



中国计算机学会会刊  
Publication of China Computer Federation

ISSN 1000-7024  
CODEN JIGYEP

# 计算机工程与设计

## Computer Engineering and Design

2012年5月 第33卷 第5期

Vol. 33 No. 5 May 2012

5

2012

中国航天科工集团第二研究院706所主办

# 计算机工程与设计

## ( JISUANJI GONGCHENG YU SHEJI )

2012 年 5 月 第 33 卷 第 5 期

### 目 次

#### 网络与通信技术

基于小波包的 RBF 神经网络网络流量混沌预测 .....	冯兴杰,潘文欣,卢 楠(1681)
MANET 中一种利用单向链路的按需路由策略.....	邬春学,万才华,叶胤鹏(1687)
远程访问 UPnP 网络的方法与实现 .....	杨 威,朱珍民,陈援非,胡艳萍(1691)
基于多用户调度的闭环 MIMO 系统中断性能分析 .....	郭丽丽,汪 洋,岳殿武(1695)
基于 TDOA 的微小区射线跟踪定位研究 .....	袁正午,杨青宏(1700)
WSN 中基于学习自动机的簇头选举算法 .....	刘冬生,曾小荟,肖晓红,刘新明,李满华(1706)
传感器网络中时空关联的脏数据过滤技术 .....	周春华,王运成,陈 冰(1711)
基于 RTT 自适应的无线 TCP 改进算法 .....	刘 俊(1715)
基于子带动态划分的电力线 OFDM 自适应算法研究 .....	刘 盈,代鹏飞,蔡丽萍,李明维(1720)
基于物联网技术网络自适应移动节点资源监测研究 .....	马荣飞(1725)

#### 信息安全技术

基于 Axis2 的 web 服务安全框架设计与实现 .....	熊光彩,慕德俊,张新家,计国君(1729)
DRM 细粒度使用控制模型及其安全机制 .....	黄 涛,张志勇,牛丹梅,张丽丽,田伟莉(1734)
基于圆锥曲线的 XML 数字签名应用研究 .....	白晨希,宋亚林,申石磊(1738)
基于身份的可验证门限数字签名方案 .....	李 曙,王晓明,程 娜(1742)
网络攻击方案评估系统设计与仿真 .....	章丽娟,王清贤(1746)
基于 RSA 的多源网络编码签名方案 .....	周秀媛,王彩芬,罗 海(1752)
基于卡方拟合优度检验的序列等概性测试组 .....	亓民勇,董金新(1757)
量化风险的等级保护测评方法及平台设计 .....	王 甜,徐 晖,魏理豪,朱 奕(1761)
多用户电子签章系统设计与实现 .....	王 雄,娄嘉鹏,庞岩梅(1767)

#### 嵌入式系统工程

煤矿井下低比特率数字扩音电话系统设计 .....	张全贵,李 鑫,王 普(1772)
嵌入式多模授时定位设备的设计与实现 .....	詹少博,王清理,孟 伟,高淑敏,张 宝(1779)
基于二次判断的无线多传感器跌倒监测系统 .....	任子良,李 勇(1785)
基于 ARM 技术的电站仿真机接口系统的开发 .....	王爱珍,成守宇(1790)
基于 QT4 的 SQLite 可视化管理工具的研究与开发 .....	穆红显,杨林楠,武尔维(1795)

#### 信息化技术

面向领域的语义搜索引擎的应用研究 .....	赵宏亮,杨鹤标(1801)
------------------------	---------------

基于语义规则的分阶段语义 Web 服务发现方法	田 浩,樊 红(1806)
四维 WebGIS 系统设计与实现	王星捷,李春花(1811)
农产品价格信息采集与预警系统设计与实现	田文君,申长军,郑文刚,张石锐,周冠华(1816)
基于 TF-IDF 分类算法的雷达情报分发技术	余 苗,杨瑞娟,程 伟,高 路,程红斌(1822)
企业网络管理系统构建方法研究	瞿 永,王 颖(1827)

## 软件与算法

针对短测序片段的基因序列拼接算法	郭 佳,杨云麟(1832)
改进的一对一支持向量机多分类算法	单玉刚,王 宏,董 爽(1837)
约束 Delaunay 三角网生成算法的研究与应用	杨小运,陈和平,顾进广,杨 剑(1842)
复杂场景中快速碰撞检测算法及 GPU 加速	刘秀玲,王冬雨,陈 栋,刘 京,王洪瑞(1847)
基于人工鱼群算法的协同过滤推荐算法	吴月萍,杜 奕(1852)
基于策略的可控服务发现与动态路由模型	初 宁,钟 晨(1857)
基于频繁项集与负规则的局部反馈查询扩展	黄名选,钟 智,张师超(1863)
垂直分布下的隐私保护关联规则挖掘	张晓华,缪裕青,苏 杰,吴孔玲(1867)
高阶高斯型积分计算机求解算法	李炯城,林惜斌,肖恒辉,陈芳炯(1871)
二分网格的多密度聚类算法	李光兴(1876)

## 多媒体技术

基于多尺度 MRF 图像样本修补稳健算法	同玉佳其,陈广秋,刘广文,孙俊喜(1881)
在线生物文献 MRI 图像识别系统的设计与实现	唐凤仙,钱法涛(1886)
基于 Krawtchouk 矩的运动目标分类	王晓静,原 达,李道凯(1890)
磁共振成像重建的新算法	肖 宿(1894)
基于多级灰度差的脂肪肝 B 超图像识别方法	王大溪,方 园,胡 波,曹汉强(1899)
基于视觉的结构变形测量系统的实现	林砾宗,倪小鹏,周罗善,张东方,曹成兵(1904)
基于条件互信息量的随机蕨特征匹配算法	李 珍,江贵平(1908)
基于自适应 GOP 的三维提升小波视频编码技术	方志军,罗桂华,伍世虎,杨寿渊,杨巨成(1913)
基于视觉注意机制与局部描述子的物体检测	郝文欣,高立宁(1918)
基于卡方检验的 SAR 图像道路检测算法	杨朝辉(1923)
基于椭圆拟合的快速钢管计数方法	支林仙(1928)

## 仿真技术

基于 GPU 自适应的环境遮挡算法	赵 君,吴志红,杨美燕,董 春,李 浩,张德才(1933)
基于 GPU 的动态天空场景仿真	彭 伟,李 攀,蒲 亮(1938)
飞机机电综合管理框架下的水系统建模与仿真	肖 佳,杨 波,王云路(1943)
基于压力流模型的植物顶端优势模拟	王 光,邱云飞(1948)
基于云模型的短时交通流预测方法研究	刘 芹,徐建闽(1953)

## 智能技术

基于测度递进的模糊认知图及其应用	马 楠,杨炳儒,邱正强,易璐璐(1958)
基于遗传退火三次指数平滑的期货预测研究	宋 芳,张亚平,张宗郁,赵 涵(1963)
基于自适应邻域选择的正交局部敏感判别分析	高伟军,白万荣,公维军,陈作汉(1968)

- 改进的变尺度混沌粒子群算法及其应用 ..... 王俭臣,单甘霖,刘东平,赵志宁(1973)  
油田采出水处理方案分布式专家系统研究 ..... 陈毅红,周永宏,李高平(1978)  
支持向量机大规模快速算法 ..... 王 越,夏书银,马 胜(1983)  
基于机器视觉的动态多点手势识别方法 ..... 李文生,解 梅,邓春健(1988)  
综合纹理特征的高光谱遥感图像分类方法 ..... 吴 昊(1993)  
基于人脸图像的性别识别与年龄估计 ..... 张天刚,任培花,张景安(1997)  
基于非负稀疏表示的人脸识别 ..... 史加荣,杨 威,魏宗田(2002)  
基于改进遗传算法的飞机定检人员均衡配置 ..... 马登武,张勇亮,董大为,阎桂林(2007)  
模拟退火 PSO 的神经网络的网络流量预测模型 ..... 张 坤,甘小艇(2013)  
变电站故障诊断中的不确定性问题研究 ..... 杨海生,李江林,郭金叶,余 维,何锡点(2017)

## 开发与应用

- 有向几何编程在数控系统中的实现 ..... 韩建起,马 跃,吴文江,陈 龙,李加洋(2022)  
航空发动机振动监控新方法的研究 ..... 张 鹏,倪世宏,谢 川(2027)  
基于主分量分析的缺陷识别研究 ..... 郭冬冬,夏筱筠(2031)  
支持情境感知计算的上下文服务框架研究 ..... 张青川,曾广平(2036)  
地源热泵系统中非线性时序预测的应用研究 ..... 谭 励,王 瑞,于重重(2042)  
综合录井下三维地层可视化建模研究与实现 ..... 杨 力,曹谢东,刘怡光(2048)  
基于改进分组遗传算法的虚拟机放置研究 ..... 李进超,陈静怡,吴 杰,梁 璞(2053)  
高校财务多维查询分析系统 ..... 彭 成,佟秋利(2057)  
基于 RFID 手持式盲人导航系统的路径规划 ..... 王 震,方漫琳,林欣农(2063)  
子带自适应滤波器组参数的选取及其影响 ..... 王 冲,郑建生,郭文飞(2068)  
基于 Modelica 的电动汽车电池建模与仿真 ..... 黄锡昌,宗志坚,陈承鹤,查鸿山(2073)  
基于普适计算的虚拟场景自适应网络发布研究 ..... 杨悟道,顾倩颐(2078)  
军事训练系统的网络可靠性设计与实现 ..... 白 帆,常天庆,韩 洋,周雨花(2084)  
基于 GIS 的隧道病害管理系统设计与实现 ..... 胡建华,徐玉桂(2090)  
交通建设监理行业管理信息系统的建设与实现 ..... 赵宪林(2095)

本期责任编辑:韩庭

---

本刊为:

- ★中国计算机学会会刊  
★中国宇航学会会刊  
★美国《剑桥科学文摘》(CSA)源期刊  
★俄罗斯《文摘杂志》(AJ of VINITI)源期刊  
★英国《科学文摘》(SA, INSPEC)源期刊  
★美国《乌利希期刊指南》(UPD)源期刊  
★波兰《哥白尼索引》(IC)源期刊
- ★全国中文核心期刊(中文核心期刊要目总览 2011 版)  
★中国科技核心期刊(中国科技论文统计源期刊)  
★《中国科学引文数据库(CSCD)》收录期刊  
★《中国学术期刊综合评价数据库》收录期刊  
★《中国学术期刊网络出版总库(CNKI)》收录期刊  
★《万方数据—数字化期刊群》收录期刊  
★《中国学术期刊文摘(中文版)》收录期刊  
★《电子科技文摘数据库》收录期刊

---

期刊基本参数: CN 11-1775/TP \* 1980 \* m \* A4 \* 420 \* zh \* P \* ¥ 38.00 \* 84 \* 2012-05

# Computer Engineering and Design

Vol. 33 No. 5 May. 2012

## CONTENTS

### Network and Communications Technology

Research on chaotic prediction method of network traffic based on wavelet packet .....	FENG Xing-jie, PAN Wen-xin, LU Nan(1681)
On-demand routing protocol utilizing unidirectional links in mobile Ad hoc networks .....	WU Chun-xue, WAN Cai-hua, YE Yin-peng(1687)
Method and implementation for remotely accessing UPnP networks .....	YANG Wei, ZHU Zhen-min, CHEN Yuan-fei, et al(1691)
Outage performance analysis of closed-loop MIMO system based on multi-user scheduling algorithm .....	GUO Li-li, WANG Yang, YUE Dian-wu(1695)
Research of microcell-positioning method based on ray-tracing in TDOA mechanism .....	YUAN Zheng-wu, YANG Qing-hong(1700)
Clusterhead selecting algorithm based on learning automata for WSN .....	LIU Dong-sheng, ZENG Xiao-hui, XIAO Xiao-hong, et al(1706)
Technique of filtering dirty data based on temporal-spatial correlation in sensor network .....	ZHOU Chun-hua, WANG Yun-cheng, CHEN Bing(1711)
Adaptive algorithm based on RTT for improving wireless TCP performance .....	LIU Jun(1715)
Analysis of adaptive OFDM algorithm based on dynamical sub-bands division for power line carrier censornetwork .....	LIU Ying, DAI Peng-fei, CAI Li-ping, et al(1720)
Based on Internet of things technology network adaptive mobile node resources monitoring research .....	MA Rong-fei(1725)

### Information Security Technology

Design and implementation of web service security framework based on Axis2 .....	XIONG Guang-cai, MU De-jun, ZHANG Xin-jia, et al(1729)
DRM fine-grained usage control model and its security mechanism .....	HUANG Tao, ZHANG Zhi-yong, NIU Dan-mei, et al(1734)
Applied research of XML digital signature based on conic curve cryptosystem .....	BAI Chen-xi, SONG Ya-lin, SHEN Shi-lei(1738)
Secure threshold verifiable signature scheme based on identity .....	LI Xi, WANG Xiao-ming, CHENG Na(1742)
Network attack scenarios evaluation system design and simulation .....	ZHANG Li-juan, WANG Qing-xian(1746)
RSA-based signature scheme for multi-source network coding .....	ZHOU Xiu-yuan, WANG Cai-fen, LUO Hai(1752)
Test suite for sequence equal probability based on chi square goodness of fit test .....	QI Min-yong, DONG Jin-xin(1757)
Risk quantified evaluation method and platform design for graded protection .....	WANG Tian, XU Hui, WEI Li-hao, et al(1761)
Design and implementation of multi-user digital seal system .....	WANG Xiong, LOU Jia-peng, PANG Yan-mei(1767)

### Embedded System Engineering

Design of low bit rate digital broadcast telephone system in coal mine .....	ZHANG Quan-gui, LI Xin, WANG Pu(1772)
Design and Implementation of embedded multi-module timing and orientation device .....	ZHAN Shao-bo, WANG Qing-li, MENG Wei, et al(1779)
Design of fall monitoring system with wireless and sensors based on two judgments .....	REN Zi-liang, LI Yong(1785)

Design and implementation of interface system of simulator based on ARM technology .....	WANG Ai-zhen, CHENG Shou-yu(1790)
Research and development of visual management tool for SQLite based on QT4 .....	MU Hong-xian, YANG Lin-nan, WU Er-wei(1795)

## Informationization Technology

Application research of domain-oriented semantic search engine .....	ZHAO Hong-liang, YANG He-biao(1801)
Semantic web service discovery with multi-phase based on semantic rules .....	TIAN Hao, FAN Hong(1806)
Design and realization of 4-dimensional WebGIS .....	WANG Xing-jie, LI Chun-hua(1811)
Design and implementation of agricultural products price information acquisition and early warning system .....	TIAN Wen-jun, SHEN Chang-jun, ZHENG Wen-gang, et al(1816)
Research on intelligence distribution based on TF-IDF classifier .....	YU Miao, YANG Rui-juan, CHENG Wei, GAO Lu, CHENG Hong-bin(1822)
Research on scheme method of enterprise network management system .....	ZHAI Yong, WANG Ying(1827)

## Software and Arithmetic

Algorithm of genomic sequence assembly based on short reads .....	GUO Jia, YANG Yun-lin(1832)
Improved multi-classification algorithm of one-against-one SVM .....	SHAN Yu-gang, WANG Hong, DONG Shuang(1837)
Research and application of constrained Delaunay triangulation generation algorithm .....	YANG Xiao-yun, CHEN He-ping, GU Jin-guang, et al(1842)
Fast algorithm for collision detection in complicated scene and GPU acceleration .....	LIU Xiu-ling, WANG Dong-yu, CHEN Dong, et al(1847)
Collaboration filtering recommendation algorithm based on artificial fish swarm algorithm .....	WU Yue-ping, DU Yi(1852)
Controllable service discovery and dynamic routing model based on policy .....	CHU Ning, ZHONG Chen(1857)
Query expansion of local feedback based on frequent itemsets and negative rules .....	HUANG Ming-xuan, ZHONG Zhi, ZHANG Shi-chao(1863)
Privacy preserving association rules mining in vertically partitioned data .....	ZHANG Xiao-hua, MIAO Yu-qing, SU Jie, et al(1867)
Computer algorithm for high-degree Gauss-type quadrature .....	LI Jiong-cheng, LIN Xi-bin, XIAO Heng-hui, et al(1871)
Bisecting grid-based multi-density clustering algorithm .....	Li Guang-xing(1876)

## Multimedia Technology

Image inpainting robust algorithm based on multiscale MRF model exemplar .....	YAN Yujia-qi, CHEN Guang-qiu, LIU Guang-wen, et al(1881)
Design and implementation of MRI image recognition system based on online biological literature .....	TANG Feng-xian, QIAN Yun-tao(1886)
Moving target classification based on Krawtchouk moment .....	WANG Xiao-jing, YUAN Da, LI Dao-kai(1890)
Novel algorithm for magnetic resonance imaging reconstruction .....	XIAO Su(1894)
Fatty liver B-scan image recognition method based on multi-grade gray level difference .....	WANG Da-xi, FANG Yuan, HU Bo, et al(1899)
Implementation of structure deformation measurement system based on vision .....	LIN Li-zong, NI Xiao-peng, ZHOU Luo-shan, et al(1904)
Keypoint matching using random ferns based on conditional mutual information .....	LI Zhen, JIANG Gui-ping(1908)
3-D lift wavelet video coding techniques based on adaptive GOP structure .....	FANG Zhi-jun, LUO Gui-hua, WU Shi-qian, et al(1913)
Object detection based on visual attention and local descriptor .....	HAO Wen-xin, GAO Li-ning(1918)
Road detection algorithm of SAR images based on chi-square test .....	YANG Zhao-hui(1923)
Fast method for steel tube counting based on ellipse fitting .....	ZHI Lin-xian(1928)

## Simulation Technology

Adaptive ambient occlusion algorithm based on GPU .....	ZHAO Jun, WU Zhi-hong, YANG Mei-yan, et al(1933)
---	--

Dynamic simulation of sky scenes based on GPU .....	PENG Wei, LI Pan, PU Liang(1938)
Modeling and simulation of water system under framework of electromechanical integrated management .....	XIAO Jia, YANG Bo, WANG Yun-lu(1943)
Plant apical dominance simulation based on pressure-flow model .....	WANG Guang, QIU Yun-fei(1948)
Research on prediction of the short-term traffic flow based on cloud model .....	LIU Qin, XU Jian-min(1953)

## Intelligent Technology

Progressive measure based fuzzy cognitive map and its application ... MA Nan, YANG Bing-ru, QIU Zheng-qiang, et al(1958)	
Futures forecasting with genetic/simulated annealing algorithm and cubic exponential smoothing .....	
..... SONG Fang, ZHANG Ya-ping, ZHANG Zong-yu, et al(1963)	
Orthogonal local sensitive discriminant analysis algorithm based on adaptive neighborhood choosing .....	
..... GAO Wei-jun, BAI Wan-rong, GONG Wei-jun, et al(1968)	
Improved mutative scale chaos particle swarm optimization and its application .....	
..... WANG Jian-chen, SHAN Gan-lin, LIU Dong-ping, et al(1973)	
Distributed expert system of oilfield produced water process program .....	
..... CHEN Yi-hong, ZHOU Yong-hong, LI Gao-ping(1978)	
Support vector machine large-scale fast algorithm .....	WANG Yue, XIA Shu-yin, MA Sheng(1983)
Dynamic multi-point gesture recognition based on machine vision .....	LI Wen-sheng, XIE Mei, DENG Chun-jian(1988)
Classification methodology combined with texture feature for hyperspectral remote sensing image .....	WU Hao(1993)
Gender classification and age estimation based on facial image .....	ZHANG Tian-gang, REN Pei-hua, ZHANG Jing-an(1997)
Face recognition based on nonnegative sparse representation .....	SHI Jia-rong, YANG Wei, WEI Zong-tian(2002)
People's balance distribution in plane's periodic maintenance based on improved genetic algorithms .....	
..... MA Deng-wu, ZHANG Yong-liang, DONG Da-wei, et al(2007)	
Network traffic forecasting model based on neural network and POS with simulated annealing .....	
..... ZHANG Kun, GAN Xiao-ting(2013)	
Research on uncertain problems in fault diagnosis for substation .....	YANG Hai-sheng, LI Jiang-lin, GUO Jin-ye, et al(2017)

## Developments and Applications

Implementation of directed geometrical programming in CNC system .....	HAN Jian-qi, MA Yue, WU Wen-jiang, et al(2022)
Based on weighted least-squares support vector machine .....	ZHANG Peng, NI Shi-hong, XIE Chuan(2027)
Flaw recognition based on principal component analysis .....	GUO Dong-dong, XIA Xiao-jun(2031)
Research on context service framework for supporting context-aware computing .....	
..... ZHANG Qing-chuan, ZENG Guang-ping(2036)	
Application research of non-linear time series prediction algorithm in ground-source heat pump system .....	
..... TAN Li, WANG Lu, YU Chong-chong(2042)	
Research and implementation of downhole three-dimensional geological visualization modeling based on comprehensive logging .....	
..... YANG Li, CAO Xie-dong, LIU Yi-guang(2048)	
Virtual machine placement research based on improved grouping genetic algorithm .....	
..... LI Jin-chao, CHEN Jing-yi, WU Jie, et al(2053)	
Multidimensional query and analysis system of college finance .....	PENG Cheng, TONG Qiu-li(2057)
Route planning in handheld blind navigation system based on RFID .....	WANG Zhen, FANG Man-lin, LIN Xin-nong(2063)
Parameters' selection and impact of sub-band adaptive filter .....	WANG Chong, ZHENG Jian-sheng, GUO Wen-fei(2068)
Modeling and simulation of power battery for electric vehicle based on Modelica .....	
..... HUANG Xi-chang, ZONG Zhi-jian, CHEN Cheng-he, et al(2073)	
Virtual scene adaptive network released research based on pervasive computing .....	YANG Wu-dao, GU Qian-yi(2078)
Design and implementation of network reliability for military training system .....	
..... BAI Fan, CHANG Tian-qing, HAN Yang, et al(2084)	
Design and realization of tunnel disease management system based on GIS .....	HU Jian-hua, XU Yu-gui(2090)
Design and realization of supervision management information system for highway and waterway engineering .....	
..... ZHAO Xian-lin(2095)	