

计算机测量与控制

2022年10月 第30卷 第10期

目次

● 综述与评论 ●

数字孪生驱动的火箭控制系统故障诊断研究综述·····韩文婷,程龙,韩文婧,杨林郁(1)

可见光与红外融合目标跟踪技术研究进展综述·····

·····方彦策,赵君灵,黄昭龙,李旗挺,杜立超,张宏江,宋眉眉(7)

● 测试与故障诊断 ●

PLC硬件结构的水电站故障监测系统及故障识别·····熊玺,汪广明,童松,何滔,黄赛泉(17)

ARINC818视频总线信号测试方法研究·····杨宏伟,韩福财,艾华龙(22)

电力系统智能化运维中GIS设备SF₆气体泄漏检测方法研究·····田忠,常敏,金海勇,贺兵(27)

基于变步长算法的航天测控雷达多站跟踪技术研究·····郑浩荣,蔡红维,张瀚,罗昊,王康(33)

基于深度学习的卫星遥感图像边缘检测方法·····叶应辉(39)

基于线阵CCD图像亚像素级别边缘检测方法·····黄春霞(45)

基于蚁群算法的无线通信网络安全漏洞检测方法·····李梅,朱明宇(51)

基于深度学习的遥感图像微小目标检测方法研究·····商俊燕(57)

面向飞行器发射控制系统可靠性提升的测试分析·····张子剑,姜利,龙中权,林海,刘虎(63)

基于ASOS-ELM的球磨机负荷参数软测量系统设计·····单显明,刘业峰,那崇正,靳新(70)

参数依赖型软件参数更动测试策略和方法·····魏波,张卫祥,齐玉华,刘凤菊(76)

瞬态过载测试数据回读系统设计·····陈梦旒,鲍爱达,马游春,李学超(82)

● 控制技术 ●

基于深度强化学习的无人机空中目标自主跟踪·····杨兴昊,宋建梅,余浩平,吴程杰,杨钦宁,付伟达(88)

动态数据校正提升孤岛微电网频率控制性能·····黎东阳,张正江,洪智慧,胡文章,张振慧(95)

基于U模型的模糊免疫自抗扰控制方法研究·····韩明秀,王海红(103)

一种捷联惯性导航系统的旋转控制机构设计技术·····董旭,董建树,王惠,严宗睿(110)

基于邻域一致性的无人机航拍图像配准过程控制技术·····李亚娟(118)

运载火箭火工品自动保护与解保安全控制技术研究与应用·····

·····汪灏,周恒保,张青青,李明,张粒子,徐昕(124)

基于DDPG深度强化学习的电站脱硝过程优化控制·····林康威,肖红,姜文超,杨建仁,熊广思,黄冠儒(132)

高铁1 000 t/40 m梁“昆仑号”架桥机同步驱动控制研究·····杜小刚(140)

基于ADAS平台的下线标定系统设计与实现·····仲正,宋小军(148)

仿尺蠖多模式爬壁机器人设计与控制方法研究·····眭翔,徐林森,周瑞吉,刘进福,龙杰(155)

基于移动群智感知的多旋翼无人机噪声控制技术·····杨倩,王艳娥,梁艳,司海峰(162)

● 设计与应用 ●

机动式通用发射平台设计与实现·····付京来,齐跃(168)

基于ZYNQ的远程图像采集系统设计·····李庆春,李祺,刘彦君,赵越(174)

基于ESN的高速公路黄河特大桥团雾预警系统设计·····申全军,陈亮,王孜建,张昱,樊兆董(181)

基于改进Mosaic数据增强和特征融合的Logo检测·····陈翠琴,范亚臣,王林(188)

基于DSP的UUV目标探测通用系统设计与实现·····宋家平,朱衍明,刘一博,王天昊(195)

面向海量数据的全船振动分析管理系统研究·····杜德锋,周文进,何江贤,孟凡凯(202)

一种面向分布式数据库的多并发OLAP型查询性能预测方法·····
·····刘骥超,杜建华,谢寒生,刘霄燕,谢召干(209)

基于LoRa蓝牙和安卓手机的AUV手柄遥控系统设计·····朱衍明,林九根,余景锋,王天昊(216)

基于气象大数据云平台的海南气象数据共享平台设计与实现·····
·····王双双,杜建华,王立俊,赵冰,刘骥超(222)

航空伽玛测量稳谱电路设计·····孙肖南,孙陶,李江坤,张文峰,吴雪(227)

基于实时频谱分析的便携式射频通信干扰器设计·····翟建龙,郭全全,娄贵鑫,李鹏月(233)

基于生成对抗网络和DenseNet的数据信息安全识别方法·····夏利玲,顾建华(240)

云边端协同在线校准技术体系框架的工程应用·····
·····白志路,张广辉,田文超,庞乐乐,赵亚杰,李鹏飞,王章玮,袁海文,夏铁新,黄小泵(246)

基于红蓝通道先验主动光源偏振水下图像复原算法·····张卓,张学武,石孙凤,徐晓龙,黄渊博(253)

基于神经网络的导航卫星间链路网络态势感知模型研究·····王海学,孙剑伟,田露(262)

基于超宽带技术的多区域定位系统设计·····陈雷,王夏阳(268)

● 智能仪器与传感技术 ●

基于STM32单片机的教练车转向轮转角显示仪设计与实现·····刘霞,白刚(277)

COMPUTER MEASUREMENT & CONTROL

Vol. 30 No. 10 Oct. 2022

Contents

• Summary and Comment •

A Summary of the Research on Fault Diagnosis in Rocket Control System Driven By Digital Twins.....
.....HAN Wenting, CHENG Long, HAN Wenjing, YANG Linyu(1)
Review of Research Progress on Visible and Infrared Images Fusion Target Tracking.....
.....FANG Yance, ZHAO Junling, HUANG Zhaolong, LI Qiting, DU Lichao, ZHANG Hongjiang, SONG Meimei(7)

• Test and Fault Diagnosis •

Fault Monitoring System and Fault Identification Based on PLC Hardware Structure of Hydropower Station.....
.....XIONG Xi, WANG Guangming, TONG Song, HE Tao, HUANG Saixiao(17)
Research on Signal Testing Method of ARINC818 Video Bus.....YANG Hongwei, HAN Fucui, AI Hualong(22)
Research on SF₆ Gas Leakage Detection Method of GIS Equipment in Intelligent Operation and Maintenance of Power System.....
.....TIAN Zhong, CHANG Min, JIN Haiyong, HE Bing(27)
Research on Multi-station Tracking Technology of TT&C Radar Based on Variable Step Size Algorithm.....
.....ZHENG Haorong, CAI Hongwei, ZHANG Han, LUO Hao, WANG Kang(33)
An Edge Detection Method of Satellite Remote Sensing Image Based on Deep Learning.....YE Yinghui(39)
A Subpixel-level Edge Detection Method Based on Line-array CCD Images.....HUANG Chunxia(45)
Wireless Communication Network Security Vulnerability Detection Method Based on Ant Colony Algorith.....
.....LI Mei, ZHU Mingyu(51)
Research on Remote Sensing Image Micro Target Detection Method Based on Deep Learning.....SHANG Junyan(57)
Test and Analysis of Reliability Improvement in Aircraft Launch Control System.....
.....ZHANG Zijian, JIANG Li, LONG Zhongquan, LIN Hai, LIU Hu(63)
Design of Soft Sensing System for Ball Mill Load Parameters Based on ASOS-ELM.....
.....SHAN Xianming, LIU Yefeng, NA Chongzheng, JIN Xin(70)
Strategy and Method of Parameters Modification Test in Parameters-dependent Software.....
.....WEI Bo, ZHANG Weixiang, QI Yuhua, LIU Fengju(76)
Design of Transient Overload Test Data Readback System.....CHEN Mengni, BAO Aida, MA Youchun, LI Xuechao(82)

• Control Technology •

Autonomous Tracking of UAV Aerial Target Based on Deep Reinforcement Learning.....
.....YANG Xinghao, SONG Jianmei, SHE Haoping, WU Chengjie, YANG Qinning, FU Weida(88)
Dynamic Data Reconciliation Improves the Performance of Islanded Microgrid Frequency Control.....
.....LI Dongyang, ZHANG Zhengjiang, HONG Zhihui, HU Wen, ZHANG Chun, ZHANG Zhenhui(95)
Study on Fuzzy Immune Active Disturbance Rejection Control Method Based on U model.....
.....HAN Mingxiu, WANG Haihong(103)
Design Technique on Rotating Control Mechanism Based on SINS.....
.....DONG Xu, DONG Jianshu, WANG Hui, YAN Zongrui(110)
Control Technology of UAV Aerial Image Registration Process Based on Neighborhood consistency.....LI Yajuan(118)
Research and Application of Safety Control Technology for Automatic Protection and Release of Launch Vehicle Initiating Explosive Device.....WANG Hao, ZHOU Hengbao, ZHANG Qingqing, LI Ming, ZHANG Lizi, XU Xin(124)

Optimal Control of Denitrification Processes in Coal-Fired Power Plants Based on Deterministic Policy Gradients with Deep Reinforcement Learning.....	.....
.....LIN Kangwei,XIAO Hong,JIANG Wenchao,YANG Jianren,XIONG Guangsi,HUANG Guanru(132)	
Research on Synchronous Drive Control for High-speed Railway 1 000 t/40 m Beam “Kunlun” Erecting Machine .....	.....DU Xiaogang(140)
Design and Implementation of Factory Calibration System Based on ADAS Platform.....	.....ZHONG Zheng,SONG Xiaojun(148)
Research on Design and Control Method of a Multi-mode Inchworm-like Wall-climbing Robot.....	.....SUI Xiang,XU Linsen, ZHOU Ruiji, LIU Jinfu, LONG Jie(155)
.....SUI Xiang,XU Linsen, ZHOU Ruiji, LIU Jinfu, LONG Jie(155)	
Noise Control Technology of Multi-rotor UAV Based on Mobile Swarm Intelligence Perception.....	.....YANG Qian,WANG Yane,LIANG Yan,SI Haifeng(162)
.....YANG Qian,WANG Yane,LIANG Yan,SI Haifeng(162)	

● Design and Application ●

Design and Implementation of Mobile Universal Launch Platform.....	.....FU Jinglai,QI Yue(168)
Design of Remote Image Acquisition System Based on ZYNQ.....	.....LI Qingchun,LI Qi,LIU Yanjun,ZHAO Yue(174)
Design of Fog Warning System for Highway Yellow River Special Bridge Based on Echo State Network.....	.....SHEN Quanjun,CHEN Liang,WANG Zijian,ZHANG Yu,FAN Zhaodong(181)
.....SHEN Quanjun,CHEN Liang,WANG Zijian,ZHANG Yu,FAN Zhaodong(181)	
Logo Detection Based on Improved Mosaic Data Enhancement and Feature Fusion.....	.....CHEN Cuiqin, FAN Yachen, WANG Lin(188)
.....CHEN Cuiqin, FAN Yachen, WANG Lin(188)	
Design and Implementation of UUV Target Detection General System Based on DSP.....	.....SONG Jiaping,ZHU Yanming,LIU Yibo,WANG Tianhao(195)
.....SONG Jiaping,ZHU Yanming,LIU Yibo,WANG Tianhao(195)	
Research on Analysis and Management System for Massive Data of Whole Ship Vibration.....	.....DU Defeng, ZHOU Wenjin, HE Jiangxian, MENG Fankai(202)
.....DU Defeng, ZHOU Wenjin, HE Jiangxian, MENG Fankai(202)	
A Concurrent OLAP Query Performance Prediction Approach for Distributed Database.....	.....LIU Jichao,DU Jianhua,XIE Hansheng,LIU Xiaoyan,XIE Zhaogan(209)
.....LIU Jichao,DU Jianhua,XIE Hansheng,LIU Xiaoyan,XIE Zhaogan(209)	
Design of AUV Handle Remote Control System Based on LoRa Bluetooth and Android Phone.....	.....ZHU Yanming,LIN Jiugen,YU Jingfeng,WANG Tianhao(216)
.....ZHU Yanming,LIN Jiugen,YU Jingfeng,WANG Tianhao(216)	
Design and Implementation of Hainan Meteorological Data Sharing Platform Based on Meteorological Big Data Cloud Platform.....	.....WANG Shuangshuang,DU Jianhua, WANG Lijun, ZHAO Bing, LIU Jichao(222)
.....WANG Shuangshuang,DU Jianhua, WANG Lijun, ZHAO Bing, LIU Jichao(222)	
Design of Stabilizing Circuit for the Airborne Gamma-ray Spectrometric Survey.....	.....SUN Xiaonan,SUN Tao,LI Jiangkun,ZHANG Wenfeng,WU Xue(227)
.....SUN Xiaonan,SUN Tao,LI Jiangkun,ZHANG Wenfeng,WU Xue(227)	
Design of Portable RF Communication Jammer Based on Real-Time Spectrum Analysis.....	.....ZHAI Jianlong,GUO Quanquan,LOU Guixin,LI Pengyue(233)
.....ZHAI Jianlong,GUO Quanquan,LOU Guixin,LI Pengyue(233)	
Data Information Security Identification Method Based on Generation Adversarial Networks and Densenet.....	.....XIA Liling, GU Jianhua(240)
.....XIA Liling, GU Jianhua(240)	
Engineering Application of the Technical System Framework of Online Calibration Through Cloud-side-end Collaboration.....	.....BAI Zhilu,ZHANG Guanghui, TIAN Wenchao,PANG Lele,ZHAO Yajie,LI Pengfei,WANG Zhangwei,YUAN Haiwen,XIA Tiexin,HUANG Xiaobeng(246)
.....BAI Zhilu,ZHANG Guanghui, TIAN Wenchao,PANG Lele,ZHAO Yajie,LI Pengfei,WANG Zhangwei,YUAN Haiwen,XIA Tiexin,HUANG Xiaobeng(246)	
Underwater Image Restoration Algorithm Based on Red and Blue Channel Prior Active Light Source Polarization.....	.....ZHANG Zhuo,ZHANG Xuewu,SHI Sunfeng, XU Xiaolong,HUANG Yuanbo(253)
.....ZHANG Zhuo,ZHANG Xuewu,SHI Sunfeng, XU Xiaolong,HUANG Yuanbo(253)	
Research on Situational Awareness Model of Navigation Satellite Inter-satellite Link Network Based on Neural Network .....	.....WANG Haixue,SUN Jianwei,TIAN Lu(262)
.....WANG Haixue,SUN Jianwei,TIAN Lu(262)	
Design of Multi-area Wireless Locating Systems Based on the UWB Technique.....	.....CHEN Lei, WANG Xiayang(268)
.....CHEN Lei, WANG Xiayang(268)	

● Intelligent Instruments and Sensing Technology ●

Design and Implementation of Steering Wheel Angle Display Instrument of Training Vehicle Based on STM32 Single Chip Microcomputer.....	.....LIU Xia, BAI Gang(277)
.....LIU Xia, BAI Gang(277)	