFDX terminal system .....	Wang Chenbo, Meng Bo, Zhang Nan(48)
Design of a test platform supports PCIe and PCI host interface modules .....	Meng Bo, Xu Yujie, Feng Sitong(50)
Design of real-time feedback system for classroom teaching effect based on micro-expression tracking .....	Cui Xiaoluo(52)
Design of campus intelligent security system under the Internet of Things technology .....	Chen Qin, Lu Guilong, Cai Yin, Li Jiacheng, Guo Dandan, Huang Rui(55)
Design of smart classroom based on Internet of Things .....	Wang Jian, Liu Xintong, Wang Meng, Ma Jingjing(57)
Design of outpatient operation monitoring system based on hospital data platform .....	Tan Hongzhi(59)
Design and research of oscillator circuit in step-down DC-DC power management chip .....	Zhong Fangyuan, Mao Qun(61)
Design and implementation of the smart tourism management platform under the big data environment .....	Zeng Yan(64)
Design and development of mobile learning platform in higher vocational education based on wireless network .....	Wang Duhong(66)
Research on Graph algorithm optimization for high throughput computer .....	Jia Zi' ang(68)
Application of Internet of Things technology in facility agriculture under the background of smart agriculture development .....	Liu Xuechao(70)
Application of ARP firewall technology in campus network environment .....	Shi Feng(72)
Application on artificial intelligence application in the big data era .....	Chen Wenjing, Sun Yuancan, Niu Xinke(74)
Application of artificial intelligence in unmanned driving .....	Wang Xiao, Zuo Haichun(76)
Application of robot technology in intelligent warehousing and logistics .....	Xu Qin(78)
Application of infrared technology in elevator and escalator .....	Yu Hailu(80)
Research on the role of information technology in the construction engineering technology system .....	Li Xiaoguang, Liu Renfeng, Cao Yang(83)

Application on computer information technology in medical security .....	Liu Weihui(85)
Exploration on the application of Internet of Things and cloud computing technology in smart city .....	Zhang Jie(87)
Application of “ASP. Net” technology in enterprise website design .....	Song Yafei(89)
Application of remote sensing technology in comprehensive risk survey of natural disasters .....	Wang Xiangchun(91)
Implementation and application of big data center based on cloud computing .....	Du Shujing, Chen Ronghua(93)
Application on computer and Web technology in university teaching management .....	Huang Junqi(95)
Exploration of blockchain and its application scenes in museums .....	Zhang Jiekui(97)
Research on fusion algorithm of mobile robot path planning .....	Yang Weihuang, Wang Rongxia(99)
Research on improved iris image segmentation algorithm .....	Zhong Cai, Peng Chunfu(102)
Information extraction method based on interval-valued hesitating fuzzy concept lattice .....	Zhang Jiade, Jin Zihan(104)
Research on construction of “Industry Finance Integration” training center in universities in the era of “Digital Intelligence”: a case study of X university in Jilin province .....	Sun Xuemei(107)
Research on efficient use of blended learning mode .....	Lyu Yinghai, Cui Zhifang, Gao Zhongzheng(109)
Research on the construction of curriculum system of computer science and technology specialty under the concept of OBE .....	Wu Xiong, Wang Yu(112)
Research on hybrid teaching of “Computer Foundation” aiming at empowerment .....	Duan Ruibo(114)
Analysis of the important countermeasures to improve the computer classroom teaching management in vocational schools .....	Wu Jiang(116)
Application of information technology in the teaching of mechanical training courses in higher vocational education .....	Zheng Ruyu(118)
Application of mobile learning mode in the independent learning of students in higher vocational colleges .....	Cui Junlin, Liu Tao, Li Jingjing(120)
Exploration and practice of digital hybrid teaching reform based on “Book Design” MOOC course .....	Huang Mengzhe(122)
Research on computer teaching reform in colleges and universities under the background of informatization .....	Yang Ningning(125)
Exploration on the reform of online and offline hybrid teaching mode: taking the construction of e-commerce professional teaching courses in applied undergraduate colleges as an example .....	Wu Lili(127)
Teaching reform of “Virtual Instrument Technology” based on OBE .....	Zhang Chen(130)
Construction and implementation of curriculum system of computer application specialty in secondary vocational school under “1 + X certificate” system .....	Cao Lei(133)
Research on the teaching reform of university computer basic courses oriented to innovation and entrepreneurship .....	Wang Xin(135)
Research on “Internet + Mobile” perspective skills competition and system reform of “Computer Practice Teaching” course .....	Yang Miaoosheng(137)
Research and practice of on-line and off-line mixed teaching of “C Language Program Design” under the background of “Information Technology Innovation” .....	Jiang Yan(139)
Study of new teching reformation method for “Information Security Course” .....	Xu Shengchao, Mao Mingyang, Huo Yongliang, Zhang Jing, Huang Mengying, He Luqi(142)
Integration and implementation of embedded skills competition in higher vocational curriculum construction: taking “STM32” course as an example .....	Liu Qinghua(147)
Research on the construction of “Cloud computing and Automatic Operation and Maintenance” course group based on post skills .....	Liu Chun, Wang Jian, Miao Liping, Zhang Lihua, Sun Tao, Cheng Xiaoxu(150)
Research on student-centered mixed teaching mode: taking “Object-Oriented Programming” course as an example .....	Guo Xiaohui, Wang Fang(153)
Analysis on the establishment of artificial intelligence courses and the construction of artificial intelligence specialty in higher colleges .....	Ding Haitao, Li Lanlan, Wang Hui(155)
Research on the cultivation of innovative ability in the teaching of “computer courses” .....	Wang Jinglei(157)
Research on the development and application of online course based on “C++ Program Design” .....	Wang Yujun, Hu Wuyin(159)
Research on teaching material construction of “Network Management” course .....	Zhao Jingru(161)
Discussion on teaching reform of “Web Design” course in the era of big data .....	Liu Xuefang(163)
Construction of “Golden Course” of “Programming and Operation of Industrial Robot” course based on two properties and one degree .....	Qin Jing(165)