

目次

航天工程·计算机科学与技术

含新型间断探测器的混合 WCNS 格式在间断无粘可压流的应用 ..... 张 昊,邓小刚( 1 )

多模态交叉解耦的少样本学习方法..... 冀 中,王思迪,于云龙( 12 )

返回器飞行管道的快速预测算法..... 邹 文,张国斌,丰志伟,涂国勇,禄晓飞,张青斌,杨 涛( 22 )

SEAD 场景异构无人机配置与任务规划联合优化方法 ..... 王建峰,贾高伟,辛宏博,郭 正,侯中喜( 32 )

卫星差分码偏差对北斗三号双频精密单点定位的影响 ..... 杜彦君,贾小林,姚硕强,许 瑾( 42 )

迎风格式在接触间断的数值耗散及其诱导误差..... 韩 芳,魏雁昕,刘 君( 51 )

预报风强度对火箭最大气动载荷精度影响及建模分析..... 程胡华,武 帅,张入财,肖云清,赵 亮( 63 )

地球静止轨道航天器绕飞持续观测任务轨迹规划与控制..... 张海涛,王伟林,张雅声,王 浩,李 智( 74 )

卫星柔性热控薄膜材料充放电效应试验  
..... 陈益峰,王金晓,冯 娜,秦晓刚,杨生胜,季启政,韩炎晖,柳 青( 87 )

高性能计算与人工智能

面向众核处理器的阴阳 K-means 算法优化  
..... 周天阳,王庆林,李荣春,梅松竹,尹尚飞,郝若晨,刘 杰( 93 )

多核数字信号处理卷积算法并行优化..... 许金伟,王庆林,李娅琳,姜晶菲,高 蕾,李荣春,李东升( 103 )

注意力机制量化剪枝优化方法..... 何源宏,姜晶菲,许金伟( 113 )

长向量处理器高效 RNN 推理方法 ..... 苏华友,陈抗抗,杨乾明( 121 )

高性能异构加速器 MiniGo 算子优化方法 ..... 乔 鹏,贺周雨,李荣春,姜晶菲( 131 )

面向 GPU 的 5G 新型无线电的高吞吐率 LDPC 译码器 ..... 李荣春,周 鑫,乔 鹏,王庆林( 141 )

机械工程·物理学·电子科学与技术

面向空间应用的 GaN 功率器件及其辐射效应 ..... 毕津顺,沈立志,梅 博,曹 爽,孙 毅,于庆奎( 149 )

定向毫米波网络邻居发现协议 ..... 梁仕杰,赵海涛,张 姣,陈海涛,魏急波,王俊芳( 160 )

球形破片侵彻明胶运动模型及破片参数敏感性分析..... 蒋明飞,陈 莉,刘 坤,赵 磊,吴志林( 170 )

基于权重的 AHP 判断矩阵一致性调整方法 ..... 耿正霖,吴佳妮,程兴华,包长春( 179 )

采用重组模板的权重优化 WENO-Z 格式 ..... 柴得林,王 强,易 贤,刘 宇( 187 )

存储体编译和布局协同的片上缓存设计方法 ..... 刘必慰,熊 琪,杨 茗,宋雨露( 198 )

弹药贮存微环境温度智能化预测 ..... 张 云,杜 琴,王竟成,张志明,谢兰川,陈 阳( 204 )

叶片数对无轴泵喷推进器性能的影响..... 谈明高,胡 胜,刘厚林,马皓晨,朱智朋( 212 )

典型作战流程和分级环境下发射车生存能力改进 ADC 评估模型..... 王 冬,高钦和,黄 通,刘志浩( 222 )

# JOURNAL OF NATIONAL UNIVERSITY OF DEFENSE TECHNOLOGY

Vol. 46 No. 1

February 2024

## CONTENTS

### Aerospace Engineering · Computer Science and Technology

- Hybrid WCNS scheme with new discontinuity detector applied to discontinuous inviscid compressible flows  
..... ZHANG Hao, DENG Xiaogang ( 1 )
- Multimodal cross-decoupling for few-shot learning ..... JI Zhong, WANG Sidi, YU Yunlong ( 12 )
- Fast prediction algorithm of flight pipeline of reentry capsule  
..... ZOU Wen, ZHANG Guobin, FENG Zhiwei, TU Guoyong, LU Xiaofei, ZHANG Qingbin, YANG Tao ( 22 )
- Joint optimization for heterogeneous multi-UAV configuration and mission planning within SEAD scenarios  
..... WANG Jianfeng, JIA Gaowei, XIN Hongbo, GUO Zheng, HOU Zhongxi ( 32 )
- Influence of satellite differential code bias on BDS-3 dual-frequency precise point positioning  
..... DU Yanjun, JIA Xiaolin, YAO Wanqiang, XU Jin ( 42 )
- Numerical dissipation of upwind schemes in contact discontinuity and their induced error ..... HAN Fang, WEI Yanxin, LIU Jun ( 51 )
- Influence of forecasting wind intensity on rocket maximum aerodynamic load accuracy and modeling analysis  
..... CHENG Huhua, WU Shuai, ZHANG Rucai, XIAO Yunqing, ZHAO Liang ( 63 )
- Trajectory planning and control of continuous observation missions for geosynchronous orbit spacecraft fly-around  
..... ZHANG Haitao, WANG Weilin, ZHANG Yasheng, WANG Hao, LI Zhi ( 74 )
- Experimental on space charging and discharging effect of flexible thermal control films of satellite  
..... CHEN Yifeng, WANG Jinxiao, FENG Na, QIN Xiaogang, YANG Shengsheng, JI Qizheng, HAN Yanhui, LIU Qing ( 87 )

### High Performance Computing and Artificial Intelligence

- Optimizing Yinyang  $K$ -means algorithm on many-core CPUs  
..... ZHOU Tianyang, WANG Qinglin, LI Rongchun, MEI Songzhu, YIN Shangfei, HAO Ruochen, LIU Jie ( 93 )
- Parallel optimization of convolution algorithm on multi-core DSP  
..... XU Jinwei, WANG Qinglin, LI Yalin, JIANG Jingfei, GAO Lei, LI Rongchun, LI Dongsheng ( 103 )
- Quantization and pruning optimization method for attention mechanism ..... HE Yuanhong, JIANG Jingfei, XU Jinwei ( 113 )
- Efficient RNN inference engine on very long vector processor ..... SU Huayou, CHEN Kangkang, YANG Qianming ( 121 )
- Optimizing operator computation of MiniGo on high-performance heterogeneous accelerator  
..... QIAO Peng, HE Zhouyu, LI Rongchun, JIANG Jingfei ( 131 )
- High-throughput LDPC decoder on GPU for 5G new radio ..... LI Rongchun, ZHOU Xin, QIAO Peng, WANG Qinglin ( 141 )

### Mechanical Engineering · Physics · Electronic Science and Technology

- GaN power devices and their radiation effects for space applications  
..... BI Jinshun, SHEN Lizhi, MEI Bo, CAO Shuang, SUN Yi, YU Qingkui ( 149 )
- Protocol of neighbor discovery in directional millimeter wave wireless networks  
..... LIANG Shijie, ZHAO Haitao, ZHANG Jiao, CHEN Haitao, WEI Jibo, WANG Junfang ( 160 )
- Motion model of spherical fragments penetrating gelatin and sensitivity analysis of fragment parameters  
..... JIANG Mingfei, CHEN Li, LIU Kun, ZHAO Lei, WU Zhilin ( 170 )
- Consistency adjustment method for pairwise comparison matrix in analytic hierarchy process based on weights  
..... GENG Zhenglin, WU Jiani, CHENG Xinghua, BAO Changchun ( 179 )
- Weight-optimized WENO-Z schemes with reorganized stencil ..... CHAI Delin, WANG Qiang, YI Xian, LIU Yu ( 187 )
- On-chip cache design method for cooperative memory compilation and layout ..... LIU Biwei, XIONG Qi, YANG Ming, SONG Yulu ( 198 )
- Intelligent prediction model for ammunition storage microenvironment temperature  
..... ZHANG Yun, DU Qin, WANG Jingcheng, ZHANG Zhiming, XIE Lanchuan, CHEN Yang ( 204 )
- Influence of blade number on performance of hubless pump-jet thruster  
..... TAN Minggao, HU Sheng, LIU Houlin, MA Haochen, ZHU Zhipeng ( 212 )
- Improved ADC model for launch vehicle survivability in typical combat flow and graded environment  
..... WANG Dong, GAO Qinhe, HUANG Tong, LIU Zhihao ( 222 )