

ISSN 1004-373X

CN 61-1224/TN

- ◎ 中国科技核心期刊 RCCSE中国核心学术期刊(A)
- ◎ 陕西省电子技术研究所有限公司 陕西电子杂志社有限公司

Modern Electronics Technique

# 现代电子技术®

<http://www.xddz.com.cn>

2023

第46卷

Vol.46 No.03

03

# 目 次

## 通信与信息工程

- 毫米波雷达的扩展目标点云聚合算法 .....沈 磊, 刘 康 (1)
- 北斗 ka星间链路高动态应用辅助接收技术 .....蔡文炳, 张中英, 卢樟健, 陈玲玲, 陈宜稳, 同 钊, 徐连军 (6)
- 一种基于电磁耦合馈电结构的双极化微带天线设计 .....李希媛, 郝晓云, 蒋海涛, 贺晓萌, 杨沛卓, 宋立众 (11)
- 一种适用于5G智能终端的新型自解耦天线对  
.....袁 军, 肖 疆, 肖 刘, 尚新文, 易红霞, 李 飞, 金 锋 (17)
- 经典 Link 数据链信道传输模型及特性研究 .....张 洋, 毛忠阳, 赵志勇, 张 嵩, 刘锡国 (21)
- 卫星制导弹箭抗干扰性能试验方法研究 .....张正成, 王栋梁, 李凡聪, 王军林 (25)

## 信号分析与图像处理

- 基于 Ghost 模块的改进 YOLOv5 目标检测算法 .....李宇翔, 王 帅, 陈 伟, 田子建, 侯麟朔 (29)
- 基于 ADS 仿真的最佳干扰信号分析 .....郝晓军, 李永成, 李廷鹏 (35)
- 基于 YOLOV5s\_Attention 的表面缺陷检测的应用研究 .....庞宁雅, 杜安钰 (39)
- 基于改进的3D U-Net骨盆CT影像多类分割 .....刘 志, 李兴春, 郑 斌, 谢小山, 肖 林, 李迎新, 秦传波 (47)
- 锁相放大技术提取微弱信号的极限性能仿真与分析 .....杜海伟, 朱思源, 龙 江, 刘君威, 吕 金 (52)
- 低数据量下的雷达信号脉内调制识别方法 .....富炜皓, 苟晓鸣, 武者东 (57)

## 网络与信息安全

- 基于特征融合的中文新闻文本情感分类方法研究 .....冯宇航, 邵剑飞, 张小为, 邵建龙 (62)
- 基于网状关联分析的电力监控网络信息安全智能预警方法 .....胡周达, 隆运鸿, 许 丰, 李小洁, 林红冲 (69)
- 基于主成分分析和深度自编码高斯混合模型的无监督异常数据检测方法研究 .....刘翔宇, 朱诗兵, 杨 帆 (75)
- 基于时序时空双流卷积的异常行为识别 .....张仁路, 高丙朋 (81)
- 新型共识算法在募捐系统的研究 .....谢兆贤, 徐 娅, 张 青, 邵长彬 (88)

## 测控与自动化技术

- 飞轮储能单相并网控制策略设计 .....宋章华, 王海云, 蒋中川, 杨孝杰 (95)

- 结合多尺度特征和注意力机制的公路裂缝检测·····张瑞燕 (100)
- LEO卫星接收天线对北斗三号MEO覆盖性分析·····陈宜稳, 王峻, 陈玲玲, 赵雯雯, 朱向鹏 (105)
- 基于改进ALIF与FA-BP的滚动轴承故障诊断·····吴鑫坤, 刘慧明 (109)
- 基于模型预测的调距桨控制器设计与研究·····王宇欣, 常广晖, 徐冰阳 (114)
- 基于模糊集合理论的自动雨量站故障树分析方法·····陈立峰, 范雯杰 (119)
- 无缆自定位应急航标系统仿真设计·····王永涛, 刘兴龙, 张海波, 初秀民, 王志远 (125)

## 能源与环境科学

- 考虑需求侧响应的综合能源系统可靠性评估·····邱红桦, 崔双喜, 樊伟杰 (130)
- 考虑碳交易的CSP电站-电极锅炉-热电联产联合供热系统优化策略·····徐泽鹏, 陈洁, 张敬轩 (136)

## 电子技术及应用

- 一种测试油烟机风量的超声波系统·····杨明月, 郑桐福, 鲍明, 郭丰碑, 张凯 (143)
- 基于EMD-LSTM-ARMA模型短期发电量组合预测·····王仲平, 何黎黎, 丁更乾 (151)
- 新型数字智能变电站监控及巡视系统应用研究·····韩柳, 吴聪颖, 肖智宏 (156)
- 基于破圈法与改进布谷鸟算法的两阶段配电网重构·····班波, 袁至 (161)
- 微带结构的高增益低噪声放大器的设计·····王昌皓, 熊祥正 (167)
- 基于微控制器的超声波定位设计·····张凯 (173)
- 基于物联网技术的智慧教室一体化学生管理终端设计·····康梦洁 (177)
- 考虑配电网弹性负荷的错峰限电辅助决策方法·····张洪, 翟鸿荣, 周肖锋, 陈勋旺 (182)

### 声 明

本刊已许可国内外相关数据库和中国知网在其系列数据库产品中以数字化方式复制、汇编、发行、信息网络传播本刊全文。该社著作权使用费与本刊稿酬一并支付(相关稿酬不再另行支付)。作者向本刊提交文章发表的行为即视为同意我社上述声明。

## Contents

Extended-target point cloud aggregation algorithm for millimeter-wave radar·····	SHEN Lei, LIU Kang (1)
Assisted receiving technology for high dynamic application based on BDs inter-satellite link ·····	CAI Wenbing, ZHANG Zhongying, LU Zhangjian, CHEN Lingling, CHEN Yiwen, TONG Zhao, XU Lianjun (6)
Design of a dual-polarized microstrip antenna based on electromagnetic coupled feeding structure ·····	LI Xiyuan, HAO Xiaoyun, JIANG Haitao, HE Xiaomeng, YANG Peizhuo, SONG Lizhong (11)
A novel self-decoupling antenna pair appropriate for 5G smart terminals ·····	YUAN Jun, XIAO Jiang, XIAO Liu, SHANG Xinwen, YI Hongxia, LI Fei, JIN Feng (17)
Research on data-link channel transmission model and characteristics of classic data Link ·····	ZHANG Yang, MAO Zhongyang, ZHAO Zhiyong, ZHANG Song, LIU Xiguo (21)
Method of anti-jamming performance test for missile guided by satellite ·····	ZHANG Zhengcheng, WANG Dongliang, LI Fancong, WANG Junlin (25)
Improved YOLOv5 target detection algorithm based on Ghost module ·····	LI Yuxiang, WANG Shuai, CHEN Wei, TIAN Zijian, HOU Linshuo (29)
ADS simulation based analysis of optimal interference signal·····	HAO Xiaojun, LI Yongcheng, LI Tingpeng (35)
Application of surface defect detection based on YOLOV5s_Attention ·····	PANG Ningya, DU Anyu (39)
Pelvic CT images multiclass segmentation based on improved 3D U-Net ·····	LIU Zhi, LI Xingchun, ZHENG Bin, XIE Xiaoshan, XIAO Lin, LI Yingxin, QIN Chuanbo (47)
Simulation and analysis of limitation performance of lock-in amplification technology on weak signal extraction ·····	DU Haiwei, ZHU Siyuan, LONG Jiang, LIU Junwei, LÜ Jin (52)
Method of intra-pulse modulation identification of radar signal with insufficient data samples ·····	FU Weihao, GOU Xiaoming, WU Zhedong (57)
Research on Chinese news text sentiment classification method based on feature fusion ·····	FENG Yuhang, SHAO Jianfei, ZHANG Xiaowei, SHAO Jianlong (62)
Method of power monitoring network information security intelligent early warning based on mesh correlation analysis ·····	HU Zhouda, LONG Yunhong, XU Feng, LI Xiaojie, LIN Hongchong (69)
Research on unsupervised anomaly data detection method based on PCA and DAGMM ·····	LIU Xiangyu, ZHU Shibing, YANG Fan (75)
Abnormal behavior recognition based on time-series spatiotemporal two-stream convolution ·····	ZHANG Renlu, GAO Bingpeng (81)
Research on novel consensus algorithm used in fund-raising system ·····	HSIEH Chao-Hsien, XU Ya, ZHANG Qing, SHAO Changbin (88)
Design of flywheel energy storage single-phase grid-connected control method ·····	SONG Zhanghua, WANG Haiyun, JIANG Zhongchuan, YANG Xiaojie (95)
Highway crack detection based on multi-scale feature and attention mechanism ·····	ZHANG Ruiyan (100)

- Analysis of coverage of LEO satellite receiving antenna to BDs-3 MEO  
 .....CHEN Yiwen, WANG Jun, CHEN Lingling, ZHAO Wenwen, ZHU Xiangpeng (105)
- Rolling bearing fault diagnosis based on improved ALIF and FA-BP.....WU Xinkun, LIU Huiming (109)
- Design and research on CPP controller based on model prediction  
 .....WANG Yuxin, CHANG Guanghui, XU Bingyang (114)
- Method of automatic rainfall station FTA based on fuzzy set theory .....CHEN Lifeng, FAN Wenjie (119)
- Simulation design of cableless self-positioning emergency buoy system  
 .....WANG Yongtao, LIU Xinglong, ZHANG Haibo, CHU Xiumin, WANG Zhiyuan (125)
- Reliability evaluation of IES considering DR .....QIU Honghua, CUI Shuangxi, FAN Weijie (130)
- Optimization strategy of CSP-electrode boiler-CHP combined heating system considering carbon trading  
 .....XU Zepeng, CHEN Jie, ZHANG Jingxuan (136)
- An ultrasonic system for testing the range hood air volume  
 .....YANG Mingyue, ZHENG Tongfu, BAO Ming, GUO Fengbei, ZHANG Kai (143)
- Short-term power generation combination prediction based on EMD-LSTM-ARMA model  
 .....WANG Zhongping, HE Lili, DING Gengqian (151)
- Application of monitoring and inspection system for new-type digital intelligent substation  
 .....HAN Liu, WU Congying, XIAO Zhihong (156)
- Two-stage distribution network reconstruction based on breaking circle method and improved cuckoo algorithm  
 .....BAN Bo, YUAN Zhi (161)
- Design of high-gain LNA with microstrip structure..... WANG Changhao, XIONG Xiangzheng (167)
- Design of ultrasonic positioning based on micro controller.....ZHANG Kai (173)
- Design of intelligent classroom integrated student management terminal based on Internet of Things technology  
 .....KANG Mengjie (177)
- Auxiliary decision-making method for peak-staggered and power-restriction considering elastic load of power  
 distribution network .....ZHANG Hong, ZHAI Hongrong, ZHOU Xiaofeng, CHEN Xunwang (182)

### 本刊主要荣誉

中国科技核心期刊  
 RCCSE 中国核心学术期刊(A)  
 中国学术期刊影响因子年报统计源期刊  
 中国新闻出版总署资料库收藏期刊  
 中文科技期刊数据库全文收录期刊  
 中国学术期刊(光盘版)期刊  
 陕西省精品科技期刊  
 中国期刊全文数据库收录期刊  
 中国学术期刊综合评价数据库来源期刊  
 中国科技论文统计与分析用刊

### 声明

1. 《现代电子技术》编辑部系陕西电子杂志社有限公司下辖《现代电子技术》杂志的唯一编辑、征稿部门,编辑部在社外无任何形式的组稿代理、外聘编辑等;

2. 作者投稿唯一通道为《现代电子技术》官方网站采编系统,且要求所有文章的通信作者为文章主要署名作者,不接受非署名作者投稿。