



2013 年全国百强科技期刊



2015 年全国百强科技期刊



中国精品科技期刊



中国计算机学会会刊

# 软件学报

(Ruanjian Xuebao)

## 目 次

第 33 卷第 12 期

2022 年 12 月

### 算法设计与分析

- 时间序列可变尺度的时频特征求解及其分类 ..... 魏池璇 王志海 原继东 林钱洪 (4411)  
数据密集作业在 GPU 集群上的调度算法研究 ..... 汤小春 朱紫钰 毛安琪 符莹 李战怀 (4429)  
SW26010 处理器上的并行结构化稀疏三角方程组求解器 ..... 陈道琨 刘芳芳 杨超 (4452)

### 系统软件与软件工程

- PROPER: 一个概率程序终止性与正确性分析工具 ..... 赵旭慧 邓玉欣 符鸿飞 (4464)  
ETSG-SMT: 一种 SMT 时间信道安全问题描述模型 ..... 岳晓萌 杨秋松 李明树 (4476)

### 模式识别与人工智能

- 面向边缘智能的两阶段对抗知识迁移方法 .....  
..... 钱亚冠 马骏 何念念 王滨 顾钊铨 凌祥 Wassim Swaileh (4504)  
加权解耦语义表达的多源领域自适应方法 ..... 蔡瑞初 郑丽娟 李梓健 (4517)  
基于样本个体差异性的深度神经网络训练方法 ..... 李响 刘明 刘明辉 姜庆 曹扬 (4534)  
基于标签对齐的多模态一致性表型关联方法 ..... 汪美玲 邵伟 张道强 (4545)  
深度多尺度不变特征网络预测胶质瘤 1p/19q 缺失状态 .....  
..... 陈祈剑 王黎 郭顺超 邓泽宇 张健 王丽会 (4559)

- 一种基于各向异性高斯核核惩罚的 PCA 特征提取算法 ..... 刘俊 李威 陈蜀宇 徐光侠 (4574)  
个性化学习路径推荐综述 ..... 云岳 代欢 张育培 尚学群 李战怀 (4590)  
对话推荐算法研究综述 ..... 赵梦媛 黄晓雯 桑基韬 于剑 (4616)  
知识图谱可解释推理研究综述 ..... 侯中妮 靳小龙 陈剑赟 官赛萍 王元卓 程学旗 (4644)  
文本风格迁移研究综述 ..... 陈可佳 费子阳 陈景强 杨子农 (4668)

### 数据库技术

- ALERT: 基于 Radix Tree 的工作负载自适应学习型索引 .....  
..... 陈井爽 陈珂 寿黎但 江大伟 陈刚 (4688)

面向 Dataflow 的异构集群混合式资源调度框架研究.....

..... 汤小春 赵全 符莹 朱紫钰 丁朝 胡小雪 李战怀 (4704)

基于树状模型的复杂自然语言查询转 SQL 技术研究.....

..... 赵猛 陈珂 寿黎但 伍赛 陈刚 (4727)

## 计算机网络与信息安全

自适应编码的高容量密文可逆信息隐藏算法..... 马文静 吴友情 殷赵霞 (4746)

基于身份的组用户数据完整性验证方案..... 袁艺林 张建标 徐万山 李铮 (4758)

抗主动攻击的保密比较协议..... 李顺东 王文丽 陈明艳 汪榆林 (4771)

SHA-1 差分路径搜索算法和连接策略研究..... 曾光 李婧瑜 杨阳 (4784)

基于 Cluster 态的可验证多方量子密钥协商方案..... 芦殿军 李志慧 闫晨红 刘璐 (4804)

FPTC: 一种信息中心物联网缓存策略..... 吴海博 许瑶恭 李俊 (4816)

## 多媒体技术

面向视频冷启动问题的点击率预估..... 章磊敏 董建锋 包翠竹 纪守领 王勋 (4838)

## 计算机体系结构

一种新型瓦记录磁盘的高可靠数据存储方法..... 吴坤尧 柴云鹏 张大方 王鑫 (4851)

## Contents

### ALGORITHM DESIGN AND ANALYSIS

- 4411 Time Series Pattern Discovery and Classification with Variable Scales in Time-frequency Domains  
*WEI Chi-Xuan, WANG Zhi-Hai, YUAN Ji-Dong, LIN Qian-Hong*
- 4429 Algorithm of Scheduling for Data-intensive Computing Operations onto GPU Cluster  
*TANG Xiao-Chun, ZHU Zi-Yu, MAO An-Qi, FU Ying, LI Zhan-Huai*
- 4452 Parallel Sparse Triangular Solver for Structured Grid Problems on SW26010 Processor  
*CHEN Dao-Kun, LIU Fang-Fang, YANG Chao*

### SYSTEM SOFTWARE AND SOFTWARE ENGINEERING

- 4464 PROPER: Tool for Analyzing Termination and Correctness of Probabilistic Programs  
*ZHAO Xu-Hui, DENG Yu-Xin, FU Hong-Fei*
- 4476 ETSG-SMT: Description Model of SMT Timing Channel Security Problem  
*YUE Xiao-Meng, YANG Qiu-Song, LI Ming-Shu*

### PATTERN RECOGNITION AND ARTIFICIAL INTELLIGENCE

- 4504 Two-stage Adversarial Knowledge Transfer for Edge Intelligence  
*QIAN Ya-Guan, MA Jun, HE Nian-Nian, WANG Bin, GU Zhao-Quan, LING Xiang, Wassim Swaileh*
- 4517 Multi-source Domain Adaptation of Weighted Disentangled Semantic Representation  
*CAI Rui-Chu, ZHENG Li-Juan, LI Zi-Jian*
- 4534 Deep Neural Network Training Method Based on Individual Differences of Training Samples  
*LI Xiang, LIU Ming, LIU Ming-Hui, JIANG Qing, CAO Yang*
- 4545 Label-aligned Multi-modality Consistent Phenotype Association Method  
*WANG Mei-Ling, SHAO Wei, ZHANG Dao-Qiang*
- 4559 Deep Multi-scale Invariant Features-based Network for Predicting Status of 1p/19q in Glioma  
*CHEN Qi-Jian, WANG Li, GUO Shun-Chao, DENG Ze-Yu, ZHANG Jian, WANG Li-Hui*
- 4574 PCA Feature Extraction Algorithm Based on Anisotropic Gaussian Kernel Penalty  
*LIU Jun, LI Wei, CHEN Shu-Yu, XU Guang-Xia*
- 4590 State-of-the-art Survey on Personalized Learning Path Recommendation  
*YUN Yue, DAI Huan, ZHANG Yu-pei, SHANG Xue-qun, LI Zhan-huai*
- 4616 Survey on Conversational Recommendation Algorithms  
*ZHAO Meng-Yuan, HUANG Xiao-Wen, SANG Ji-Tao, YU Jian*
- 4644 Survey of Interpretable Reasoning on Knowledge Graphs  
*HOU Zhong-Ni, JIN Xiao-Long, CHEN Jian-Yun, GUAN Sai-Ping, WANG Yuan-Zhuo, CHENG Xue-Qi*
- 4668 Survey on Text Style Transfer Research  
*CHEN Ke-Jia, FEI Zi-Yang, CHEN Jing-Qiang, YANG Zi-Nong*

### DATABASE TECHNOLOGY

- 4688 ALERT: Workload-adaptive Learned Index Based on Radix Tree  
*CHEN Jing-Shuang, CHEN Ke, SHOU Li-Dan, JIANG Da-Wei, CHEN Gang*
- 4704 Research of Hybrid Resource Scheduling Framework of Heterogeneous Clusters for Dataflow  
*TANG Xiao-Chun, ZHAO Quan, FU Ying, ZHU Zi-Yu, DING Zhao, HU Xiao-Xue, LI Zhan-Huai*
- 4727 Converting Complex Natural Language Query to SQL Based on Tree Representation Model  
*ZHAO Meng, CHEN Ke, SHOU Li-Dan, WU Sai, CHEN Gang*

**COMPUTER NETWORKS AND INFORMATION SECURITY**

- 4746 High-capacity Reversible Data Hiding in Encrypted Images Using Adaptive Encoding  
*MA Wen-Jing, WU You-Qing, YIN Zhao-Xia*
- 4758 Identity-based Group User Data Integrity Verification Scheme  
*YUAN Yi-Lin, ZHANG Jian-Biao, XU Wan-Shan, LI Zheng*
- 4771 Comparing Protocol Against Active Attacks  
*LI Shun-Dong, WANG Wen-Li, CHEN Ming-Yan, WANG Yu-Lin*
- 4784 Research on SHA-1 Differential Path Search Algorithms and Connect Strategies  
*ZENG Guang, LI Jing-Yu, YANG Yang*
- 4804 Verifiable Multi-party Quantum Key Agreement with Cluster State  
*LU Dian-Jun, LI Zhi-Hui, YAN Chen-Hong, LIU Lu*
- 4816 FPTC: An ICN-IoT Caching Scheme  
*WU Hai-Bo, XU Yao-Gong, LI Jun*

**MULTIMEDIA TECHNIQUES**

- 4838 Click-through Rate Prediction for Video Cold-start Problem  
*ZHANG Lei-Min, DONG Jian-Feng, BAO Cui-Zhu, JI Shou-Ling, WANG Xun*

**COMPUTER ARCHITECTURE**

- 4851 Highly Reliable Data Storage Method Based on Novel Shingled Magnetic Disks  
*WU Kun-Yao, CHAI Yun-Peng, ZHANG Da-Fang, WANG Xin*