# 2007 2nd International Conference on Pervasive Computing and Applications

Birmingham, United Kingdom 26-27 July 2007

Volume 1 of 2



**IEEE Catalog Number: ISBN 10:** 

**ISBN 13:** 

CFP0759A-PRT 1-4244-0970-5 978-1-4244-0970-9

A Mobile-Agent-Based Application Model Design of Pervasive Mobile Devices	1
A Method of Agent Task Representation and Processing in Pervasive Computing Environment Liu Bo, Luo Junzhou, Cao Jiuxin	7
Towards Adaptive and Secure Multi-Agent Systems	13
A Characteristic Inter Database Retrieval System and Its Collaborative Mechanism	19
An Analytical CRM Design Frame Based on Distributed Data warehouse	25
Artificial Immune Network based Robot Behavior Coordination Under Wireless Network	29
Modeling Virtual City Based on Fractal	35
Multipoint Organizational Evolutionary Algorithm for Globally Minimizing Functions of Many Variables Yanping Lu, Shaozi Li, Changle Zhou	41
Research of AHP-SOM Model and Its Application	47
The Application of Improved Association Rules Data Mining Algorithm Apriori in CRM Peng Gong, Chi Yang, Hui Li, Weili Kou	52
A Study on Scalability of Middleware Systems	57
A Theoretical Agent-based Framework for Virtual Plant: from Perspective of Pervasive Computing	63
Evaluating BluScreen: Usability for Intelligent Pervasive Displays	68
Research on a Novel Information Interactive Model Base on MAS in ERP Environment	74
Monitoring of Grid Performance Based-on Agent Feng Liu, Rui Liu	79
Research on a Novel Multi Agent System Cooperation Operation Model	85
Research on Multi-Dimension Driven by Affective Perception in Collaborative Virtual Study Based on MAS	90
Yue Jin, Wenjun Hou, Chunjin Zhao, Fusheng Yao	
Simulating Plant Growth with Multi-Agent System	94
A Sketch-based Interface for Interactive Process Planning Design in Pervasive Computing Environment	.100
Analysis of the Effect of Training and Test Data on the Performance of Speech Recognition Systems	. 106
Context-Aware Design Agents in Pervasive Computing Environment	. 111

Electric Field Force-Based Detection of Rotational Symmetry in 3D Model	117
eyeJOT - A Ubiquitous Context-aware Campus Information System	122
Research on the Architecture of Ontology-based Context-aware Application in Pervasive Environment	128
Implementation of an ASP-oriented Distributed Collaborative Design System and its Applications in Pervasive Computing Environment	133
A Model of Network Forewarning System for Pervasive Computing	139
A Context-Based and Associated Access Control model in Pervasive Computing Environment	143
A Group Supported Workflow Model and its Applications in Pervasive Computing Environments	147
A Nonuniform Quantization of Hough Space for the Detection of Straight Line Segments	153
A Service Reasoning Model based on Uncertain Input Parameters	158
An Effective Distributed Collaborative Design Frame Based on UG Software	162
Domain-Based Access Control for Collaborative E- Commerce System	166
Making AutoCAD Collaborative: Implementation and Application of CoAutoCAD	172
Multidisciplinary Collaboration Simulation Optimization Platform for complex product design	178
3D Model Retrieval Based on U System Rotation Invariant Moments	183
An Effective Global Motion Estimation Method Based on a Compact Motion Model	189
AP-Based Adaboost in High Level Feature Extraction at TRECVID	194
Clustering Guided SVM for Semantic Image Retrieval	199
Human Attention Model for Action Movie Analysis	204
A Concept to Support Seamless Spectator Participation in Sports Events Based on Wearable Motion Sensors	209
the Intelligent STB—Implementation of Next Generation of Residential Gateway in Digital Home	215
A development method study of rapid generating complicated 3D parts	221

A SMART CARD BASED PREPAID ELECTRICITY SYSTEM	225
Auctions Negotiation for Mobile Rideshare Service	231
Building Home Monitoring Applications: From Design to Implementation into The Amigo Middleware	237
Building Personal Process-Oriented Services in Pervasive Computing	243
Echo Wall: A Sound-driven Media-art	248
Methods of Information Extraction and Analysis in Data Stream  Fagui LIU, Qiang TAN, Gongsheng ZHANG	252
Proposed study - a trial and indicative health status determination of participants working in institutions of higher learning in Birmingham and the West Midlands using the NeXus-4 physiological monitoring system	257
Ross G. Cooper, Usama ALAlami, Craig Jackson, Kate Stevens, Jaspreet Jutla, Salim Khan, Robert Ashford	
A Novel Cross-Layer Routing Algorithm in Wireless Mesh Network	262
A Reliable Probabilistic Grid Routing Algorithm in MANETs	267
Mobile Geographic Information Services Challenges in Pervasive Computing Environment Lei Ye, Yushan Duan, Aishe Shiu, Yuanfei Wang	273
Mobile Particle Swarm Optimization on Manifolds	279
Qi energy flow visualisation using wearable computing	285
SJCBMQ: A Novel Spatial Join-Based Algorithm for Continuous Border Monitoring Query Processing In  Data Streams  Yunyi Zhang, Chongzheng Huang, Deyun Zhang	291
Ant-Based Stable Disjoint Path Routing Algorithm in MANETs	297
A New Common Management Information Model	303
Homecare Hub – A Pervasive Computing Approach to Integrating Data for Remote Delivery of Personal and Social Care	308
Intelligent Retail Business: Location Based Services for Mobile Customers	314
Research and Application of E-commerce Platform for Enterprise Based on NLB	320
Research of cooperative long-distance education model based on pervasive computing	325
Research of the Model of Distributed E-Commerce Based on Grid Services	331

Tone Analysis for a Pervasive Computing Mandarin e-Learning System	337
A RFID & Handheld Device-Based Museum Guide System	343
A Trust-Aware Mobile Multiple Micro-Payment Mechanism Based on Smart Agent in Distributed Environment	349
An Approach to License Plate Locating in Intelligent Transportation System	354
Data Management and Modeling for Reconstructing 3D Finite Elements of Lungs	358
Developing a WAP Application for Mobile Retail Customers	363
EbXML Based Service Composition Platform for Pervasive E-Commerce	368
Elimination of Gibbs phenomenon in Computational Information based on the V-system	372
Establishing a Systematic Six-Stage Process for Detecting Contract Cheating	377
A Comparison of Two Hidden Markov Approaches to Task Identification in the Home Environment	383
The P-IRBAC 2000 Model: Permission Management for Interoperable Role-Based Access Control	389
Trust Representation and Reasoning for Access Control in Large Scale Distributed Systems	395
Watermarking Polygonal Lines Using V-Descriptors	401
A Novel Digital Watermarking Method for Commercial Bills Based on V Systems	406
A vector space group signature scheme based on ECC	411
Accelerated Flexible Processor Architecture for Crypto Information	416
Anonymous routing protocol in pervasive computing environment	421
Enabling the Analysis of Successful and Safe Transition between Service Cores for Service-Based System Survivability	425
Granular Computing based Intrusion Detection Model upon Network Monitor Data Streams	431
Research on Trust Management Model in Pervasive Computing	436
Securing Vehicular Ad Hoc Networks	441

A Detection and Tracing Algorithm of Moving Vehicles	447
An Approach to Implement a Flexible Pervasive System	451
An Approach to the Central Control Part of Digital Satellite Receiver Based on Pervasive Computing	456
Augmenting Smart Spaces with Intelligent Robots	460
Constructing a Dataspace Based on Metadata and Ontology for Complicated Scientific Data Management	466
Drawing on Paper Maps: Reliable On-line Symbol Recognition of Handwritten Symbols Using a Digital Pen and a Mobile Phone	470
Implementation of a Systemto Support Mobile Computing Sessions	476
Implementing An Express SIP NAT Traversal Server	482
Information Service Prototype System for Run-time Prediction of Grid Applications	485
Maximizing the Business Value of Networked Embedded Systems through Process-Level Integration into Enterprise Software	491
Parallel Genetic Algorithm for Finding Roots of Complex Functional Equation	497
A Generic Task Partitioning Framework for Internet Based Control of	
Multiple Co-operatively Working Robotic Devices	501
QoS Aware Services Discovery in a P2P Grid Environment	507
Research on and Implementation of a real-time CORBA Middleware Prototype for Pervasive Computing  Jian Peng, Liyun Su, Jiaxin Wu	513
RESEARCH ON ZERO-BLOCK DETECTION THRESHOLD IN H.264/AVC	518
Reusable Test Models and Application Based on Z Specification	523
Router UDP Switch support NAT Traversal	529
State Based Analysis of Pervasive Systems  Martyn Ratcliffe, Bin Hu	532
The Data-Driven Multithreading Programming Model Based on DDF	538
Towards Aggregate Knowledge Services System: A Distributed Cognition Framework	543
A Smart Multimedia Object (SMO) Modelling for Designing Interactive Digital Television Content	549

A Heterogeneous Dynamic Critical Path and Duplication based Task Scheduling Algorithm for Pervasive Computing	555
Dong Fang, Luo Junzhou	
A Network Measure Method by Routers in Single Domain	561
A Reliability Evaluation Framework on Service Oriented Architecture	564
A Review of Technical Solutions to Computational Resource Limitation in Ubiquitous Computing  Environment	570
M. Fahim Ferdous Khan, Ken Sakamura	
A User-centric Applications Sharing Model on Pervasive Computing	
An Adaptive Communication Model for Large Wireless Sensor Networks	582
An Adaptive Infrastructure Concept Model based on CORBA in Pervasive Computing	588
Grid-enabled Chinese Natural Language-Based Information Retrieval System In Digital Museum	594
BPELGEN: An Algorithm of Automatically Converting from Web Services Composition Plan to BPEL4WS	600
A System Framework for Web Service Semantic and Automatic Orchestration	606
Specific Academic Area based Automatic Query Expansion	612
Treenet: A Web Services Composition Model Based on Spanning tree	618
Knowledge Management in Ubiquitous Healthcare	624
Video Segmentation Based on Shot Boundary Coefficient	630
A Cross-Layer Adaptive Approach for Cooperative Radio Resource	
Management in Multi-Radio Access Environment	636
p3m: A Kernel Space Tool forMultimedia Stream Monitoring	641
Policy-based QoS Control Using Call Admission Control and SVM	647
Research on Mobile English Assistant Learning System based on Wireless Communication	651
Robust Indoor Positioning Based on Received Signal Strength	655
SQEAK: A Mobile Multi Platform Phone and Networks Gesture Sensor	661

Test bed for Remote Environmental Monitoring in Northwestern China
Traffic Scheduling based on Queue Model with Priority for Audio/Video Sensor Networks671 Yan Sun, Huadong Ma, Liang Liu
A Distributed Topology Control Algorithm for k-Connected Dominating Set in Wireless Sensor Networks677 Yun Wang, Kai Li, Qiang Xu
A Factory Remote Monitoring System Based on Pervasive Environment
A New Architecture of Merged On-Demand Application Network
Energy-Efficient Data Gathering in Query Processing of Sensor Networks691  Jun-Zhao Sun
HOLSR: A Novel Routing Scheme of Ad Hoc Wireless Networks for Pervasive Computing697 Liang Ming, Gang Zhao, Guihai Xie, Xiaohui Kuang
Link-level Simulation and Performance Estimation of WiMAX IEEE802.16e703  Wen-an Zhou, Bing Xie, Jun-de Song
Multi Nodes Cooperative Sensing Based on Grade Field in Wireless Sensor Networks
Multiple Sink Nodes' Deployment Based on PMP in WSNs711  Dingding Luo, Hai Zhao, Yuanguo Bi, Kai Lin, Xiyuan Zhang, Zhenyu Yin, Peigang Sun