



中国计算机学会会刊  
中国科技核心期刊  
中国科技论文统计源期刊  
RCCSE 核心期刊

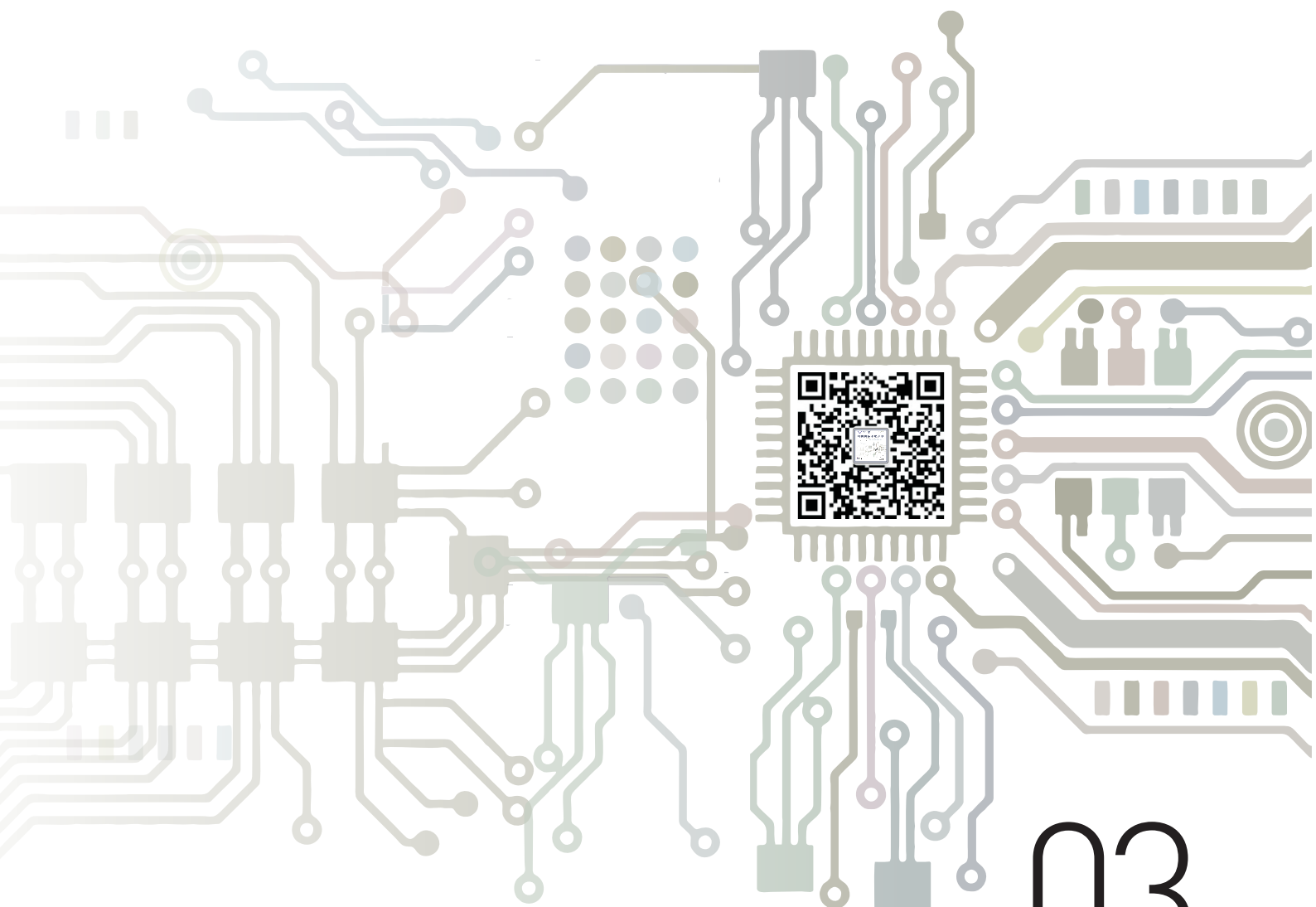
ISSN 1673-629X

CN61-1450/TP

# 计算机技术与发展

COMPUTER TECHNOLOGY  
AND DEVELOPMENT

第32卷 第3期 VOL.32 NO.03



03  
2022

# 计算机技术与发展

(月刊)

2022 年第 3 期 (总第 32 卷第 299 期)

出版日期 2022 年 3 月 10 日

## 目次

### 人工智能技术

- 基于改进 SSD 的车辆小目标检测算法研究 ..... 郭健忠 余腾飞 崔玉定 周兴林 (1)
- 一种 SURF-FREAK 特征误差模型视觉里程计 ..... 刘军 柴宏旭 赵威 (8)
- 智能对外汉语学习系统的设计与研究 ..... 李斌 王浩畅 (15)
- 一种改进的麻雀搜索算法 ..... 刘睿 莫愿斌 (21)
- 一种复杂场景下的路径规划问题解决方法 ..... 郭书杰 田华 王伟 (27)
- 含约束和通信时滞的多智能体系统包含控制 ..... 张旺 侯海良 (34)

### 大数据分析挖掘

- 一种基于权重预处理的中文文本分类算法 ..... 何锐 管有庆 龚锐 (40)
- 基于加权 PageRank 的异质网络影响力最大化 ..... 韩婷 周丽华 黄亚群 姜懿庭 (46)
- 基于时间卷积网络的极化码译码算法 ..... 李硕 王友国 柴允 任珈仪 (54)

### 图形与图像

- 基于网络层加权的多层复杂网络社区检测算法 ..... 邵昌鸿 刘向阳 (59)
- 基于孪生网络特征融合与阈值更新的跟踪算法 ..... 刘洋 杨小军 (65)
- 行人属性识别:基于元学习的概率集成方法 ..... 王文龙 张磊 张誉馨 吴晓富 张索非 (71)
- 基于深度学习的点云目标检测方法 ..... 高焱 熊风光 (76)
- 基于 YOLO v4 的夜间车辆检测模型轻量化研究 ..... 徐丽 刘星星 屈立成 (84)

总编辑:谭华  
编辑部主任:贺福明

责任编辑:高娟 周凯 王玲  
封面设计:周兵

期刊基本参数:CN61-1450/TP \* 1991 \* m \* A4 \* 220 \* zh \* ¥28.00 \* 850 \* 36 \* 2022-3

## 系统工程

- 一种求倒数近似值的量子算法及其量子电路 ..... 朱家良 叶 宾 季 雯 (90)
- 基于国产平台的可视化分析诊断系统 ..... 李志刚 刘自强 张 辉 (96)
- 基于相空间融合的异构网络数据拓扑重构技术 ..... 黄浩瀚 陆兴华 黄嘉昊 罗国华 (102)

## 网络与安全

- 基于雾计算的能耗最小化公平计算迁移研究 ..... 葛欣炜 段聪颖 陈思光 (107)
- 面向网络欺骗防御的攻击诱捕技术研究 ..... 高雅卓 刘亚群 邢长友 张国敏 王秀磊 (114)
- 一种适用于园区微电网的安全控制协议 ..... 陈艺琳 罗娇燕 胡逸芳 易传佳 左黎明 (120)
- 基于奇异值分解的大型社交网络差分隐私算法 ..... 郑 剑 杨立聪 (126)

## 应用前沿与综合

- 基于改进差分进化鲸鱼算法的经济负荷分配 ..... 马 健 李海明 李 鑫 (132)
- 量子信息教育进展研究 ..... 贺 晨 刘 娟 董洋瑞 刘维琪 彭进业 (139)
- 面向药店会员用户画像的构建及应用研究 ..... 谢君臣 李 涛 黄 甫 常 远 (145)
- 基于区块链的技术成果交易平台设计 ..... 钱 虹 李航平 王 圆 任 波 冯 旭 (151)
- 基于排列熵和 CSP 融合的脑电信号特征提取 ..... 龙佳伟 郑 威 刘 燕 王 玫 (157)
- 公路隧道智能火灾检测系统设计 ..... 吴宗胜 韩改宁 李 红 (163)
- 基于改进 K 均值聚类算法的汽车行驶工况构建 ..... 李春生 余 虎 (169)
- 改进的支持向量机在心脏病预测中的研究 ..... 王成武 郭志恒 晏峻峰 (175)
- 间歇通信的非线性多智能体系统协调跟踪控制 ..... 张瑀航 姜玉莲 崔立朝 王海伟 (180)
- 基于模糊认知图的气象要素预测模型 ..... 白 雪 朱红康 吴 瑞 (186)
- 面向试飞科目的 iNET 网络数据快速处理技术 ..... 张思硕 郝 朝 山 寿 (192)
- 基于空间层次分析的商业圈评价模型 ..... 谢其延 王星捷 (197)
- 基于多元线性回归的学生成绩预测研究 ..... 刘晓雲 刘鸿雁 李劲松 王冠帮 (203)
- 基于 AVR 的智能家居系统设计与实现 ..... 张 伟 王宜怀 (209)
- LabelMe 标注核对系统的设计与实现 ..... 迪力夏提·多力昆 张大红 冯向萍 (214)

\* \* \*

2021 CCF 颁奖典礼隆重举行..... (封三)

## CONTENTS

Research on Vehicle Small Target Detection Algorithm Based on Improved SSD .....	
.....	<i>GUO Jian-zhong, YU Teng-fei, CUI Yu-ding, et al</i> ( 1 )
A Visual Odometry Incorporating Uncertainty of SURF-FREAK Feature Points .....	
.....	<i>LIU Jun, CHAI Hong-xu, ZHAO Wei</i> ( 8 )
Design and Research of Intelligent Foreign Chinese Learning System .....	<i>LI Bin, WANG Hao-chang</i> (15)
An Improved Sparrow Search Algorithm .....	<i>LIU Rui, MO Yuan-bin</i> (21)
A Solution to Path Planning Problems in Complex Scenarios .....	<i>GUO Shu-jie, TIAN Hua, WANG Wei</i> (27)
Containment Control for Sampling Multi-Agent System with Input Constraints and Communication Delays .....	
.....	<i>ZHANG Wang, HOU Hai-liang</i> (34)
A Chinese Text Classification Algorithm Based on Weight Preprocessing .....	
.....	<i>HE Kai, GUAN You-qing, GONG Rui</i> (40)
Influence Maximization of Heterogeneous Networks Based on Weighted PageRank .....	
.....	<i>HAN Ting, ZHOU Li-hua, HUANG Ya-qun, et al</i> (46)
Polar Codes Decoding Algorithm Based on Temporal Convolutional Network .....	
.....	<i>LI Shuo, WANG You-guo, CHAI Yun, et al</i> (54)
Multi-layer Complex Network Community Detection Algorithm Based on Network Layer Weighting .....	
.....	<i>TAI Chang-hong, LIU Xiang-yang</i> (59)
Tracking Algorithm Based on Twin Networks Feature Fusion and Threshold Update .....	
.....	<i>LIU Yang, YANG Xiao-jun</i> (65)
Pedestrian Attribute Recognition: Probabilistic Ensemble Learning Method Based on Meta-learning .....	
.....	<i>WANG Wen-long, ZHANG Lei, ZHANG Yu-xin, et al</i> (71)
3D Point Cloud Detection Based on Deep Learning Network .....	<i>GAO Yan, XIONG Feng-guang</i> (76)
Research on Lightweight of Night Vehicle Detection Model Based on YOLO v4 .....	
.....	<i>XU Li, LIU Xing-xing, QU Li-cheng</i> (84)
A Quantum Algorithm for Finding Reciprocal Approximation and Its Quantum Circuit .....	
.....	<i>ZHU Jia-liang, YE Bin, JI Wen</i> (90)
Visual Analysis and Diagnosis System Based on Domestic Platform .....	
.....	<i>LI Zhi-gang, LIU Zi-qiang, ZHANG Hui</i> (96)

Dynamic Topology Reconstruction Technology of Heterogeneous Network Data Based on Phase Space Fusion	···
··········	<i>HUANG Hao-han, LU Xing-hua, HUANG Jia-hao, et al</i> (102)
Fog Computing Based Energy Minimization and Fair Computation Offloading Mechanism	··········
··········	<i>GE Xin-wei, DUAN Cong-ying, CHEN Si-guang</i> (107)
Research on Network Deception Defense Oriented Attack Trapping Technology	··········
··········	<i>GAO Ya-zhuo, LIU Ya-qun, XING Chang-you, et al</i> (114)
A Security Control Protocol for Microgrid in Park	····· <i>CHEN Yi-lin, LUO Jiao-yan, HU Yi-fang, et al</i> (120)
Differential Privacy Algorithm for Large Social Networks Based on Singular Value Decomposition	··········
··········	<i>ZHENG Jian, YANG Li-cong</i> (126)
Economic Load Distribution Based on Improved Differential Evolution Whale Algorithm	··········
··········	<i>MA Jian, LI Hai-ming, LI Xin</i> (132)
Research on Progress of Quantum Information Education	··· <i>HE Chen, LIU Juan, DONG Yang-rui, et al</i> (139)
Research on Construction and Application of User Portrait for Pharmacy Members	··········
··········	<i>XIE Jun-chen, LI Tao, HUANG Fu, et al</i> (145)
Design of Technology Achievement Trading Platform Based on Blockchain	··········
··········	<i>QIAN Hong, LI Hang-ping, WANG Yuan, et al</i> (151)
EEG Signal Feature Extraction Based on PE and CSP Fusion	··········
··········	<i>LONG Jia-wei, ZHENG Wei, LIU Yan, et al</i> (157)
Design of Intelligent Fire Detection System for Highway Tunnel	··········
··········	<i>WU Zong-sheng, HAN Gai-ning, LI Hong</i> (163)
Vehicle Driving Cycle Construction Based on Improved K-means Clustering Algorithm	··········
··········	<i>LI Chun-sheng, YU Hu</i> (169)
Application of Improved Support Vector Machine in Heart Disease Prediction	··········
··········	<i>WANG Cheng-wu, GUO Zhi-heng, YAN Jun-feng</i> (175)
Coordinated Tracking Control of Nonlinear Multi-Agent Systems with Intermittent Communications	··········
··········	<i>ZHANG Yu-hang, JIANG Yu-lian, CUI Li-chao, et al</i> (180)
Prediction Model of Meteorological Elements Based on Fuzzy Cognitive Map	··········
··········	<i>BAI Xue, ZHU Hong-kang, WU Rui</i> (186)
iNET Network Data Fast Processing Technology for Flight Test Subjects	··········
··········	<i>ZHANG Si-shuo, HAO Chao, SHAN Shou</i> (192)
Evaluation Model of Business District Based on Spatial Analytic Hierarchy	··········
··········	<i>XIE Qi-yan, WANG Xing-jie</i> (197)
Research on Student Achievement Prediction Based on Multiple Linear Regression	··········
··········	<i>LIU Xiao-yun, LIU Hong-yan, LI Jin-song, et al</i> (203)
Design and Implementation of Smart Home System Based on AVR	········· <i>ZHANG Wei, WANG Yi-huai</i> (209)
Design and Implementation of LabelMe Label Checking System	··········
··········	<i>Duolikon DILIXIATI, ZHANG Tai-hong, FENG Xiang-ping</i> (214)