

中国科技核心期刊
中国航空学会会刊

ISSN 1671-654X
CN 61-1276/TP

航空计算技术

AERONAUTICAL COMPUTING TECHNIQUE

第52卷 第3期

Vol.52 No.3



中国航空工业集团有限公司 主管
航空工业西安航空计算技术研究所 主办

中国·西安

3
2022

目 次 计 算 方 法

| | |
|---|-------------------|
| 运输机与四转弯训练机相关进近的 TCAS 告警研究 | 潘卫军,许亚星,王靖开,等(1) |
| 面向 TensorFlow 和 PyTorch 的线性代数基准测试 | 胥 凌(5) |
| 基于 DELMIA 的飞机货物可装载性平台设计 | 史永胜,孙 伟(10) |
| 基于 Bi-IndRNN 和 PSO 的航班延误预测 | 王 辉,刘 杰(15) |
| 基于 4DT 的高度层分配及冲突解脱策略研究 | 武丁杰,钟进威,宁兆宇,等(20) |
| 螺旋桨飞机远场气动噪声预测程序开发及应用 | 高飞飞,淮 洋,李 典,等(25) |
| 基于减推力起飞的航空器降噪效果研究 | 刘红叶,张凯月,赵 悦,等(29) |
| 基于多元特征的终端区运行场景分类分析方法 | 曾 杨,袁立罡,陈海燕,等(33) |
| 基于成本最小化的航班降落跑道智能指派研究 | 高瑞阳,乐美龙(38) |
| 对流天气下基于聚类算法的终端区交通流分析 | 姚学成,胡明华,袁立罡,等(42) |
| 中尺度对流系统影响下的空域容量评估研究 | 路东林,段 炼,刘君豪,等(47) |
| 考虑雷暴气象细分因子的航班延误集成学习预测 | 王宗博,包 杰,单小轩,等(52) |
| 多因素影响下的四旋翼无人机安全间隔模型 | 李若恒,邵 荃,宋乘成,等(57) |
| 基于 PCA-BP 的航空发动机大修周期预测方法 | 符式峰,贾晓亮,安 磊,等(62) |
| 基于数据驱动建模的多机场系统离场流分析 | 程炳贺,赵 征(67) |

计 算 机 应 用

| | |
|------------------------------------|--------------------|
| 一种基于 FC 总线的三层组播通信功能设计和实现 | 薛 楠,王晓华,徐文进,等(70) |
| 机载综合核心处理机标准化研究 | 李成文,俞大磊,丰生磊,等(74) |
| 一种策略可配置的 IMA 系统故障管理方法 | 刘建军,任晓瑞,邸海涛,等(78) |
| 一种机载电子设备双余度智能供电方案设计研究 | 何立军,马小博,张利洲(82) |
| 一种多核分区操作系统的绑定组调度方法 | 周 霆,朱晓宁,任晓瑞(85) |
| 机载存储系统快速维护方法设计与实现 | 郝玉锴,孙志颖,吴 姣(89) |
| 基于分布式系统架构的机载远程接口单元设计 | 李 军,李 阳,闫 稳,等(93) |
| 机载云计算平台的服务可靠性研究 | 孙东旭,张 楠,武 坚(97) |
| 航空电子系统平台故障诊断技术的研究 | 段海军,张 峰(100) |
| 基于 XML 格式的构型管理软件设计与实现 | 朱守园(105) |
| 基于嵌入式 Linux 系统的 NVRAM 驱动架构设计 | 张拓智,孔德岐,郑 涛,等(109) |

计 算 机 结 构 与 硬 件

| | |
|--------------------------|--------------------|
| 国产化关键芯片引入评估方法与实施研究 | 王 敦,郭 劼,陆 坚,等(112) |
|--------------------------|--------------------|

计 算 机 网 络

| | |
|-------------------------------|--------------|
| 机载无线多跳自组织网络架构设计 | 孔 璇(116) |
| 5G 通信技术与 AeroMACS 的融合探索 | 钟 恒,闫志付(121) |

综 述 报 告

| | |
|------------------------------|--------------------|
| 综合化航电系统中统一网络技术分析 | 朱志强,王世奎,李成文,等(125) |
| DNN 加速器技术发展及航空计算系统应用展望 | 赵一焯,刘飞阳,高 晗,等(130) |

CONTENTS

Computing Method

Research on TCAS Warning Risk of Transport and Fourth Turn Training Aircraft in Related Approaching PAN Wei-jun, XU Ya-xing, WANG Jing-kai, et al (1)

Linear Algebra Benchmarks for TensorFlow and PyTorch XU Ling (5)

The Design of Aircraft Cargo Load Ability Platform Based on DELMIA SHI Yong-sheng, SUN Wei (10)

Flight Delay Prediction Based on Bi-IndRNN and PSO WANG Hui, LIU Jie (15)

Level Allocation and Conflict Resolution Strategy Based on 4DT WU Ding-jie, ZHONG Jin-wei, NING Zhao-yu, et al (20)

Development and Application of Numerical Simulation Program for Far-field Aerodynamic Noise of Propeller Aircraft GAO Fei-fei, HUAI Yang, LI Dian, et al (25)

A Research on Noise Reduction Effect of Aircraft Based on Reduced Thrust Takeoff LIU Hong-ye, ZHANG Kai-yue, ZHAO Yue, et al (29)

Classification and Analysis Method of Terminal Area Operation Scenarios Based on Multivariate Features ZENG Yang, YUAN Li-gang, CHEN Hai-yan, et al (33)

Research on Intelligent Assignment of Landing Runway Based on Cost Minimization GAO Rui-yang, LE Mei-long (38)

Analysis of Traffic Flow in Terminal Area Based on Clustering Algorithm under Convective Weather YAO Xue-cheng, HU Ming-hua, YUAN Li-gang, et al (42)

Research of Airspace Capacity Evaluation under the Influence of Mesoscale Convective System LU Dong-lin, DUAN Lian, LIU Jun-hao, et al (47)

Ensemble Learning Prediction of Flight Delay Considering Thunderstorm Meteorological Factors WANG Zong-bo, BAO Jie, SHAN Xiao-xuan, et al (52)

A Collision Risk Model for Quadcopters under Influence of Multiple Random Factors LI Ruo-heng, SHAO Quan, SONG Cheng-cheng, et al (57)

Method of PCA-BP based Aero Engine Overhaul Makespan Prediction FU Shi-feng, JIA Xiao-liang, AN Lei, et al (62)

Data-driven Modeling of Air Traffic Departure Flow Analysis in Multi-airport Systems CHENG Bing-he, ZHAO Zheng (67)

Computer Application

Design and Implementation of a Three-tier Multicast Communication Function Based on FC Bus XUE Nan, WANG Xiao-hua, XU Wen-jin, et al (70)

Research on Standardization of Airborne Integrated Core Processor LI Cheng-wen, YU Da-lei, FENG Sheng-lei, et al (74)

A Policy Configurable Method for Fault Management of IMA System LIU Jian-jun, REN Xiao-rui, DI Hai-tao, et al (78)

Research on Redundancy Intelligent Power Supply Scheme for Airborne Electronic Equipments HE Li-jun, MA Xiao-bo, ZHANG Li-zhou (82)

A Binding Group Scheduling Method for Multi-core Partitioned Operating System ZHOU Ting, ZHU Xiao-ning, REN Xiao-rui (85)

Design and Implementation of Fast Maintenance Method for Airborne Storage System HAO Yu-kai, SUN Zhi-ying, WU Jiao (89)

Design of Airborne Remote Interface Unit based on Distributed System Architecture LI Jun, LI Yang, YAN Wen, et al (93)

Research on Service Reliability of Airborne Cloud Computing Platform SUN Dong-xu, ZHANG Nan, WU Jian (97)

Research on Fault Diagnosis Technology of Avionics System Platform DUAN Hai-jun, ZHANG Feng (100)

Design and Implementation of Configuration Management Software Based on XML Format ZHU Shou-yuan (105)

NVRAM Driver Software Architecture Design Based on Embedded Linux System ZHANG Tuo-zhi, KONG De-qi, ZHENG Tao, et al (109)

Computer Construction & Hardware

Study on Reliability Evaluation and Implementation of Domestic IC Key Chips WANG Dun, GUO Jie, LU Jian, et al (112)

Computer Network

An Architecture Design for Airborne Wireless Multi-hop Self-organizing Network KONG Xuan (116)

Fusion and Exploration of 5G Communication Technology with AeroMACS ZHONG Heng, YAN Zhi-fu (121)

Survey and Review

Unified Network Technology Analysis in Integrated Avionics System ZHU Zhi-qiang, WANG Shi-kui, LI Cheng-wen, et al (125)

Development of DNN Accelerator and its Application in Avionics System ZHAO Yi-xuan, LIU Fei-yang, GAO Han, et al (130)