



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

计算机工程(月刊)

计算机工程

Computer Engineering

www.ecice06.com

第49卷 第2期 2023年2月15日

Vol.49 No.2 15 February 2023

2023 2

■ 北大中文核心期刊 ■ 中科院CSCD来源期刊 ■ 中国科技核心期刊 ■ RCCSE中国核心学术期刊 ■ Scopus数据库收录期刊

第49卷 第2期 2023年2月15日

www.ecice06.com



华东计算技术研究所
上海市计算机学会 主办

计算机工程(月刊)

Jisuanji Gongcheng

第49卷 第2期 2023年2月15日

目 次

· 热点与综述 ·

- 人脸微表情分析方法综述 于 明,钟元想,王 岩 (1)
基于改进 YOLOv5 的路面病害检测模型 王 聰,李 豪,严冬梅,竺永荣 (15)
基于茫然传输协议的 FATE 联邦迁移学习方案 郑云涛,叶家炜 (24)
Kubernetes 异构资源细粒度调度策略的设计与实现 刘志彬,黄秋兰,胡庆宝,程耀东,胡 誉,田浩来 (31)
基于矫正理解的中文文本对抗样本生成方法 王春东,孙嘉琪,杨文军 (37)
基于密码累加器的无状态区块链性能优化 孙林昆,蒋文保,郭阳楠,李春强 (46)

· 人工智能与模式识别 ·

- 基于重建误差的任务型对话未知意图检测 毕 然,王 轶,周 喜 (54)
基于结构感知混合编码模型的代码注释生成方法 蔡瑞初,张盛强,许柏炎 (61)
知识增强的图神经网络序列推荐模型 李 盼,解 庆,李 琳,刘永坚 (70)
基于卷积神经网络的结构化非平衡数据分类算法 徐 红,矫桂娥,张文俊,陈一民 (81)
基于特征融合的无监督跨模态哈希 梁天佑,孟 敏,武继刚 (90)
判别性增强的稀疏子空间聚类 胡慧旗,张维强,徐 晨 (98)
基于时空数据的驻留行为特征可视分析 马小东,赵 凡,任芃锟 (105)
基于知识架构的持续学习情感分类方法 王 松,买日旦·吾守尔,古兰拜尔·吐尔洪,薛 源 (112)
基于改进 PPO 算法的机器人局部路径规划 刘国名,李彩虹,李永迪,张国胜,张耀玉,高腾腾 (119)
面向多元时间序列的群体因果关系发现算法 蔡瑞初,伍运金,陈 薇,郝志峰 (127)
基于跨会话知识图谱的图注意力网络推荐方法 张晓晖,马慧芳,王文涛,高子皓 (136)
一个实体关系与事件抽取的通用模型 杨红菊,靳新宇 (143)
基于多通道图卷积自编码器的图表示学习 袁立宁,胡 皓,刘 刚 (150)

• 网络空间安全 •

雾化零信任组件的 5G 电力失陷终端威胁检测 顾智敏, 王梓莹, 郭 静, 郭雅娟, 冯景瑜 (161)

自适应类增量学习的物联网入侵检测系统 刘 强, 张 颖, 周卫祥, 蒋先涛, 周薇娜, 周谋国 (169)

基于物联网区块链的轻量级共识算法研究 苏瑞国, 阳 建, 秦继伟, 武晓雄, 贾振红 (175)

Electronic Auction Scheme Based on Smart Contract and IPFS

..... WU Xiaohua , LIU Huan , WU Fengheng , ZHANG Ke (181)

结合动态信用机制的 PBFT 算法优化方案 刘泽坤, 王 峰, 贾海蓉 (191)

• 图形图像处理 •

基于 Transformer 的多方面特征编码图像描述生成算法 衡红军, 范昱辰, 王家亮 (199)

基于深度多相似性哈希方法的遥感图像检索 何 悅, 陈广胜, 景维鹏, 徐泽堃 (206)

结合感知损失与双重对抗网络的低剂量 CT 图像去噪 熊景琦, 桑庆兵, 胡 聪 (213)

基于场景对象注意与深度图融合的深度估计 温 静, 杨 洁 (222)

基于多期相注意力融合网络的肝脏病灶 CT 影像分类研究 田 炜, 雷志超, 王楚正 (231)

• 开发研究与工程应用 •

基于域内特征间相似性的点击率预估优化 雷李想, 武志昊, 刘 银, 周子站 (238)

基于关系强度理论与反馈机制的信息传播动态网络表示 潘 乐, 李弼程, 万 旺, 曾荣燊 (246)

基于人脸关键特征提取的表情识别 冉瑞生, 翁稳稳, 王 宁, 彭顺顺 (254)

基于改进堆叠沙漏网络的动物姿态估计 张雯雯, 徐 杨, 白 茵, 陈 娜 (263)

一种针对维汉的跨语言远程监督方法

..... 杨振宇, 王 磊, 马 博, 杨雅婷, 董 瑞, 艾孜麦提·艾瓦尼尔, 王 震 (271)

基于多任务强化学习的堆垛机调度与库位推荐 饶东宁, 罗南岳 (279)

基于多尺度注意力机制的道路场景语义分割模型 范润泽, 刘宇红, 张荣芬, 李景玉 (288)

基于改进 YOLOv4 的小目标行人检测算法 王 程, 刘元盛, 刘圣杰 (296)

基于时空注意力网络的动态高速路网交通速度预测 邹国建, 赖子良, 李 眯 (303)

基于多目标的能见度检测方法 唐 榕, 李 蕈, 唐绍恩 (314)

Computer Engineering (Monthly)

Vol.49 No.2 15 February 2023

Contents

• Research Hotspots and Reviews •

| | |
|--|--|
| A Survey of Facial Micro-Expression Analysis Methods..... | YU Ming,ZHONG Yuanxiang,WANG Yan (1) |
| Pavement Disease Detection Model Based on Improved YOLOv5 | WANG Zhen,LI Hao,YAN Dongmei,ZHU Yongrong (15) |
| FATE Federated Transfer Learning Scheme Based on Oblivious Transfer Protocol | ZHENG Yuntao,YE Jiawei (24) |
| Design and Implementation of Fine-Grained Scheduling Strategy for Kubernetes Heterogeneous Resources | LIU Zhibin,HUANG Qiulan,HU Qingbao,CHENG Yaodong,HU Yu, TIAN Haolai (31) |
| Method for Generating Chinese Text Adversarial Examples Based on Rectification Understanding | WANG Chundong,SUN Jiaqi,YANG Wenjun (37) |
| Performance Optimization of Stateless Blockchain Based on Cryptographic Accumulator | SUN Linkun,JIANG Wenbao,GUO Yangnan,LI Chunqiang (46) |

• Artificial Intelligence and Pattern Recognition •

| | |
|---|--|
| Unknown Intent Detection for Task-Oriented Dialogs Based on Reconstruction Error..... | BI Ran,WANG Yi,ZHOU Xi (54) |
| Method for Generating Code Comments Based on Structure-aware Hybrid Encoding Model..... | CAI Ruichu,ZHANG Shengqiang,XU Boyan (61) |
| Knowledge-Enhanced Graph Neural Network Model for Sequential Recommendation | LI Pan,XIE Qing,LI Lin,LIU Yongjian (70) |
| Classification Algorithm for Structured Imbalanced Data Based on Convolutional Neural Network | XU Hong,JIAO Guie,ZHANG Wenjun,CHEN Yimin (81) |
| Unsupervised Cross-Modal Hashing Based on Feature Fusion | LIANG Tianyou,MENG Min,WU Jigang (90) |
| Discriminant Enhanced Sparse Subspace Clustering..... | HU Huiqi,ZHANG Weiqiang,XU Chen (98) |
| Visual Analysis of Resident Behavior Characteristics Based on Spatio-Temporal Data | MA Xiaodong,ZHAO Fan,REN Pengkun (105) |
| Continual Learning Method for Sentiment Classification Based on Knowledge Architecture | WANG Song,Mairidan Wushouer,Gulanbaier Tuerhong,XUE Yuan (112) |
| Local Path Planning of Robot Based on Improved PPO Algorithm | LIU Guoming,LI Caihong,LI Yongdi,ZHANG Guosheng,ZHANG Yaoyu,GAO Tengteng (119) |
| Collective Causal Relations Discovery Algorithm for Multivariate Time-Series | CAI Ruichu,WU Yunjin,CHEN Wei,HAO Zhifeng (127) |
| Graph Attention Network Recommendation Method Based on Cross-Session Knowledge Graph | ZHANG Xiaohui,MA Huifang,WANG Wentao,GAO Zihao (136) |
| A General Model for Entity Relationship and Event Extraction | YANG Hongju,JIN Xinyu (143) |
| Graph Representation Learning Based on Multi-Channel Graph Convolutional Autoencoders | YUAN Lining,HU Hao,LIU Zhao (150) |

• Cyberspace Security •

- 5G-Power-Compromised Terminal Threat Detection Based on Atomized Zero-Trust Component GU Zhimin , WANG Ziying , GUO Jing , GUO Yajuan , FENG Jingyu (161)
Adaptive Class Incremental Learning-Based IoT Intrusion Detection System LIU Qiang , ZHANG Ying , ZHOU Weixiang , JIANG Xiantao , ZHOU Weina , ZHOU Mouguo (169)
Research on Lightweight Consensus Algorithm Based on IoT Blockchain SU Ruiguo , YANG Jian , QIN Jiwei , WU Xiaoxiong , JIA Zhenhong (175)
Electronic Auction Scheme Based on Smart Contract and IPFS WU Xiaohua , LIU Huan , WU Fengheng , ZHANG Ke (181)
Optimization Scheme of PBFT Algorithm Combining Dynamic Credit Mechanism LIU Zekun , WANG Feng , JIA Hairong (191)

• Graphics and Image Processing •

- Multifaceted Feature Coding Image Caption Generation Algorithm Based on Transformer HENG Hongjun , FAN Yuchen , WANG Jialiang (199)
Remote Sensing Image Retrieval Based on Deep Multi-Similarity Hashing Method HE Yue , CHEN Guangsheng , JING Weipeng , XU Zekun (206)
Low-Dose CT Image Denoising Combining Perceptual Loss and Dual Adversarial Network XIONG Jingqi , SANG Qingbing , HU Cong (213)
Depth Estimation Based on Scene Object Attention and Depth Map Fusion WEN Jing , YANG Jie (222)
Research on CT Images Classification of Liver Lesions Based on Multi-phase Attention Fusion Network TIAN Wei , LEI Zhichao , WANG Chuzheng (231)

• Development Research and Engineering Application •

- Click-Through Rate Prediction and Optimization Based on Intra-Field Features Similarity LEI Lixiang , WU Zhihao , LIU Yu , ZHOU Zizhan (238)
Dynamic Network Representation of Information Diffusion Based on Relationship Strength Theory and Feedback Mechanism PAN Le , LI Bicheng , WAN Wang , ZENG Rongshen (246)
Expression Recognition Based on the Extraction of Key Facial Features RAN Ruisheng , WENG Wenwen , WANG Ning , PENG Shunshun (254)
Animal Pose Estimation Based on Improved Stacked Hourglass Network ZHANG Wenwen , XU Yang , BAI Rui , CHEN Na (263)
A Cross-Lingual Distant Supervision Method for Uyghur and Chinese YANG Zhenyu , WANG Lei , MA Bo , YANG Yating , DONG Rui , Azmat Anwar , WANG Zhen (271)
Stacker Scheduling and Repository Location Recommendation Based on Multi-Task Reinforcement Learning RAO Dongning , LUO Nanyue (279)
Road Scene Semantic Segmentation Model Based on Multi-Scale Attention Mechanism FAN Runze , LIU Yuhong , ZHANG Rongfen , LI Jingyu (288)
Small-Target Pedestrian-Detection Algorithm Based on Improved YOLOv4 WANG Cheng , LIU Yuansheng , LIU Shengjie (296)
Traffic Speed Prediction Based on Spatio-Temporal Attention Network for Dynamic Expressway Network ZOU Guojian , LAI Ziliang , LI Ye (303)
Visibility Detection Method Based on Multi-Object TANG Rong , LI Qian , TANG Shaoen (314)