

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)

◎ 主办：陕西电子杂志社 陕西省电子技术研究所

Modern Electronics Technique

# 现代电子技术<sup>®</sup>

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

2022

第45卷

Vol.45 No.04

04

# 目 次

## 电子与信息器件

- 基于气象信息的5G远程干扰分析与抑制方案 .....王玉震,周 婷,徐碧莲(1)
- 面向ARM Cortex-M系列MCU的RT-Thread驻留方法 .....许明宇,王宜怀,汪 恒(7)
- 捷变射电天文观测终端及其定标算法的研究 .....龚友梅,何乐生,董 亮,李明悦(13)
- 高温旋转环境下的电子设备热设计 .....谭 雯,沈三民,杨 峰(19)
- 融合雷达回波时空特征的下击暴流智能识别方法 .....王 兴,吕晶晶,周 可,詹少伟(23)
- 基于麦克纳姆轮和Arduino的避障小车设计 .....张 晓,张楠楠(30)
- 一种SDRAM控制器的设计电路 .....黄海生,党 成,李 鑫,叶小艳(35)
- 强冲击试验装置测试弹存储器的回读系统设计 .....孟凡轶,张会新,刘 畅(39)
- 高灵敏度的线阵CCD驱动电路设计 .....汪文静,陈 智,周云鹤,张 晨,刘海洋(45)
- 基于MEMS传感器的运动辅助训练系统 .....赵文楠,王明磊(50)
- 分区域的树型多链的无线传感器网络路由算法 .....方旺盛,彭美平,胡中栋(55)
- 基于嵌入式LoRa集成网关的温室测控系统的设计与实现 .....张晨光,黄兆波,范世达,刘轶男(61)

## 计算机科学与应用

- 基于大数据环境下的人才培养模式分析系统设计 .....王 硕,周敬巍,卢聪颖,石 欣(68)
- 用户体验导向下的APP个性化界面设计研究 .....彭华明,陶玉棠(73)
- 基于数字技术的三维动画图像纹理实时渲染系统设计 .....王 威(78)
- 一种基于差分隐私的个性化服务推荐算法 .....李晓会,陈潮阳,张 兴,伊华伟(83)

## 能源技术

- 基于有限元算法优化EEMD的直流信号纹波分解方法 .....彭 巨,刘良江(89)
- 同步整流BUCK型DC-DC稳压开关电源设计 .....洪怡雯,陈博文,戴东峰,吴金炳(94)
- 低压配电台区阻抗测量与线损智能诊断系统 .....徐文涛,王 祥,武占侠,易运晖,陆 欣,李 婷(101)

- 基于多尺度融合选择卷积网络的电能质量扰动识别……王 凯, 孙贤明, 任成昊, 胡玉耀, 王文成, 路 尧 (107)
- 一种宽输入范围的高精度双极带隙基准源 ……………刘 伟, 郭尚尚, 黄 东, 商世广 (113)
- 大数据环境下电力网络数据安全入侵模型仿真 ……………林 楠, 吴林峰, 方洪波 (118)

## 航空航天航海技术

- 基于改进蚁群算法的无人机航迹规划研究 ……………宋 宇, 顾海蛟, 程 超 (123)
- 基于分布式仿真的飞控系统功率消耗分析 ……………刘 涛, 樊智勇 (128)
- 舰艇新型电子方位仪系统的研制 ……………韩云东, 蒋晓刚, 蒋永馨, 苑志江, 兰国辉 (135)

## 前沿交叉科学

- 基于MTCNN和Facenet的人脸识别系统设计 ……………李志华, 张见雨, 魏忠诚 (139)
- 一种基于圆锥曲线的RSA密码体制改进方案 ……………刘海峰, 汪丽华, 梁星亮, 周雪飞 (144)
- 多视图对抗网络下的WiFi跨场景手势识别 ……………常 俊, 王 焱, 武 浩 (149)
- 基于能量的人群异常行为检测算法研究 ……………李 新, 郝海江, 陈 帆, 黄 琳 (155)
- 基于深度卷积神经网络的辅助虚拟训练动作检测系统设计 ……………於 鹏, 张 铭, 李海兵 (161)
- 多尺度特征融合网络的遥感图像林地检测 ……………宦 海, 朱蓉蓉, 张 浩, 谢 勇 (165)

## 人工智能

- 基于调和A\*算法在移动机器人中的研究 ……………杨光永, 戈一航, 晏 婷, 于元灏, 徐天奇 (171)
- 基于方位实时调整的变电站消防机器人灭火作业系统设计 ……王小平, 郑 林, 况松陵, 余 伟, 尹 伟 (177)
- 基于改进A\*算法的农用无人机路径规划 ……………田 茹, 曹茂永, 马凤英, 纪 鹏 (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

5G long-range interference analysis and suppression scheme based on meteorological information .....	WANG Yuzhen, ZHOU Ting, XU Bilian (1)
RT-Thread resident method for MCU in ARM Cortex-M series .....	XU Mingyu, WANG Yihuai, WANG Heng (7)
Research on agile radio astronomy observation terminal and its calibration algorithm .....	GONG Youmei, HE Lesheng, DONG Liang, LI Mingyue (13)
Thermal design of electronic equipment under high temperature rotating environment .....	TAN Wen, SHEN Sanmin, YANG Feng (19)
Downburst intelligent recognition method based on fusion of spatiotemporal characteristics of radar echo .....	WANG Xing, LÜ Jingjing, ZHOU Ke, ZHAN Shaowei (23)
Design of obstacle avoidance car based on Mecanum wheel and Arduino .....	ZHANG Xiao, ZHANG Nannan (30)
Design circuit of SDRAM controller .....	HUANG Haisheng, DANG Cheng, LI Xin, YE Xiaoyan (35)
Design of readback system of strong impact test device for testing missile memory .....	MENG Fanyi, ZHANG Huixin, LIU Chang (39)
Design of high-sensitivity linear array CCD drive circuit .....	WANG Wenjing, CHEN Zhi, ZHOU Yunhe, ZHANG Chen, LIU Haiyang (45)
Sports assistant training system based on MEMS sensor .....	ZHAO Wennan, WANG Minglei (50)
Sub-regional tree-type multi-chains routing algorithm for WSNs .....	FANG Wangsheng, PENG Meiping, HU Zhongdong (55)
Design and implementation of greenhouse monitoring and control system based on embedded LoRa integrated gateway .....	ZHANG Chenguang, HUANG Zhaobo, FAN Shida, LIU Yinan (61)
Design of talent training mode analysis system based on big data environment .....	WANG Shuo, ZHOU Jingwei, LU Congying, SHI Xin (68)
Research on APP personalized interface design oriented toward user experience .....	PENG Huaming, TAO Yutang (73)
Design of digital technology based real-time rendering system of 3D animation image texture .....	WANG Wei (78)
Personalized service recommendation algorithm based on differential privacy .....	LI Xiaohui, CHEN Chaoyang, ZHANG Xing, YI Huawei (83)
DC signal ripple decomposition method based on EEMD-FEM .....	PENG Ju, LIU Liangjiang (89)
Design of synchronous rectifier BUCK DC-DC regulated switching power supply .....	HONG Yiwen, CHEN Bowen, DAI Dongfeng, WU Jinbing (94)
Impedance measurement and line loss intelligent diagnosis system for low-voltage distribution station area .....	XU Wentao, WANG Xiang, WU Zhanxia, YI Yunhui, LU Xin, LI Ting (101)
Power quality disturbance recognition based on multi-scale fusion selection convolutional network .....	WANG Kai, SUN Xianming, REN Chenghao, HU Yuyao, WANG Wencheng, LU Yao (107)

- A high precision bipolar band-gap reference with wide input range of supply voltage  
 .....LIU Wei, GUO Shangshang, HUANG Dong, SHANG Shiguang (113)
- Simulation of intrusion model for power network data security in big data environment  
 .....LIN Nan, WU Linfeng, FANG Hongbo (118)
- Research on UAV route planning based on improved ant colony algorithm  
 .....SONG Yu, GU Haijiao, CHENG Chao (123)
- Flight control system power consumption analysis based on distributed simulation .....LIU Tao, FAN Zhiyong (128)
- Development of new electronic azimuth finder system for warship  
 .....HAN Yundong, JIANG Xiaogang, JIANG Yongxin, YUAN Zhijiang, LAN Guohui (135)
- Design of face recognition system based on MTCNN and Facenet ...LI Zhihua, ZHANG Jianyu, WEI Zhongcheng (139)
- An RSA cryptosystem improvement plan based on conic curve  
 .....LIU Haifeng, WANG Lihua, LIANG Xingliang, ZHOU Xuefei (144)
- WiFi cross-domain gesture recognition in multi-view adversarial networks ...CHANG Jun, WANG Chi, WU Hao (149)
- Research on crowd abnormal behavior detection algorithm based on energy  
 .....LI Xin, HAO Haijiang, CHEN Fan, HUANG Lin (155)
- Design of auxiliary virtual training action detection system based on deep convolution neural network  
 .....YU Peng, ZHANG Ming, LI Haibing (161)
- Remote sensing image forestland detection based on multi-scale feature fusion network  
 .....HUAN Hai, ZHU Rongrong, ZHANG Hao, XIE Yong (165)
- Research on mobile robot based on harmonic A\* algorithm  
 .....YANG Guangyong, GE Yihang, YAN Ting, YU Yuanjie, XU Tianqi (171)
- Design of fire extinguishing operation system based on real-time orientation adjustment for transformer substation  
 fire-fighting robot .....WANG Xiaoping, ZHENG Lin, KUANG Songling, YU Wei, YIN Wei (177)
- Agricultural UAV path planning based on improved A\* algorithm  
 .....TIAN Ru, CAO Maoyong, MA Fengying, JI Peng (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。