

目 次

• 综述与评论 •

智能农业除草机器人研究现状与趋势分析 兰 天, 李端玲, 张忠海, 于功敬, 金勋俊 (1)

• 测试与故障诊断 •

基于数字孪生的火箭测试与发射过程健康管理技术研究 张素明, 岳梦云 (8)

信号调理模块的LXI自动测试系统设计 戴日辉, 陈 帅, 杨昊旸 (15)

核反应堆压力设备环形密封面泄漏监测与分析诊断研究 蒋兆翔, 何 攀, 刘才学, 王 瑶, 王广金 (20)

基于矢量传感器的无人驾驶车辆信号远程监测系统 郑子超, 李永红, 岳凤英 (25)

基于KingSCADA的运动控制状态监测系统 张学东, 曹之科, 周小伟, 刘 金 (30)

Duffing振子在长输天然气管道泄漏检测中的应用 王洪超, 王立坤, 蔡永军, 马云宾, 巩玉良 (34)

大数据融合模型的智能化网络安全检测方法 王 鹏, 胡宏彬, 李 勇 (40)

基于STFT的微创手术机器人运动控制系统设计 王 昆, 王晓峰, 郝 潘 (45)

基于多源数据结构融合的车轮滑转率测量方法 邱育东, 韩 刚, 张 征 (49)

基于机器视觉的公铁联运车导引落轨检测系统 庞 松, 马锦锐, 王雪梅, 倪文波 (54)

基于区块链技术的网络安全漏洞检测系统设计 熊 琮 (59)

基于相位偏折术和图像处理的表面缺陷检测 成先明, 王婷婷, 史柏迪, 李奕文 (64)

一种信号隔离电路设计及故障模式分析 韩雨桐, 黄 晨, 王晓鹏 (70)

基于物联网及ADRC的航天器在轨姿态监测系统设计 张淑清 (74)

基于单位统计曲率特征匹配的红外目标检测方法 吴云鹏, 朱 轶, 朱宏辉 (79)

• 控制技术 •

环境模拟风洞高压动力系统设计研究 杜洪亮, 王志刚, 徐 辉, 赵 鑫, 李 强, 许红达 (86)

永磁同步电机的自抗扰控制器参数自整定 李 真, 王 帆, 王冉珺 (92)

基于最小二乘法的桥式起重机机械臂关节控制系统设计 刘淑香 (97)

基于自主可控平台的机旁监控系统的研制 龙玉湘, 尹 菲 (102)

基于阿里云的裁断机监控系统设计 沈鑫睿, 杨冰冰, 徐建明, 何德峰 (107)

智能电能表质量数据采集与质量监控技术研究 李 晖, 王立永, 吴红林, 余 妍, 丁 冬 (112)

基于ACS运动控制的LED晶片分选系统设计 张永昊, 宋华军, 武田凯, 韩 旭 (116)

基于眼到手视觉伺服的移动机器人模型预测控制 潘继炜, 滕 游, 刘安东, 俞 立 (122)

基于中间节点预测的卫星光通信精确跟踪控制系统设计 张 豪, 冯娜娜 (126)

考虑系统不确定性的高压直流发电机控制策略 王立坤, 祁在明, 杨善水, 王 莉 (131)

• 军事装备测控技术 •

舰艇高温管路热振耦合试验系统研制 周 涛, 贾 地, 高晨耀, 丁哲宇, 唐宇航 (136)

便携式雷达电源检测维修系统设计 刘健鹏, 刘明通, 杨 鹏, 沈 梁, 武 翔 (141)

多路水听器参数扫描测试分析设备的研究与设计 张 波, 张朋坤, 王长江, 张文成, 王 萍 (146)

• 测试软件工程 •

基于Qt的集成电路测试软件设计与实现 孙好婕, 赵利强, 郑惠泽, 孙振山 (150)

• 设计与应用 •

基于火箭残骸实时定位信息的落点计算模型 王 强, 李 伟, 龚建泽, 丁思炜, 雷 鹏 (154)

基于5G同步信号的高速列车定位方法 王小可, 孔青宁 (159)

基于机器视觉的非特定物体的智能抓取系统的研究 马兴录, 王 涛, 张兴强 (164)

FPGA块存储器的多位翻转容错设计 钟 敏, 苏海冰, 潘广涛 (169)

智能化网络安全防攻击检测中数据抽取和分析 杨宗跃 (174)

基于石英挠性加速度计A/D与I/F数据采集系统的对比研究 张志豪, 李锦明 (179)

基于粒子群优化方法的电力系统状态向量估计模型 李树林, 王 琪, 郝艳军 (184)

面向飞行器遥测数据的关联规则挖掘方法研究 李 智, 张丽晔, 褚厚斌, 蔡斐华, 耿 钧 (189)

计量用低速风洞结构参数仿真研究 梁 杰, 巨 龙, 张岳洪, 李庆超, 翟艳辉, 黄亚飞 (193)

基于点云三维建模技术的导盲系统设计 杜龙龙 (198)

大数据加密算法在数据安全保护中的应用研究 张晓敏 (204)

基于分布式仿真系统的实时架构设计 黄学进, 余 婷 (209)

无人机自主目标识别与定位应用研究 王 宁, 李 哲, 梁晓龙, 吴贤宁, 吕智虎 (215)

基于数据链路层特征的无线网络加密流量业务分类研究 尹浩东, 张君毅, 尚庆华 (220)

基于FPGA的H. 264码流实时传输系统设计 马 军, 王红亮 (225)

基于DE-Xgboost的U71Mn钢粗糙度预测模型 成先明, 王婷婷, 史柏迪 (230)

一种新的蚁群算法优化的虚拟机放置策略 徐胜超 (235)

• 试验与评价技术 •

动态数据校正技术用于GMVC控制器性能评估的改进 祝旺旺, 张正江, 闫正兵, 朱志亮, 黄世沛 (241)

• 智能仪器与传感技术 •

水体有机物在线荧光监测仪的研制 李 震, 廖 伟, 宋 腾, 房 琦 (247)

埋地非金属管道定位仪的设计 刘 辉, 陈 波, 谢明华, 杨 追 (251)

Contents

• Summary and Comment •

- Analysis on Research Status and Trend of Intelligent Agricultural Weeding Robot.....
.....Lan Tian,Li Duanling,Zhang Zhonghai,Yu Gongjing,Jin Xunjun(1)

• Test and Fault Diagnosis •

- A Rocket Health Management System for Vehicle Testing and Launching Base on Digital Twin.....
.....Zhang Suming,Yue Mengyun(8)
Design of LXI Auto-Test System for Signal Conditioning Module.....Dai Rihui,Chen Shuai,Yang Haoyang(15)
Leakage Monitoring and Analysis Diagnosis Research on Ring Sealing Surface of Pressure Equipment in Nuclear Reactor.....Jiang Zhaoxiang,He Pan,Liu Caixue,Wang Yao,Wang Guangjin(20)
Remote Monitoring System for Unmanned Vehicle Signal Based on Vector Sensor.....
.....Zheng Zichao,Li Yonghong,Yue Fengying(25)
Motion Control Supervising System Based on KingSCADA.....
.....Zhang Xuedong,Cao Zhike,Zhou Xiaowei,Liu Jin(30)
Application of Duffing Oscillator on Leak Detection of Long Distance Gas Pipeline.....
.....Wang Hongchao,Wang Likun,Cai Yongjun,Ma Yunbin,Gong Yuliang(34)
Intelligent Network Security Detection Method Based on Big Data Fusion Model.....
.....Wang Peng,Hu Hongbin,Li Yong(40)
Design of Motion Control System of Minimally Invasive Surgery Robot Based on STFT.....
.....Wang Kun,Wang Xiaofeng,Hao Xiao(45)
Vehicle Wheels Slip rate Measurement Based on Multi-source Data Structured Fusion.....
.....Qiu Yudong,Han Gang,Zhang Zheng(49)
Guiding Wheel Dropped Detection System for Rail-road Vehicle Based on Machine Vision.....
.....Pang Song,Ma Jinrui,Wang Xuemei,Ni Wenbo(54)
Design of Network Security Vulnerability Detection System Based on Block Chain Technology.....Xiong Lu(59)
Surface Defect Detection Based on Phase Deflection and Image Processing.....
.....Cheng Xianming,Wang Tingting,Shi Baidi,Li Yiwen(64)
A Signal Isolation Circuit Design and Fault Mode Analysis.....Han Yutong,Huang Chen,Wang Xiaopeng(70)
Design of Spacecraft Attitude Monitoring System Based on Internet of Things and ADRC.....Zhang Shuqing(74)
A Method for Infrared Target Detection Based on Unit Statistical Curvature Feature Matching.....
.....Wu Yunpeng,Zhu Yi,Zhu Honghui(79)

• Control Technology •

- Design and Research of High Voltage Power System in Environmental Simulation Wind Tunnel.....
.....Du Hongliang,Wang Zhigang,Xu Hui,Zhao Xin,Li Qiang,Xu Hongda(86)
Parameter Self-tuning of ADRC for PMSM.....Li Zhen,Wang Fan,Wang Ranjun(92)
Design of Joint Control System of Bridge Crane Manipulator Based on Least Square Method.....Liu Shuxiang(97)
Development of a Local Monitoring and Control System Based on Independent Controllable Platform.....
.....Long Yuxiang,Yin Fei(102)
Constant Temperature Control System Based on PID Control.....
.....Shen Xinrui,Yang Bingbing,Xu Jianming,He Defeng(107)
Research on Quality Data Acquisition and Quality Monitoring Technology of Intelligent Watt Hour Meter.....
.....Li Hui,Wang Liyong,Wu Honglin,She Yan,Ding Dong(112)
LED Chip Sorting System Design Based on ACS Motion Control.....
.....Zhang Yonghao,Song Huajun,Wu Tianskai,Han Xu(116)
Model Predictive Control of Mobile Robot in Eye-to-hand Visual Servoing.....
.....Pan Jiwei,Teng You,Liu Andong,Yu Li(122)
Design of Accurate Tracking Control System for Satellite Optical Communication Based on Intermediate Node Prediction.....Zhang Hao,Feng Nana(126)

Control Strategy of HVDC Generator Considering System Uncertainty.....	Wang Likun,Qi Zaiming,Yang Shanshui,Wang Li(131)
--	--

● Military Equipment Technology in Measurement and Control ●

Development of Thermal Vibration Coupling Test System for Warship Pipeline.....	Zhou Tao,Jia Di,Gao Shengyao,Ding Zheyu,Tang Yuhang(136)
Design of Portable Radar Power Detection and Maintenance System.....	Liu Jianpeng,Liu Mingtong,Yang Peng,Shen Liang,Wu Xiang(141)
Development and Design of Parameters Scanning Test and Analysis Equipment of Multi-Channel Hydrophone.....	Zhang Bo,Zhang Pengkun,Wang Changjiang,Zhang Wencheng,Wang Ping(146)

● Test Software Engineering ●

Design and Implementation of Integrated Circuit Test Software Based on Qt.....	Sun Yujie,Zhao Liqiang,Zheng Huize,Sun Zhenshan(150)
--	--

● Design and Application ●

Model for Computing Rocket Wreckage Landing PointBased on Real-time Location Information.....	Wang Qiang,Li Wei,Gong Jianze,Ding Siwei,Lei Peng(154)
High Speed Train Positioning Method Based on 5G Synchronous Signal.....	Wang Xiaoke,Kong Qingning(159)
Research on Intelligent Grasping System for Non-specific Objects Based on Machine Vision.....	Ma Xinglu,Wang Tao,Zhang Xingqiang(164)
Multiple Bit Upset Fault Tolerance Design of FPGA Block Memory.....	Zhong Min,Su Haibing,Pan Guangtao(169)
Data Extraction and Analysis in Intelligent Network Security Anti-attack Detection.....	Yang Zongyue(174)
Comparative Study of A/D and I/F Data Acquisition System Based on Quartz Flexible Accelerometer.....	Zhang Zhihao,Li Jinming(179)
State Vector Estimation Model of Power System Based on Particle Swarm Optimization.....	Li Shulin,Wang Kun,Hao YanJun(184)
Study on Association Rules Mining Method for Spacecraft Telemetry Data.....	Li Zhi,Zhang Liye,Chu Houbin,Cai Feihua,Geng Jun(189)
Simulation Research on Structural Parameters of Low Velocity Wind Tunnel for Metrology.....	Liang Jie,Ju Long,Zhang Yuehong,Li Qingchao,Zhai Yanghui,Huang Yafei(193)
Design of Blind Guidace System Based on PointCloud 3D Modeling Technology.....	Du Longlong(198)
Research on Application of Big Data Encryption Algorithm in Protection of Data Security.....	Zhang Xiaomin(204)
Architecture Design of Distributed Real-Time Simulation System.....	Huang Xuejin,Yu Ting(209)
Research on Application of UAV Autonomous Target Recognition and Positioning.....	Wang Ning,Li Zhe,Liang Xiaolong,Wu Xianning,Lü Zhihu(215)
Classification and Recognition of Encrypted Traffic in Wireless Networks Based on Data Link Layer Features.....	Yin Haodong,Zhang Junyi,Shang Qinghua(220)
Design of H.264 Real-time Transmission System Based on FPGA.....	Ma Jun,Wang Hongliang(225)
Roughness Prediction Model of U71Mn Steel Based on DE-Xgboost.....	Cheng Xianming,Wang Tingting,Shi Baidi(230)
A New Ant Colony Algorithm Optimized Virtual Machine Placement Strategy.....	Xu Shengchao(235)

● Test & Evaluation Technology ●

Improvement of Dynamic Data Reconciliation on GMVC-based Controller Performance Assessment.....	Zhu Wangwang,Zhang Zhengjiang,Yan Zhengbing,Zhu Zhiliang,Huang Shipei(241)
---	--

● Intelligent Instruments and Sensing Technology ●

Development of Online Fluorescence Monitor for Organic Matter in Water.....	Li Zhen,Liao Wei,Song Teng,Fang Qi(247)
Design of Positioning Instrument for Buried Non-metal Pipeline.....	Liu Hui,Chen Bo,Xie Minghua,Yang Zhui(251)