

计算机工程 (月刊)



ISSN 1000-3428
CN 31-1289/TP
CODEN JISGEV

计算机工程

Computer Engineering

www.ecice06.com | 第47卷 第12期 2021年12月15日 | 2021 12
Vol.47 No.12 15 December 2021

■ 北大中文核心期刊 ■ 中科院CSCD核心期刊 ■ 中国科技核心期刊 ■ RCCSE中国核心学术期刊 ■ 工业和信息化部精品期刊

第47卷 第12期 2021年12月15日

www.ecice06.com



华东计算技术研究所 主办
上海市计算机学会

计算机工程 (月刊)

Jisuanji Gongcheng

第 47 卷 第 12 期 (卷终) 2021 年 12 月 15 日

目 次

• 热点与综述 •

- 面向不同传感器与复杂场景的人脸识别系统防伪方法综述 黄义妨, 魏丹丹, 武 森, 李慧斌, 郭 勳 (1)
- 深度强化学习研究综述 杨思明, 单 征, 丁 煜, 李刚伟 (19)
- 面向云网融合 SaaS 安全的虚拟网络功能映射方法 李凌书, 邬江兴 (30)
- 基于 NDN 的区块链网络服务质量保障方法 尚佳佳, 霍 如, 耿丽萍, 汪 硕, 黄 韬 (40)
- 基于机器学习的比特币去匿名化方法研究 郭文生, 杨 霞, 冯志淇, 张露晨, 杨菁林 (47)

• 人工智能与模式识别 •

- 复杂属性条件下基于 Spark 的 clique 社区搜索算法 余 鑫, 何震瀛 (54)
- 基于多种群遗传与思维进化的混合算法 倪水平, 戚海涛, 李慧芳 (62)
- 基于注意力与多模态混合融合的谣言检测方法 陶 霄, 朱 焱, 李春平 (71)
- 基于时空信息融合学习的路段行程车速短时预测 杨 顶, 邓明君, 徐丽萍 (78)
- 基于异构图卷积网络的小样本短文本分类方法 袁自勇, 高 曙, 曹 姣, 陈良臣 (87)
- 基于位置信息重建与时频域信息融合的脑电信号情感识别 柳素红, 孙 晓, 李春彬 (95)
- 基于图卷积神经网络的中文实体关系联合抽取 张军莲, 张一帆, 汪鸣泉, 黄永健 (103)
- 面向汉维机器翻译的 BERT 嵌入研究 陈 玺, 杨雅婷, 董 瑞 (112)
- 一种基于视频分类的码率自适应算法 陈梓晗, 叶 进, 肖庆宇 (118)
- 一种保留社区结构信息的网络嵌入算法 吕少卿, 赵雪莉, 张 潘, 任新成 (122)

• 网络空间安全 •

- 面向电力系统网络安全的多层协同防御模型研究 王 梓, 王治华, 韩 勇, 金建龙, 黄天明, 朱 江 (131)
- 基于强化学习的安全协议形式化验证优化研究 杨锦翔, 熊 焰, 黄文超 (141)
- 基于 OpenCL 的 3DES 算法 FPGA 加速器 吴健凤, 郑博文, 聂 一, 柴志雷 (147)
- 基于篡改伪影的深度伪造检测方法 耿鹏志, 樊红兴, 张翌阳, 唐云祁 (156)
- 基于 U-Net 的对抗样本防御模型 赖妍菱, 石峻峰, 陈继鑫, 白汉利, 唐晓澜, 邓碧颖, 郑德生 (163)

• 移动互联与通信技术 •

基于图神经网络智能路由机制..... 张 鹏,陈 博(171)

WFRFT认知通信系统控制参数联合优化方法研究 杜欣军,刘鹏飞(177)

基于局部密度预测的传输参数自适应拥塞控制策略 乔 钰,胡晓辉,曹 乐(185)

基于传播时空特性的社交网络灰帽用户检测 何 欢,朱 焱,李春平(192)

基于压缩HMAC算法的传感器网络范围查询方法 胡乔木,邓 昀(200)

• 体系结构与软件技术 •

基于FPGA模拟的阻变神经网络加速器评估方法 石永泉,景乃锋(209)

基于Adaboost模型的并发程序数据竞争语句级检测 孙家泽,易 刚,舒新峰(215)

面向SCA的DPR软件架构设计与调度技术..... 郭 彪,唐 麒,文智敏,傅 娟,王 玲,魏急波(221)

基于重子节点抽象语法树的软件缺陷预测..... 黄晓伟,范贵生,虞慧群,杨星光(230)

OpenVX高效能并行可重构运算通路的设计与实现 王 宇,李 涛,邢立冬,冯臻夫(236)

• 图形图像处理 •

一种用于地震断层图像识别的SPD-UNet模型 席英杰,李克文,徐延辉,朱剑兵(249)

基于多元特征的立体图像质量评价方法 史玉华,张 闯,迟兆鑫(256)

基于CornerNet-Saccade的手部分割模型 林竞力,肖国庆,张 陶,文 鑫(266)

基于Sobel滤波器的图像风格转换算法 陈志鹏,郑文秀,黄琼丹(274)

结合Bi-2DPCA与CNN的美式手语识别 杨明羽,叶春明(278)

• 开发研究与工程应用 •

基于改进R-FCN的交通标志检测 喻清挺,喻维超,喻国平(285)

面向嵌入式设备的高实时微小目标跟踪检测方法..... 冒睿瑞,江 波(291)

基于多尺度分层双线性池化网络的细粒度表情识别模型 苏志明,王 烈,蓝峥杰(299)

基于超点图网络的三维点云室内场景分割模型..... 霍占强,王勇杰,雒 芬,乔应旭(308)

面向非平衡数据的癌症患者生存预测分析..... 苗立志,白瑞思蒙,刘成良,翟月昊(316)

《计算机工程》2021年(第47卷)总目次..... (1-12)

Computer Engineering (Monthly)

Vol.47 No.12(End of the Volume) 15 December 2021

Contents

• Research Hotspots and Reviews •

- Overview of Anti-Spoofing Methods of Face Recognition Systems for Different Sensors and Complex Scenes
..... HUANG Yifang, WEI Dandan, WU Miao, LI Huibin, GUO Meng (1)
- Survey of Research on Deep Reinforcement Learning..... YANG Siming, SHAN Zheng, DING Yu, LI Gangwei (19)
- SaaS Security Oriented Virtual Network Function Embedding Method Under Cloud-Network Integration ... LI Lingshu, WU Jiangxing (30)
- Quality of Service Assurance Method for Blockchain Network Based on NDN
..... SHANG Jiajia, HUO Ru, GENG Liping, WANG Shuo, HUANG Tao (40)
- Research of De-Anonymizing Method Based on Machine Learning for Bitcoin
..... GUO Wensheng, YANG Xia, FENG Zhiqi, ZHANG Luchen, YANG Jinglin (47)

• Artificial Intelligence and Pattern Recognition •

- Spark-based clique Community Search Algorithm Under Complex Attribute Condition SHE Xin, HE Zhenying (54)
- Hybrid Algorithm Based on Multiple Population Genetic and Mind Evolution NI Shuiping, QI Haitao, LI Huifang (62)
- Rumor Detection Method Based on Attention and Multi-Modal Hybrid Fusion TAO Xiao, ZHU Yan, LI Chunping (71)
- Short-Term Prediction of Road Travel Speed Based on Spatio-Temporal Information Fusion
..... YANG Ding, DENG Mingjun, XU Liping (78)
- Method for Few-Shot Short Text Classification Based on Heterogeneous Graph Convolutional Network
..... YUAN Ziyong, GAO Shu, CAO Jiao, CHEN Liangchen (87)
- Emotion Recognition Using EEG Signals Based on Location Information Reconstruction and Time-Frequency Information Fusion
..... LIU Suhong, SUN Xiao, LI Chunbin (95)
- Joint Extraction of Chinese Entity Relations Based on Graph Convolutional Neural Network
..... ZHANG Junlian, ZHANG Yifan, WANG Mingquan, HUANG Yongjian (103)
- Research on BERT Embedding for Chinese-Uyghur Machine Translation CHEN Xi, YANG Yating, DONG Rui (112)
- An Adaptive Bitrate Algorithm Based on Video Classification CHEN Zihan, YE Jin, XIAO Qingyu (118)
- A Network Embedding Algorithm Preserving Community Structure Information
..... LÜ Shaoqing, ZHAO Xueli, ZHANG Pan, REN Xincheng (122)

• Cyberspace Security •

- Research on Mult-Layer Cooperative Defense Model Oriented to Network Security of Power System.....
..... WANG Zi, WANG Zhihua, HAN Yong, JIN Jianlong, HUANG Tianming, ZHU Jiang (131)
- Research on Optimization of Security Protocol Formal Verification Based on Reinforcement Learning.....
..... YANG Jinxiang, XIONG Yan, HUANG Wenchao (141)
- FPGA Accelerator for 3DES Algorithm Based on OpenCL WU Jianfeng, ZHENG Bowen, NIE Yi, CHAI Zhilei (147)

Deepfake Detection Method Based on Tampering Artifacts	GENG Pengzhi, FAN Hongxing, ZHANG Yiyang, TANG Yunqi (156)
Adversarial Example Defense Model Based on U-Net	
..... LAI Yanling, SHI Junfeng, CHEN Jixin, BAI Hanli, TANG Xiaolan, DENG Biying, ZHENG Desheng (163)	
• Mobile Internet and Communication Technology •	
Intelligent Routing Mechanism Based on Graph Neural Networks	ZHANG Peng, CHEN Bo (171)
Research on Joint Optimization Method of Control Parameters in WFRFT Cognitive Communication System	
..... DU Xinjun, LIU Pengfei (177)	
Congestion Control Strategy with Transmission Parameter Adaptation Based on Local Density Prediction	
..... QIAO Yu, HU Xiaohui, CAO Le (185)	
Grey Hat User Detection in Social Network Based on Spatiotemporal Characteristics of Diffusion	
..... HE Huan, ZHU Yan, LI Chunping (192)	
Range Query Method Based on Compressed HMAC Algorithm for Sensor Networks	HU Qiaomu, DENG Yun (200)
• Computer Architecture and Software Technology •	
Evaluation Method Based on FPGA Emulation for Resistive Neural Network Accelerators	SHI Yongquan, JING Naifeng (209)
Data Race Statement Level Detection in Concurrent Programs Based on Adaboost Model	SUN Jiaze, YI Gang, SHU Xinfeng (215)
DPR Software Architecture Design and Scheduling Technology for SCA	
..... GUO Biao, TANG Qi, WEN Zhimin, FU Juan, WANG Ling, WEI Jibo (221)	
Software Defect Prediction via Heavy Son Node-based Abstract Syntax Tree	
..... HUANG Xiaowei, FAN Guisheng, YU Huiqun, YANG Xingguang (230)	
Design and Implementation of OpenVX Highly Efficient Parallel Reconfigurable Computing Pathway	
..... WANG Yu, LI Tao, XING Lidong, FENG Zhenfu (236)	
• Graphics and Image Processing •	
A SPD-UNet Model for Seismic Fault Image Identification	XI Yingjie, LI Kewen, XU Yanhui, ZHU Jianbing (249)
Method for Stereoscopic Image Quality Assessment Based on Multiple Features	SHI Yuhua, ZHANG Chuang, CHI Zhaoxin (256)
Hand Segmentation Model Based on CornerNet-Saccade	LIN Jingli, XIAO Guoqing, ZHANG Tao, WEN Xin (266)
Image Style Transformation Algorithm Based on Sobel Filter	CHEN Zhipeng, ZHENG Wenxiu, HUANG Qiongdan (274)
American Sign Language Recognition Combining with Bi-2DPCA and CNN	YANG Mingyu, YE Chunming (278)
• Development Research and Engineering Application •	
Traffic Sign Detection Based on Improved R-FCN	YU Qingting, YU Weichao, YU Guoping (285)
Highly Real-Time Method of Small Target Tracking and Detection for Embedded Device	MAO Ruirui, JIANG Bo (291)
Fine-Grained Expression Recognition Model Based on Multi-Scale Hierarchical Bilinear Pooling Network	
..... SU Zhiming, WANG Lie, LAN Zhengjie (299)	
Indoor Scene Segmentation Model Using Three-Dimensional Point Cloud Based on Super Point Graph Network	
..... HUO Zhanqiang, WANG Yongjie, LUO Fen, QIAO Yingxu (308)	
Survival Prediction Analysis of Cancer Patients Oriented to Unbalanced Data	
..... MIAO Lizhi, BAI Ruisimeng, LIU Chengliang, ZHAI Yuehao (316)	