



中国计算机学会会刊

ISSN 1001-9081  
CN 51-1307/TP  
CODEN JYIIDU

# 计算机应用

# JOURNAL OF COMPUTER APPLICATIONS

- 中文核心期刊
- 两届国家期刊奖提名奖
- 全国优秀科技期刊一等奖



第32卷 第10期 2012年10月  
Vol.32 No.10 Oct. 2012

 科学出版社  
Science Press

中国科学院成都计算机应用研究所主办

2012  
第10期

国家期刊奖获奖期刊  
中国期刊方阵“双奖”期刊  
中文核心期刊  
中国科技核心期刊  
中国计算机学会会刊  
中国科技论文统计源期刊  
中国科学引文数据库刊源期刊  
中国学术期刊综合评价数据库统计源期刊  
中国期刊网、中国学术期刊(光盘版)收录期刊

中文科技期刊数据库收录期刊  
英国《科学文摘》收录期刊  
俄罗斯《文摘杂志》收录期刊  
《日本科学技术振兴机构数据库》收录期刊  
美国《剑桥科学文摘》收录期刊  
波兰《哥白尼索引》收录期刊  
德国《数学文摘》收录期刊  
CEPS 中文电子期刊服务全文收录期刊  
RCCSE 中国核心学术期刊(扩展版)

# 计算机应用

(Jisuanji Yingyong)

第32卷 第10期 2012年10月

## 目 次

### 网络与通信

- 基于用户体验评价模型的最优路由选择算法 ..... 张大陆, 曹孝晶, 胡治国(2683)  
基于 Voronoi 图的无线传感网休眠算法 ..... 邓亚平, 刘洒, 刘雅菲(2689)  
基于无线传感网的海洋监测节点定位算法 ..... 任秀丽, 韩静晶(2692)  
基于信任机制的一种无线传感器网络簇头选举算法 ..... 王伟龙, 马满福(2696)  
无线传感器网络低功耗自适应分簇协议 ..... 李玲, 王林, 张飞鸽, 王晓哲(2700)  
模糊控制在垂直切换判决算法中的应用 ..... 王佳(2704)  
基于盲信号分离的回波抵消技术 ..... 王竹毅, 杨建坡, 尹永超, 王振朝(2707)  
无线传感器网络选择性传递攻击的检测和防御机制 ..... 付翔燕, 李平, 吴佳英(2711)  
基于 S 排队的被动队列管理算法 ..... 谢立春(2716)

### 先进计算

- 面向云计算的任务分类方法 ..... 陈廷伟, 周山杰, 秦明达(2719)  
粒距反馈的 S 函数粒子群权值调整策略 ..... 左旭坤, 苏守宝(2724)  
基于最大熵原理的 Web 服务 QoS 概率分布获取 ..... 代志华, 付晓东, 黄袁, 贾楠(2728)  
引力搜索算法中粒子记忆性改进的研究 ..... 李春龙, 戴娟, 潘丰(2732)  
无锁并发二叉搜索树的实现 ..... 刘少东, 邢永康, 刘恒(2736)  
求解三对角线性方程组的迭代对角占优算法 ..... 李太全, 肖柏勋(2742)  
二维双曲守恒律标量方程的三阶 CWENO-型熵相容算法 ..... 郑素佩, 封建湖, 刘彩侠(2745)

### 信息安全

- 可靠的分布式系统生存性保障模型 ..... 耿技, 陈非, 聂鹏, 陈伟, 秦志光(2748)  
基于动态拓扑构造的信誉激励机制 ..... 李绍静(2752)  
基于路由器接口的一致概率包标记算法 ..... 闫巧, 姚希彦(2757)  
检测迷惑恶意代码的层次化特征选择方法 ..... 张健飞, 陈黎飞, 郭躬德(2761)  
基于双混沌系统互反馈的加密算法 ..... 毛永毅, 王瑶(2768)  
基于使用控制的数字版权管理系统安全性分析 ..... 王昌达, 宫婷婷, 周从华(2771)  
基于 PDF 文档结构的数字水印算法 ..... 钟征燕, 郭燕慧, 徐国爱(2776)  
自适应高容量医学图像可逆数据隐藏算法 ..... 黄斌, 史亮, 邓小鸿, 陈志刚(2779)  
2-adic 有限状态自动机的新实现方法 ..... 林志强(2783)

### 图形图像处理

- 基于曲线波和稀疏表达的卡通一纹理模型 ..... 康晓东, 王昊, 郭宏, 郭军(2786)  
基于方向中值的图像椒盐噪声检测算法 ..... 陈健, 郑绍华(2790)

基于拉普拉斯算子和图像修补的图像去噪算法	田素云,王小明,赵雪青(2793)
拓扑最优的可展网格曲面放样建模	崔晓坤,陈 明(2798)
基于未标定多幅图的三维重建算法	赵璐璐,耿国华,王小凤,刘 倩(2802)
基于质点约束算法的窗帘动态模拟	韩 丽,贾 玥(2806)
基于形态非抽样小波的实时图像融合方法	邓 苗,张基宏,柳 伟,梁永生(2809)
多特征融合的 Camshift 算法及其进一步改进	林建华,刘党辉,邵显奎(2814)
基于改进的尺度不变特征变换特征点匹配的电子稳像算法	孟 勃,韩广良(2817)
基于梯度的快速图像插值算法	杨鹤猛,黄战华(2821)
基于 SIFT 特征匹配与 K-均值聚类的运动目标检测	李 广,冯 燕(2824)
小空间占用的快速彩色图像特征抽取方法	罗婵娟,朱嘉钢,陆 晓(2827)
基于 K 型支持向量机的遥感图像分类新算法	王 静,何建农(2832)
基于水下图像光学成像模型的清晰化算法	郭相凤,贾建芳,杨瑞峰,葛中峰(2836)
基于兴趣点综合特征的图像检索	宋 真,颜永丰(2840)
融合 Fisher 准则和势函数的多阈值图像分割	张新明,李振云,郑 纶(2843)
基于分数阶偏微分的图像边缘检测新模型	蒋 伟,丁志全,刘亚威(2848)
具有层次素描纹理的素描画绘制方法	李智慧,范铁生,唐春鸽,刘 磊(2851)
结构相似指数噪声整形算法及其在图像编码中的应用	冯 涛,吕俊白(2855)
基于模糊逻辑的无损视频压缩的算法	邢龙平,李东晖,胡川川(2859)

## 人工智能

程序算法识别研究综述	鲁 强,李效恋,王智广(2863)
基于自适应粒子群算法的制造云服务组合研究	刘卫宁,李一鸣,刘 波(2869)
多智能体系统分散式通信决策研究	郑延斌,郭凌云,刘晶晶(2875)
基于认知模式的企业集群知识传播演化仿真	牛家洋,王洪国,邵增珍,宋超超(2879)
引入共享近邻加权图的 Chameleon 算法	薛文娟,刘培玉,刘 栋(2884)
基于多标签 ReliefF 的特征选择算法	黄莉莉,汤 进,孙登第,罗 斌(2888)
基于用户行为的启发式本体搜索机制	李江华,郑 剑(2891)
基于张量神经网络的音频多语义分类方法	邢 玲,贺 梅,马 强,朱 敏(2895)
图像检索中结合文本信息的多示例原型选择及主动学习策略	李 净,郭洪禹(2899)
多峰函数优化的改进人工鱼群混合算法	邓 涛,姚 宏,杜 军(2904)
九宫数独的方程求解算法研究	肖华勇,程海礁,王月兴(2907)
具有自加速与变邻域搜索的差分演化算法	赵 洋,贺毅朝,李 晰(2911)
基于损失函数的 AdaBoost 改进算法	雷 蕾,王晓丹(2916)
基于频繁模式挖掘的维吾尔文智能组词方法	吐尔地·托合提,维尼拉·木沙江,艾斯卡尔·艾木都拉(2920)
基于短语的维吾尔文文本分类	阿力木江·艾沙,吐尔根·依布拉音,库尔班·吾布力,李 哲(2923)
电子系统健康状态监测数据优化算法	杨 森,孟 晨,王 成(2927)

## 网络与通信

基于云重心 Shapley 值法的电子商务声誉联盟利益分配策略	卢志刚,张晓旭(2931)
基于工厂信息的实时数据流分析与全过程质量监控	边小勇,张晓龙,余 海(2935)
基于 Simulink 仿真的质量控制图不确定异常模式识别	侯世旺,朱慧明,李 荣(2940)
伺服电机的预测控制与比例-积分-微分控制	黄玉钏,曲道奎,徐 方,任晓磊(2944)
基于改进粒子群优化算法的灰色神经网络的铁路货运量预测	雷 斌,陶海龙,徐晓光(2948)
蚁群算法在需水预测模型参数优化中的应用	侯景伟,孔云峰,孙九林(2952)
钢铁炉温不确定时滞系统 Smith 免疫预测控制	徐雪松,欧阳峣(2956)
水下机器人圆概率偏差的有效预报	冀大雄,刘 健(2960)
两类情感状态下心电与心率变异性信号的非线性分析	杨 敏,刘光远,温万惠(2963)
基于有限长脉冲响应滤波器和 aTrous 算法的小波心电信号去噪	钟丽辉,魏贯军,师 黎(2966)
基于窗口斜率表示法的心电波形相似性分析	刘彤彤,戴 敏,李忠义(2969)
Web 应用系统负载测试加压策略研究	翁雷雷,蔡皖东,姚 烨(2973)

2012 年全国高性能计算学术年会会议通知	(封二)
CCFADL31：“基于 Kinect 研究与应用”讲习班报名通知	(封二)
2012 信息和通信技术教育创新研讨会会议通知	(封三)
2012 年第二届全国文字与计算学术研讨会(CCF-NSCC 2012) 征文通知	(封三)

期刊基本参数: CN 51-1307/TP \* 1981 \* m \* A4 \* 294 \* zh \* P \* ¥33.00 \* 5500 \* 73 \* 2012-10 \* n

本期责任编辑: 夏朝晖

# Journal of Computer Applications

Vol. 32 No. 10 Oct. 2012

## Contents

### Network and communications

- Optimal routing algorithm based on user experience estimation model ..... ZHANG Da-lu, CAO Xiao-jing, HU Zhi-guo (2683)  
Voronoi diagram-based sleeping algorithm in wireless sensor networks ..... DENG Ya-ping, LIU Sa, LIU Ya-fei (2689)  
Node localization algorithm of wireless sensor network in marine monitoring ..... REN Xiu-li, HAN Jing-jing (2692)  
Cluster head election based on trust mechanism in wireless sensor network ..... WANG Wei-long, MA Man-fu (2696)  
Lower energy adaptive clustering hierarchy routing protocol for wireless sensor network ..... LI Ling, WANG Lin, ZHANG Fei-ge, WANG Xiao-zhe (2700)  
Vertical handoff algorithm based on fuzzy logic control ..... WANG Jia (2704)  
Echo cancellation based on blind source separation ..... WANG Zhu-yi, YANG Jian-po, YIN Yong-chao, WANG Zhen-chao (2707)  
Detection and defense scheme for selective forwarding attacks in wireless sensor network ..... FU Xiang-yan, LI Ping, WU Jia-ying (2711)  
Passive queue management algorithm based on synchronized queue ..... XIE Li-chun (2716)

### Advanced computing

- Task classification method oriented to cloud computing ..... CHEN Ting-wei, ZHOU Shan-jie, QIN Ming-da (2719)  
Sigmoid inertia weight adjustment strategy with particle spacing feedback for PSO ..... ZUO Xu-kun, SU Shou-bao (2724)  
Probability distribution estimation for Web service QoS based on max entropy principle ..... DAI Zhi-hua, FU Xiao-dong, HUANG Yuan, JIA Nan (2728)  
Analysis on improvement of particle memory in gravitational search algorithm ..... LI Chun-long, DAI Juan, PAN Feng (2732)  
Lock-free implementation of concurrent binary search tree ..... LIU Shao-dong, XING Yong-kang, LIU Heng (2736)  
Iterated parallel diagonal dominant algorithm for tridiagonal systems ..... LI Tai-quan, XIAO Bo-xun (2742)  
CWENO-type entropy consistent scheme for two dimensional scalar hyperbolic conservation laws ..... ZHENG Su-pei, FENG Jian-hu, LIU Cai-xia (2745)

### Information security

- Reliable assurance model for distributed system survivability ..... GENG Ji, CHEN Fei, NIE Peng, CHEN Wei, QIN Zhi-guang (2748)  
Reputation incentive mechanism based on dynamic topology ..... LI Shao-jing (2752)  
Packet marking algorithm with consistency probability based on router interface ..... YAN Qiao, YAO Xi-yan (2757)  
Hierarchical feature selection method for detection of obfuscated malicious code ..... ZHANG Jian-fei, CHEN Li-fei, GUO Gong-de (2761)  
Encryption algorithm based on double chaos system with mutual feedback ..... MAO Yong-yi, WANG Yao (2768)  
Security analysis of digital rights management system based on usage control ..... WANG Chang-da, GONG Ting-ting, ZHOU Cong-hua (2771)  
Digital watermarking algorithm based on structure of PDF document ..... ZHONG Zheng-yan, GUO Yan-hui, XU Guo-ai (2776)  
Adaptive high-capacity reversible data hiding algorithm for medical images ..... HUANG Bin, SHI Liang, DENG Xiao-hong, CHEN Zhi-gang (2779)  
New implementation of 2-aids finite state machines ..... LIN Zhi-qiang (2783)

### Graphics and image technology

- model on cartoon-texture decomposition based on curvelet transform and sparse representation ..... KANG Xiao-dong, WANG Hao, GUO Hong, GUO Jun (2786)  
Salt and pepper noise detection algorithm based on directional median ..... CHEN Jian, ZHENG Shao-hua (2790)  
Image denoising algorithms based on Laplacian operator and image inpainting ..... TIAN Su-yun, WANG Xiao-ming, ZHAO Xue-qing (2793)  
Skinning developable mesh surface of optimal topology ..... CUI Xiao-kun, CHEN Ming (2798)  
Three dimensional reconstruction algorithm based on uncalibrated multiple images ..... ZHAO Lu-lu, GENG Guo-hua, WANG Xiao-feng, LIU Qian (2802)  
Curtain dynamic simulation based on particle constraint algorithm ..... HAN Li, JIA Yue (2806)

- Real-time image fusion based on morphological un-decimated wavelets ..... DENG Miao, ZHANG Ji-hong, LIU Wei, LIANG Yong-sheng (2809)
- Multi-feature fusion Camshift algorithm and its further improvement ..... LIN Jian-hua, LIU Dang-hui, SHAO Xian-kui (2814)
- Electronic image stabilization algorithm using improved scale invariant feature transform ..... MENG Bo, HAN Guang-liang (2817)
- Fast image interpolation algorithm based on gradient ..... YANG He-meng, HUANG Zhan-hua (2821)
- Moving object detection based on SIFT features matching and K-means clustering ..... LI Guang, FENG Yan (2824)
- Color image feature extracting method with small space occupying and fast speed ..... LUO Chan-juan, ZHU Jia-gang, LU Xiao (2827)
- New algorithm of remote sensing image classification based on K-type support vector machine ..... WANG Jing, HE Jian-nong (2832)
- Visibility enhancing algorithm based on optical imaging model for underwater images ..... GUO Xiang-feng, JIA Jian-fang, YANG Rui-feng, GE Zhong-feng (2836)
- Image retrieval based on combined features of interest points ..... SONG Zhen, YAN Yong-feng (2840)
- Multi-threshold image segmentation based on combining Fisher criterion and potential function ..... ZHANG Xin-ming, LI Zhen-yun, ZHENG Ying (2843)
- New image edge detection model based on fractional-order partial differentiation ..... JIANG Wei, DING Zhi-quan, LIU Ya-wei (2848)
- Sketch drawing method with hierarchical sketch texture ..... LI Zhi-hui, FAN Tie-sheng, TANG Chun-ge, LIU Lei (2851)
- Structural similarity index measurement-noise shaping algorithm and its application in image coding and transmission ..... FENG Tao, LÜ Jun-bai (2855)
- Lossless video compression method based on fuzzy logic ..... XING Long-ping, LI Dong-hui, HU Chuan-chuan (2859)
- ## Artificial intelligence
- Survey on program algorithm recognition research ..... LU Qiang, LI Xiao-lian, WANG Zhi-guang (2863)
- Service composition in cloud manufacturing based on adaptive mutation particle swarm optimization ..... LIU Wei-ning, LI Yi-ming, LIU Bo (2869)
- Research on decentralized communication decision in multi-Agent system ..... ZHENG Yan-bin, GUO Ling-yun, LIU Jing-jing (2875)
- Simulation of knowledge diffusion among enterprise clusters based on cognitive perspective ..... NIU Jia-yang, WANG Hong-guo, SHAO Zeng-zhen, SONG Chao-chao (2879)
- Improved Chameleon algorithm using weighted nearest neighbors graph ..... XUE Wen-juan, LIU Pei-yu, LIU Dong (2884)
- Feature selection algorithm based on multi-label ReliefF ..... HUANG Li-li, TANG Jin, SUN Deng-di, LUO Bin (2888)
- Heuristic ontology search mechanism based on user behavior ..... LI Jiang-hua, ZHENG Jian (2891)
- Multi-semantic audio classification method based on tensor neural network ..... XING Ling, HE Mei, MA Qiang, ZHU Min (2895)
- Multi-instance prototype selection and active learning combined with textual information in image retrieval ..... LI Jing, GUO Hong-yu (2899)
- Improved artificial fish swarm mixed algorithm for multimodal function optimization ..... DENG Tao, YAO Hong, DU Jun (2904)
- Research of equation solution algorithm about Sudoku puzzle ..... XIAO Hua-yong, CHENG Hai-jiao, WANG Yue-xing (2907)
- Differential evolution with self-accelerated property and variable neighborhood search ..... ZHAO Yang, HE Yi-chao, LI Xi (2911)
- Improved AdaBoost ensemble approach based on loss function ..... LEI Lei, WANG Xiao-dan (2916)
- Intelligent method for word grouping based on frequent pattern mining in Uyghur language ..... TUERDI Tuoheti, WEINILA Mushaijiang, AISIKAER Aimudula (2920)
- Phrase based Uyghur language text categorization ..... ALIMJAN Aysa, TURGUN Ibrahim, KURBAN Obul, LI Zhe (2923)
- Optimization algorithm of electronic system condition monitoring data ..... YANG Sen, MENG Chen, WANG Cheng (2927)
- ## Typical applications
- E-commerce reputation alliance profit distribution based on Shapley value method with cloud gravity center ..... LU Zhi-gang, ZHANG Xiao-xu (2931)
- Real-time data stream analysis and entire process quality monitoring based on plant information ..... BIAN Xiao-yong, ZHANG Xiao-long, YU Hai (2935)
- Simulink-based uncertain abnormal pattern recognition of quality control chart ..... HOU Shi-wang, ZHU Hui-ming, LI Rong (2940)
- Model predictive control and PID control on servo motor ..... HUANG Yu-chuan, QU Dao-kui, XU Fang, REN Xiao-lei (2944)
- Railway freight volume prediction based on grey neural network with improved particle swarm optimization ..... LEI Bin, TAO Hai-long, XU Xiao-guang (2948)
- Application of ant colony algorithm for parameter optimization of water demand prediction model ..... HOU Jing-wei, KONG Yun-feng, SUN Jiu-lin (2952)
- Smith-immune predictive control for steel uncertain time-delay system ..... XU Xue-song, OUYANG Yao (2956)
- Effective forecast of circular error probability in underwater robots ..... JI Da-xiong, LIU Jian (2960)
- Nonlinear analysis of ECG and HRV signals with two types of emotional states ..... YANG Min, LIU Guang-yuan, WEN Wan-hui (2963)
- Denosing of ECG signal based on FIR and aTrous wavelet transform ..... ZHONG Li-hui, WEI Guan-jun, SHI Li (2966)
- ECG waveform similarity analysis based on window-slope representation ..... LIU Tong-tong, DAI Min, LI Zhong-yi (2969)
- Research on pressor strategy of Web application system load testing ..... WENG Lei-lei, CAI Wan-dong, YAO Ye (2973)