

计算机测量与控制

2022年12月 第30卷 第12期

目次

● 综述与评论 ●

基于深度学习的知识追踪研究综述·····王丹萍,王忠,梁宏涛(1)

● 测试与故障诊断 ●

航天器地面健康管理验证系统设计与实现·····房红征,张瑞,罗凯,李蕊,王晓栋(11)

适应于组网卫星的数字化及自动化测试技术研究·····张福楨,闫海平,曾志敏,周鑫,史礼婷,吴晓宇(18)

板翅式换热器翅片流阻快速检测系统设计·····张国兴,钟晓龙,夏宇栋,王剑,章有虎(23)

基于无线传感器的航空发动机轴承温度实时监测系统设计与实现·····陈虹洁,肖川(30)

机载设备测试性建模与应用·····葛名立(36)

基于深度学习和面部多特征融合的驾驶员疲劳检测研究·····张闯,朱天军,李学民(42)

基于半实物仿真的抄表系统自动化测试平台设计·····刘宏伟(51)

基于信号识别的台区拓扑监测技术·····郑国权,阿辽沙·叶,李然,李媛,章江铭(58)

基于解释结构模型的装备测试性影响因素分析方法·····张宇,程中华,连光耀,赵润泽,王金帽(64)

基于图像处理的远距离裂缝检测智能平台开发·····余欣,许益奖,李薇,石威,刘晓宇(70)

基于频率响应信号PCA的陶瓷绝缘子缺陷检测·····佟芳,林鑫,王婷,徐铁军,王忠花(78)

基于B/S的双CCD相机精度靶测控系统软件架构设计·····高嘉韵,倪晋平,徐飞(85)

基于隐马尔可夫模型和状态持久性的动态频谱检测·····郭德超,张豪(91)

基于BWO-ELM算法与VR-GIS技术的电力光缆故障诊断及定位研究·····蔡海良,胡凯,李军,邢小雷(98)

基于改进视觉背景提取算法的运动目标检测·····陈从平,江高勇,张力,凌阳,郁春明,闫焕章,张屹(105)

基于机器学习建模的航天器健康管理平台研究·····房红征,年夫强,罗凯,王晓栋,李蕊(112)

● 控制技术 ●

基于改进型LS-SVM技术的煤泥浮选智能优化控制方法·····郭伟,贾永飞,赵欣(119)

基于微分几何反馈线性化的高超声速飞行器控制系统实现·····杨凡,黄颖,陈云松,曾皓(125)

飞行姿态控制系统半物理仿真平台开发·····宋科,崔旭升(131)

基于北斗通信技术的无人机运动轨迹跟踪控制系统设计·····黄琴(137)

基于激光雷达的多关节机器人姿态自动控制研究·····莫毅,卿启新(143)

双臂搬运机器人反应式导航控制系统设计·····孙辉,高剑,潘之腾,李建梅,臧汝静(149)

基于PMAC的航空结构件柔性工装分布式控制系统设计·····吴玲(154)

● 军事装备测控技术 ●

- 爆炸箔起爆器参数对电爆性能的影响·····路丰宁,彭志凌,宋进宇,王中浩(161)
基于滑模控制的导弹制导系统设计·····王中浩,赵河明,路丰宁(168)

● 设计与应用 ●

- 智慧楼宇通信技术架构及关键技术研究·····詹治国,林少波,郭栋,李天杰,展敬宇,张弛(175)
考虑不同服装热阻的层式通风供暖运行优化研究·····白燕,汪庭祥,申一凡(180)
基于超宽带技术的无线定位系统设计·····陈雷(189)
民机试飞遥测实时数据处理软件设计与研发·····刘涛,冯灿,李成浩(195)
基于单片机与LabVIEW的自动泊车系统设计与实现·····袁子阳,熊福力(203)
基于改进VGG16的超短波时频谱图分类方法·····马博昂,张海瑛(211)
基于改进YOLOv5m的弱小目标识别方法·····杨文涛,张维光(218)
基于半镜面靶标的无重叠视域相机全局标定·····段心怡,杨剑,程泽会(224)
NR在60 GHz定位过程的隐藏节点规避方法·····张文璐,朱振杰,崔琪楣,陶小峰(232)
基于线段融合的空间非合作目标稳健特征提取算法·····周啸风,汪玲,刘寒寒,张翔(238)
一种适用于流余通信系统的网格编码调制技术·····丁梦川,张涛,任文成,王建亮,王伟,杨晓雷(244)
基于PSO-BP的磁致伸缩式静力水准系统温度补偿研究·····陆俊宇,秦世伟(251)
超宽带技术下基于软两步法的目标定位·····谢莹(257)
基于ZYNQ的深度学习卷积神经网络加速平台设计·····刘之禹,李述,王英鹤(264)
具备HART主站功能的模拟量采集模块设计·····胡中泽,靳子洋(270)
融合气象观测数据的高精度大气数据估计算法研究·····蒋保睿,肖地波,张勇,王志强,林茜(276)
基于改进粒子群算法的分布式智能照明系统·····方培鑫,严虎,汪明,赵千川(284)
航天发射场光学设备主机核心能力的正向体系设计研究·····任臻臻,王强,吴高杨,王康,张瀚(292)
基于OSG和OSDK的无人机标校系统设计与实现·····虞炳文,蔡红维,丁思炜,杨波,王康(297)
光学观测中几种太阳夹角计算方法及精度分析·····虞炳文,姜广国,蔡红维,周小杰,杨宏(306)
基于特征融合的跳频信号射频指纹识别技术·····李明笛,谢军,杨鸿杰,耿梦婕,未争超,段亚楠,刘冀川(319)
·····李明笛,谢军,杨鸿杰,耿梦婕,未争超,段亚楠,刘冀川(319)
适用于频率综合器的宽带低相噪VCO设计·····宋明宇,李斌,曲明,翟越(326)
基于多旋翼无人机的架空输电线路状态检测系统设计·····郑仟(332)

● 试验与评价技术 ●

- 电子探空仪基测箱校准结果的不确定度评定方法的研究·····郑树芳,刘海珍,温晓辉,马修才,闫平,有思(339)
·····郑树芳,刘海珍,温晓辉,马修才,闫平,有思(339)

期刊基本参数: CN11-4762/TP*1993*m*16*300*zh+en*P*¥45*1500*50*2022-12

本期责任编辑: 任旺芳

COMPUTER MEASUREMENT & CONTROL

Vol. 30 No. 12 Dec. 2022

Contents

• Summary and Comment •

Review of Knowledge Tracking Research Based on Deep Learning.....
.....WANG Danping,WANG Zhong,LIANG Hongtao(1)

• Test and Fault Diagnosis •

Design and Implementation of Spacecraft Ground Health Management Verification System.....
.....FANG Hongzheng,ZHANG Rui,LUO Kai,LI Rui,WANG Xiaodong(11)

Research on Digital and Automatic Test Technique for Networking Satellites.....
.....ZHANG Fuzhen,YAN Haiping,ZENG Zhimin,ZHOU Xin,SHI Liting,WU Xiaoyu(18)

Design of Rapid Detection System for the Flow Resistance Characteristics of Plate-fin Heat Exchanger.....
.....ZHANG Guoxing,ZHONG Xiaolong,XIA Yudong,WANG Jian,ZHANG Youhu(23)

Design of Temperature Real-Time Monitoring System for Aero-engine Bearing Based on Wireless Sensor.....
.....CHEN Hongjie,XIAO Chuan(30)

Modeling and Application of Airborne Equipments Testability.....
.....GE Mingli(36)

Research on Driver Fatigue Detection Based on Deep Learning and Facial Multi-feature Fusion.....
.....ZHANG Chuang,ZHU Tianjun,LI Xuemin(42)

Design of Automatic Test Platform for Meter Reading System Based on Hardware in Loop Simulation.....
.....LIU Hongwei(51)

Monitoring Technology of Station Area Topology Based on Signal Recognition.....
.....ZHENG Guoquan,YE Aliaosha,LI Ran,LI Yuan,ZHANG Jiangming(58)

Analysis Method of Influencing Factors of Equipment Testability Based on Interpretive Structure Model.....
.....ZHANG Yu,CHENG Zhonghua,LIAN Guangyao,ZHAO Runze,WANG Jinguo(64)

Development of an Intelligent Platform for Remote Crack Detection Based on Imageprocessing.....
.....YU Xin,XU Yijiang,LI Wei,SHI Wei,LIU Xiaoyu(70)

Defect Detection of Ceramic Insulator Based on PCA of Frequency Response Signal.....
.....TONG Fang,LIN Xin,WANG Ting,XU Tiejun,WANG Zhonghua(78)

Design of Software Architecture of Double CCD Camera Precision Target Measurement and Control System Based on B/S.....
.....GAO Jiayun,NI Jinping,XU Fei(85)

Dynamic Spectrum Detection Based on HMM and State Persistence.....
.....GUO Dechao,ZHANG Hao(91)

Research on Fault Diagnosis and Location of Power Optical Cable Based on BWO-ELM Algorithm and VR-GIS Technology.....
.....CAI Hailiang,HU Kai,LI Jun,XING Xiaolei(98)

Motion Object Detection Based on Improved Visual Background Extraction Algorithm.....
.....CHEN Congping,JIANG Gaoyong,ZHANG Li,LING Yang,YU Chunming,YAN Huanzhang,ZHANG Yi(105)

Research of Spacecraft Health Management Platform Based-on Machine-Learning Modelling.....
.....FANG Hongzheng,NIAN Fuqiang,LUO Kai,WANG Xiaodong,LI Rui(112)

• Control Technology •

Intelligent Optimization Control Method of Slime Flotation Based on Improved LS-SVM Technology.....
.....GUO Wei,JIA Yongfei,ZHAO Xin(119)

Realization of Hypersonic Vehicle Control System Based on Differential Geometric Feedback Linearization.....
.....YANG Fan ,HUANG Ying,CHEN Yunsong,ZENG Hao(125)

Development of Semi-physical Simulation Platform for Flight Attitude Control System.....SONG Ke,CUI Xusheng(131)

Design of UAV Trajectory Tracking Control System Based on Beidou Communication Technology.....HUANG Qin(137)

Research on Automatic Attitude Control of Multi-Joint Robot Based on Laser Radar.....MO Yi ,QING Qixin(143)

Design of Reactive Navigation Control System for Dual-arm Handling Robot.....
.....SUN Hui,GAO Jian,PAN Zhiteng,LI Jianmei,ZANG Rujing(149)

Design of PMAC Based Distributed Control System for Flexible Tooling of Aviation Structural Parts.....
.....WU Ling(154)

● Military Equipment Technology in Measurement and Control ●

- Influence on Foil Initiator Parameters of Electric Explosion Performance.....
.....LU Fengning,PENG Zhiling,SONG Jinyu,WANG Zhonghao(161)
Design of Missile Guidance System Based on Sliding Mode Control.....
.....WANG Zhonghao,ZHAO Heming,LU Fengning(168)

● Design and Application ●

- Research on Architecture and Key Technology of Smart Building Communication Technology.....
.....ZHAN Zhiguo,LIN Shaobo,GUO Dong,LI Tianjie,ZHAN Jingyu,ZHANG Chi(175)
Study on Optimization for Stratum Ventilation and Heating Operation of Considering Different Clothing Insulations.....
.....BAI Yan,WANG Tingxiang,SHEN Yifan(180)
Wireless Location System Design Based on the UWB Technique.....CHEN Lei(189)
Design and Development of Telemetry Real-time Data Processing Software for Civil Aircraft Flight Test.....
.....LIU Tao,FENG Can,LI Chenghao(195)
Design and Implementation of Automatic Parking System Based on Single Chip Microcomputer and LabVIEW...
.....YUAN Ziyang,XIONG Fuli(203)
Classification Method of Ultrashortwave Time Spectrum Based on Improved VGG16.....
.....MA Boang,ZHANG Haiying(211)
Method of Weak and Small Targets Recognition Based on Improved YOLOv5m.....
.....YANG Wentao,ZHANG Weiguang(218)
External Parameter Calibration for Non-overlapping Cameras Based on Part Mirror Reflect Target.....
.....DUAN Xinyi,YANG Jian,CHENG Zehui(224)
Method for Hidden Node Avoidance of NR Positioning at 60 GHz.....
.....ZHANG Wenlu,ZHU Zhenjie,CUI Qimei,TAO Xiaofeng(232)
A Robust Feature Extraction Algorithm for Spatial Non-Cooperative Target Based on Line Segment Fusion.....
.....ZHOU Xiaofeng,WANG Ling,Liu Hanhan,ZHANG Xiang(238)
Research on Trellis Coded Modulation Suitable for Meteor Trail Communication System.....
.....DING Mengchuan,ZHANG Tao,REN Wencheng,WANG Jianliang,WANG Wei,YANG Xiaolei(244)
Research on Temperature Compensation of Magnetostrictive Hydrostatic Leveling System Based on PSO-BP...
.....LU Junyu,QIN Shiwei(251)
Target Localization Based on Soft Two-step Method in Ultra-wideband Technology.....XIE Ying(257)
Design of Deep Learning Convolutional Neural Network Acceleration Platform Based on ZYNQ.....
.....LIU Zhiyu,LI Shu,WANG Yinghe(264)
Design of an Analog Acquisition Module with HART Master Function.....HU Zhongze,JIN Ziyang(270)
High Precision Air Data Estimation Algorithm with Meteorological Observation.....
.....JIANG Baorui,XIAO Dibo,ZHANG Yong,WANG Zhiqiang,LIN Qian(276)
Design of Distributed Intelligent Lighting System Based on Improved Particle Swarm Optimization Algorithm.....
.....FANG Peixin,YAN Hu,WANG Ming,ZHAO Qianchuan(284)
Research on Forward System Design for the Mainframe Core Capability of Optical Equipment in Space Launch Site.....
.....REN Zhenzhen,WANG Qiang,WU Gaoyang,WANG Kang,ZHANG Han(292)
Design and Implementation of UAV Calibration System Based on OSG and OSDK.....
.....YU Bingwen,CAI Hongwei,DING Siwei,YANG Bo,WANG Kang(297)
Several Calculation Methods and Accuracy Analysis of Solar Angle in Optical Observation.....
.....YU Bingwen,LOU Guangguo,CAI Hongwei,ZHOU Xiaojie,YANG Hong(306)
RFID Technology of FH Signal Based on Feature Fusion.....
.....LI Mingdi,XIE Jun,YANG Hongjie,GENG Mengjie,WEI Zhengchao,DUAN Yanan,LIU Jichuan(319)
Design of Broadband Low Phase Noise VCO for Frequency Synthesizer.....
.....SONG Mingyu,LI Bin,QU Ming,ZHAI Yue(326)
Design of Overhead Transmission Line Condition Detection System Based on Multi-rotor UAV.....ZHENG Qian(332)

● Test & Evaluation Technology ●

- Research on Uncertainty Evaluation Method of Calibration Results of Electronic Sonde Base Test Box.....
.....ZHENG Shufang,LIU Haizhen,WEN Xiaohui,MA Xiucui,YAN Ping,YOU Si(339)