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Ubiquitous Intelligence and Computing

4th International Conference, UIC 2007
Hong Kong, China, July 11-13, 2007
Proceedings

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Library of Congress Control Number: 2007930224

CR Subject Classification (1998): H.4, C.2, D.4.6, H.5, I.2, K.4

LNCS Sublibrary: SL 3 – Information Systems and Application, incl. Internet/Web and HCI

ISSN 0302-9743

ISBN-10 3-540-73548-8 Springer Berlin Heidelberg New York

ISBN-13 978-3-540-73548-9 Springer Berlin Heidelberg New York

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springer.com

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Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper SPIN: 12088690 06/3180 5 4 3 2 1 0

Preface

This volume contains the proceedings of UIC 2007, the 4th International Conference on Ubiquitous Intelligence and Computing: Building Smart Worlds in Real and Cyber Spaces. The conference was held in Hong Kong, July 11-13, 2007. The event was the fourth meeting of this conference series. USW 2005 (1st International Workshop on Ubiquitous Smart World), held in March 2005 in Taiwan, was the first event in the series. This event was followed by UISW 2005 (2nd International Symposium on Ubiquitous Intelligence and Smart Worlds) held in December 2005 in Japan, and by UIC 2006 (3rd International Conference on Ubiquitous Intelligence and Computing: Building Smart Worlds in Real and Cyber Spaces) held in September 2006 in Wuhan and Three Gorges, China.

Ubiquitous computers, networks and information are paving the road towards a smart world in which computational intelligence is distributed throughout the physical environment to provide trustworthy and relevant services to people. This ubiquitous intelligence will change the computing landscape because it will enable new breeds of applications and systems to be developed; the realm of computing possibilities will be significantly extended. By embedding digital intelligence in everyday objects, our workplaces, our homes and even ourselves, many tasks and processes could be simplified, made more efficient, safer and more enjoyable. Ubiquitous computing, or pervasive computing, composes these many “smart things/u-things” to create the environments that underpin the smart world. A smart thing can be endowed with different levels of intelligence and may be context-aware, active, interactive, reactive, proactive, assistive, adaptive, automated, sentient, perceptual, cognitive, autonomic and/or thinking. The field of intelligent/smart things is an emerging research field that covers many disciplines. A series of grand challenges exist to move from the world of ubiquitous computing with universal services of any means/place/time to the smart world of trustworthy services with the right means/place/time.

The UIC 2007 conference offered a forum for researchers to exchange ideas and experiences in developing intelligent/smart objects, environments, and systems. This year, the technical program of UIC drew from a very large number of submissions: 463 papers submitted from 26 countries representing four regions — Asia Pacific, Europe, North and South America. Each accepted paper was reviewed (as a full paper) by at least three reviewers, coordinated by the international Program Committee. The Program Committee accepted 119 papers out of 463 submissions, resulting in an acceptance rate of 25.7%.

The accepted papers cover a wide range of research topics that were grouped into nine conference tracks: smart objects and embedded systems, smart spaces/environments/services, ad-hoc and intelligent networks, sensor networks, pervasive communication and mobile systems, context-aware applications and systems, service-oriented middleware and applications, models and services for

intelligent computing, and security/safety/privacy. In addition to the refereed papers, the proceedings include Toshiyasu L. Kunii's keynote address on "Autonomic and Trusted Computing for Ubiquitous Intelligence," and an invited paper from Norio Shiratori on "Symbiotic Computing: Concept, Architecture and Its Applications." We believe that the conference not only presented novel and interesting ideas but also will stimulate future research in the area of ubiquitous intelligence and computing.

Organization of conferences with a large number of submissions requires a lot of hard work and dedication from many people. We would like to take this opportunity to thank the numerous people whose work made this conference possible and ensured its high quality. We wish to thank the authors of submitted papers, as they contributed to the conference technical program. We wish to express our deepest gratitude to the Program Vice Chairs, Antonio Maña Gomez, Marius Portmann, Zhijun Wang, and Daqing Zhang, for their hard work and commitment to quality when helping with paper selection. We would also like to thank all Program Committee members and external reviewers for their excellent job in the paper review process, the Advisory Committee for their continuous advice, and Stephen S. Yau for organizing a panel on "Future Trends of Autonomic and Ubiquitous Computing." We are also in debt to Bin Xiao for the conference local arrangements, to the Publicity Chairs for advertising the conference, to Lin Chen and other people from the Local Organizing Committee for managing registration and other conference organization-related tasks, and to Hong Kong Polytechnic University for hosting the conference. We are also grateful to Tony Li Xu and Liu Yang for their hard work on managing both the conference Web site and the conference management system, and for their help with editing the UIC proceedings.

July 2007

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Table of Contents

Keynote Speech

Autonomic and Trusted Computing for Ubiquitous Intelligence	1
<i>Tosiyasu L. Kunii</i>	

Smart Objects and Embedded Systems

Sensitivity Improvement of the Receiver Module in the Passive Tag Based RFID Reader	13
<i>Seunghak Rhee, Jongan Park, and Jonghun Chun</i>	
Q^+ -Algorithm: An Enhanced RFID Tag Collision Arbitration Algorithm	23
<i>Donghwan Lee, Kyungkyu Kim, and Wonjun Lee</i>	
Surface-Embedded Passive RF Exteroception: Kepler, Greed, and Buffon's Needle	33
<i>Vladimir Kulyukin, Aliasgar Kutiyawala, and Minghui Jiang</i>	
Development of a Single 3-Axis Accelerometer Sensor Based Wearable Gesture Recognition Band	43
<i>Il-Yeon Cho, John Sunwoo, Yong-Ki Son, Myoung-Hwan Oh, and Cheol-Hoon Lee</i>	
An Enhanced Ubiquitous Identification System Using Fast Anti-collision Algorithm	53
<i>Choong-Hee Lee, Seong-Hwan Oh, and Jae-Hyun Kim</i>	
Certification Tools of Ubiquitous Mobile Platform	63
<i>Sang-Yun Lee and Byung-Uk Choi</i>	
Dynamic Binding Framework for Open Device Services	73
<i>Gwyduk Yeom</i>	
Design and Evaluation of Multitasking-Based Software Communications Architecture for Real-Time Sensor Networking Platforms	83
<i>Kyunghoon Jung, Byounghoon Kim, Changsoo Kim, and Sungwoo Tak</i>	
Automatic Partitioning Technique for Flash Memory on Linux-Based Embedded Systems	93
<i>Yunjae Lim, Young Jin Nam, Geel-Sang Yoo, and Dae-Wha Seo</i>	

Distributed Processing in Wireless Sensor Networks for Structural Health Monitoring	103
<i>Miaomiao Wang, Jiannong Cao, Bo Chen, Youlin Xu, and Jing Li</i>	

An Improved Fusion and Fission Architecture Between Multi-modalities Based on Wearable Computing	113
<i>Jung-Hyun Kim and Kwang-Seok Hong</i>	

Smart Spaces/Environments/Services

A Smart Space Architecture for Location-Based Spatial Audio Scenario Orchestration.....	123
<i>Lila Kim, Doo-Hyun Kim, Hwasun Kwon, Dongwoon Jeon, and Keunsoo Lee</i>	

CHASE: Context-Aware Heterogenous Adaptive Smart Environments Using Optimal Tracking for Resident's Comfort	133
<i>Navrati Saxena, Abhishek Roy, and Jitae Shin</i>	

A Methodology of Identifying Ubiquitous Smart Services for U-City Development	143
<i>Ohbyung Kwon and Jihoon Kim</i>	

Simulated Intersection Environment and Learning of Collision and Traffic Data in the U&I Aware Framework	153
<i>Flora Dilys Salim, Seng Wai Loke, Andry Rakotonirainy, and Shonali Krishnaswamy</i>	

Dynamic Scheduling Protocol for Highly-Reliable, Real-Time Information Aggregation for Telematics Intersection Safety System(TISS)	163
<i>Wang Won Han, Hongjae Park, and Young Man Kim</i>	

Spontaneous Interaction Framework for Thin-Client Access to Services.....	173
<i>Brian Y. Lim, Daqing Zhang, Manli Zhu, Song Zheng, and Mounir Mokhtari</i>	

Towards a Model of Interaction for Mutual Aware Devices and Everyday Artifacts	184
<i>Sea Ling, Seng Loke, and Maria Indrawan</i>	

A Peer-to-Peer Semantic-Based Service Discovery Method for Pervasive Computing Environment	195
<i>Baopeng Zhang, Yuanchun Shi, and Xin Xiao</i>	

Ubiquitous Healthcare Architecture Using SmartBidet and HomeServer with Embedded Urinalysis Agent	205
<i>SungHo Ahn, Kyunghee Lee, Doo-Hyun Kim, and Vinod Cherian Joseph</i>	
Proactive Agriculture: An Integrated Framework for Developing Distributed Hybrid Systems	214
<i>Christos Goumopoulos, Achilles Kameas, and Brendan O'Flynn</i>	
Integrating RFID Services and Ubiquitous Smart Systems for Enabling Organizations to Automatically Monitor, Decide, and Take Actions	225
<i>Thierry Bodhuin, Rosa Preziosi, and Maria Tortorella</i>	
Towards an RFID-Oriented Service Discovery System.....	235
<i>Beihong Jin, Lanlan Cong, Liang Zhang, Ying Zhang, and Yuanfeng Wen</i>	
Activity Recognition Using an Egocentric Perspective of Everyday Objects	246
<i>Dipak Surie, Thomas Pederson, Fabien Lagriffoul, Lars-Erik Janlert, and Daniel Sjölie</i>	
A Novel Price Prediction Scheme of Grid Resources Based on Time Series Analysis	258
<i>Yu Hua and Dan Feng</i>	

Ad-Hoc and Intelligent Networks

Adaptive Multicast Trees on Static Ad Hoc Networks: Tradeoffs Between Delay and Energy Consumption	267
<i>Sangman Moh</i>	
Reliable Multicast MAC Protocol for Wireless Ad Hoc Networks	276
<i>Sung Won Kim and Byung-Seo Kim</i>	
Mobility Tracking for Mobile Ad Hoc Networks	285
<i>Hui Xu, Min Meng, Jinsung Cho, Brian J. d'Auriol, and Sungyung Lee</i>	
Handover Cost Optimization in Traffic Management for Multi-homed Mobile Networks	295
<i>Shupeng Wang, Jianping Wang, Mei Yang, Xiaochun Yun, and Yingtao Jiang</i>	
2-Level Hierarchical Cluster-Based Address Auto-configuration Technique in Mobile Ad-Hoc Networks.....	309
<i>Uhjin Joung and Dongkyun Kim</i>	

Replication in Intermittently Connected Mobile Ad Hoc Networks	321
<i>Ke Shi</i>	
Rate-Adaption Channel Assignment and Routing Algorithm for Multi-channel WirelessMAN Mesh Networks	331
<i>Eric Hsiao-Kuang Wu, Wei-Li Chang, and Hsuan-Hao Chan</i>	
Neighbor-Aware Optimizing Routing for Wireless Ad Hoc Networks	340
<i>Xianlong Jiao, Xiaodong Wang, and Xingming Zhou</i>	
Gateway Zone Multi-path Routing in Wireless Mesh Networks	350
<i>Eric Hsiao-Kuang Wu, Wei-Li Chang, Chun-Wei Chen, and Kevin Chihcheng Hsu</i>	
On Estimating Path Capacity in Wireless Mesh Networks	360
<i>Qinqi Wang, Ming Xu, and Xingui He</i>	
A Meta Service Description Assisted Service Discovery Protocol for MANETs	370
<i>Zhenguo Gao, Ling Wang, Mei Yang, and Jianping Wang</i>	
On Characterizing Economic-Based Incentive-Compatible Mechanisms to Solving Hidden Information and Hidden Action in Ad Hoc Network	382
<i>Yufeng Wang, Yoshiaki Hori, and Kouichi Sakurai</i>	
A Study on USN Technologies for Ships	392
<i>Seong-Rak Cho, Dong-Kon Lee, Bu-Geun Paik, Jae-Hoon Yoo, Young-Ha Park, and Beom-Jin Park</i>	
A New Modeling and Delay Analysis of IEEE 802.11 Distributed Coordination Function	402
<i>Fan Zhang, Lai Tu, Jian Zhang, and Benxiong Huang</i>	

Sensor Networks

Proactive Data Delivery Scheme with Optimal Path for Dynamic Sensor Networks	412
<i>Kwang-il Hwang, Tea-young Kim, and Doo-seop Eom</i>	
Low-Latency Routing for Energy-Harvesting Sensor Networks	422
<i>Hyuntaek Kwon, Donggeon Noh, Junu Kim, Joonho Lee, Dongeun Lee, and Heonshik Shin</i>	
A Localized Link Quality-Aware Optimization Mechanism for Routing Protocols in Wireless Sensor Networks	434
<i>Zhen Fu, Yuan Yang, Wen-Cheng Yang, Jung-Hwan Kim, and Myong-Soon Park</i>	

Minimum Energy and Latency MAC Protocol for Wireless Sensor Networks	444
<i>Muhammad Ali Malik, Byoung-Hoon Lee, Young-Bae Ko, and Jai-Hoon Kim</i>	
An Efficient Bi-Directional Flooding in Wireless Sensor Networks	454
<i>Woosuk Cha, Eun-Mi Kim, Bae-Ho Lee, and Gihwan Cho</i>	
Maximizing Network Lifetime Under Reliability Constraints Using a Cross-Layer Design in Dense Wireless Sensor Networks	464
<i>Shan Guo Quan and Young Yong Kim</i>	
Adaptive Data Aggregation for Clustered Wireless Sensor Networks	475
<i>Huifang Chen, Hiroshi Mineno, Yoshitsugu Obashi, Tomohiro Kokogawa, and Tadanori Mizuno</i>	
Directed Diffusion Based on Link-Stabilizing Clustering for Wireless Sensor Networks	485
<i>Zude Zhou, Wenjun Xu, Fangmin Li, and Xuehong Wu</i>	
Voronoi Tessellation Based Rapid Coverage Decision Algorithm for Wireless Sensor Networks	495
<i>Lei Wang, Haowei Shen, Zhe Chen, and Yaping Lin</i>	
A Clustering-Based Approximation Scheme for In-Network Aggregation over Sensor Networks	503
<i>Lei Xie, Lijun Chen, Daoxu Chen, and Li Xie</i>	
Real-Time Data Delivery in Wireless Sensor Networks: A Data-Aggregated, Cluster-Based Adaptive Approach	514
<i>Shao-liang Peng, Shan-shan Li, Yu-xing Peng, Wen-sheng Tang, and Nong Xiao</i>	
A Location-Unaware Connected Coverage Protocol in Wireless Sensor Networks	524
<i>Yingchi Mao, Lijun Chen, and Daoxu Chen</i>	
Fuzzy-Based Reliable Data Delivery for Countering Selective Forwarding in Sensor Networks	535
<i>Hae Young Lee and Tae Ho Cho</i>	
An Efficient Grid-Based Data Gathering Scheme in Wireless Sensor Networks	545
<i>Shiow-Fen Hwang, Kun-Hsien Lu, Hsiao-Nung Chang, and Chyi-Ren Dow</i>	
Grid-Based Sense Schedule for Event Detection in Wireless Sensor Networks	557
<i>Xianghua Hu and Xuejun Yang</i>	

An Integrated and Flexible Scheduler for Sensor Grids	567
<i>Hock Beng Lim and Danny Lee</i>	
A Lightweight Scheme for Node Scheduling in Wireless Sensor Networks	579
<i>Ming Liu, Yuan Zheng, Jiannong Cao, Wei Lou, Guihai Chen, and Haigang Gong</i>	
A Multi-tier, Multimodal Wireless Sensor Network for Environmental Monitoring	589
<i>Carlos Eduardo R. Lopes, Fernando D. Linhares, Michele M. Santos, and Linnyer B. Ruiz</i>	
Wireless Sensor Networks, Making a Difference Tomorrow	599
<i>Mohamed Khalil Watfa</i>	
Enabling Distributed Messaging with Wireless Sensor Nodes Using TinySIP	610
<i>Sudha Krishnamurthy and Lajos Lange</i>	
Localization and Synchronization for 3D Underwater Acoustic Sensor Networks	622
<i>Chen Tian, Wenyu Liu, Jiang Jin, Yi Wang, and Yijun Mo</i>	
An Energy-Efficient Framework for Wireless Sensor Networks with Multiple Gateways	632
<i>Jinglun Shi, Taekyoung Kwon, Yanghee Choi, Junkai Huang, and Weiping Liu</i>	
Self-configurable Structure for Tracking Moving Objects in Wireless Sensor Networks	641
<i>Sang-Sik Kim and Ae-Soon Park</i>	
Secure Dynamic Network Reprogramming Using Supplementary Hash in Wireless Sensor Networks	653
<i>Kwangkyu Park, JongHyup Lee, Taekyoung Kwon, and Jooseok Song</i>	
Self-deployment of Mobile Nodes in Hybrid Sensor Networks by AHP . . .	663
<i>Xiaoling Wu, Jinsung Cho, Brian J. d'Auriol, Sungyoung Lee, and Hee Yong Youn</i>	
Data Synchronization in Distributed and Constrained Mobile Sensor Networks	673
<i>Shuai Hao and Hock Beng Lim</i>	
Reference Interpolation Protocol for Time Synchronization in Wireless Sensor Networks	684
<i>Chongmyung Park, Joahyoung Lee, and Inbum Jung</i>	

Mesh-Based Sensor Relocation for Coverage Maintenance in Mobile Sensor Networks	696
<i>Xu Li, Nicola Santoro, and Ivan Stojmenovic</i>	
Neighbor Position-Based Localization Algorithm for Wireless Sensor . . .	709
<i>Yong-Qian Chen, Young-Kyoung Kim, and Sang-Jo Yoo</i>	
Location Estimation with Mobile Nodes in Wireless Sensor Networks . .	720
<i>Ying-Hong Wang, Chien-Min Lee, Wei-Ting Chen, and Chieh-Hsin Kuo</i>	

Pervasive Communication and Mobile Systems

A Novel Architecture for Hierarchically Nested Network Mobility	730
<i>Hye-Young Kim and Sung Hyun Cho</i>	
Route Optimization Using Scalable Cache Management for Intra-NEMO Communication	739
<i>Hyemee Park, Moonseong Kim, and Hyunseung Choo</i>	
Content Aware Selecting Method for Reducing the Response Time of an Adaptive Mobile Web Service	748
<i>Euisun Kang, Daehyuck Park, and Younghwan Lim</i>	
A Study of Speech Emotion Recognition and Its Application to Mobile Services	758
<i>Won-Joong Yoon, Youn-Ho Cho, and Kyu-Sik Park</i>	
Mobility Driven Vertical Handover for Mobile IPTV Traffic in Hybrid IEEE 802.11e/16e Networks	767
<i>Eunjun Choi, Wonjun Lee, and Joongheon Kim</i>	
An Efficient Scheme for Lifetime Setting in the MIPv6	777
<i>Hye-Young Kim and Jitae Shin</i>	
Bridging OSGi Islands Through SLP Protocol	787
<i>Choonhwa Lee, Jongkyu Yi, and Wonjun Lee</i>	
Selective Grid Access for Energy-Aware Mobile Computing	798
<i>Eunjeong Park, Heonshik Shin, and Seung Jo Kim</i>	
Cognitive Computing Resource Management for a Ubiquitous Wireless Access	808
<i>Vuk Marojevic, Nemanja Vucevic, Xavier Revés, and Antoni Gelonch</i>	
Research of UWB Signal Propagation Attenuation Model in Coal Mine	819
<i>Fangmin Li, Ping Han, Xuehong Wu, and Wenjun Xu</i>	

Context-Aware Applications and Systems

Context Script Language and Processor for Context-Awareness in Ubiquitous Intelligent Environment	829
<i>Jae-Woo Chang and Yong-Ki Kim</i>	
A Semantics-Based Framework for Context-Aware Services: Lessons Learned and Challenges.....	839
<i>Theodore Patkos, Antonis Bikakis, Grigoris Antoniou, Maria Papadopoulou, and Dimitris Plexousakis</i>	
Devising a Context Selection-Based Reasoning Engine for Context-Aware Ubiquitous Computing Middleware	849
<i>Donghai Guan, Weiwei Yuan, Seong Jin Cho, Andrey Gavrilov, Young-Koo Lee, and Sungyoung Lee</i>	
The u-Class Based on Context-Awareness	858
<i>Jae-Hyun Lim, Chi-Su Kim, and Yong-Woo Lee</i>	
Audio-Visual Fused Online Context Analysis Toward Smart Meeting Room	868
<i>Peng Dai, Linmi Tao, and Guangyou Xu</i>	
An Offset Algorithm for Conflict Resolution in Context-Aware Computing	878
<i>Min Xi, Jizhong Zhao, Yong Qi, Hui He, and Liang Liu</i>	
UCIPE: Ubiquitous Context-Based Image Processing Engine for Medical Image Grid	888
<i>Aobing Sun, Hai Jin, Ran Zheng, Ruhan He, Qin Zhang, Wei Guo, and Song Wu</i>	
Ontology-Based Semantic Recommendation for Context-Aware E-Learning	898
<i>Zhiwen Yu, Yuichi Nakamura, Seïe Jang, Shoji Kajita, and Kenji Mase</i>	
Deployment of Context-Aware Component-Based Applications Based on Middleware.....	908
<i>Di Zheng, Jun Wang, Yan Jia, Wei-Hong Han, and Peng Zou</i>	
Identifying a Generic Model of Context for Context-Aware Multi-Services	919
<i>Tae Hwan Park and Ohbyung Kwon</i>	
Context Privacy and Obfuscation Supported by Dynamic Context Source Discovery and Processing in a Context Management System	929
<i>Ryan Wishart, Karen Henricksen, and Jadwiga Indulska</i>	

Service Oriented Middleware and Applications

Context-Aware Service Composition for Mobile Network Environments	941
<i>Choonhwa Lee, Sunghoon Ko, Seungjae Lee, Wonjun Lee, and Sumi Helal</i>	
A Context-Awareness Middleware Based on Service-Oriented Architecture.....	953
<i>Eunhoe Kim and Jaeyoung Choi</i>	
On the Design, Deployment and Use of Ubiquitous Systems	963
<i>R.S. Sohan and R.K. Harle</i>	
Performance Evaluation of 3-Hierarchical Resource Management Model with Grid Service Architecture.....	973
<i>Eun-Ha Song, Laurence T. Yang, Sung-Kook Han, and Young-Sik Jeong</i>	
A Study on Ubiquitous Intelligent Healthcare Systems in Home Service Aggregation Business Model.....	983
<i>Mun-Suck Jang, Kwang-Sik Shin, Eung-Huyk Lee, and Sang-Bang Choi</i>	
Implementation and Quantitative Evaluation of UbiMDR Framework ...	993
<i>Jeong-Dong Kim, Dongwon Jeong, Jinhjung Kim, Yixin Jing, and Doo-Kwon Baik</i>	
A Key-Index Based Distributed Mechanism for Component Registration	1003
<i>Ming Zhong, Yaoxue Zhang, Pengwei Tian, Yuezhi Zhou, and Cunhao Fang</i>	
BASCA: A Business Area-Oriented Service Component Adaptation Approach Suitable for Ubiquitous Environment	1014
<i>Pengwei Tian, Yaoxue Zhang, Ming Zhong, Yuezhi Zhou, and Cunhao Fang</i>	
A Pervasive Service Framework for Pervasive Computing Applications.....	1024
<i>Yong Zhang, Shensheng Zhang, and Songqiao Han</i>	

Intelligent Computing: Models and Services

Symbiotic Computing: Concept, Architecture and Its Applications (Invited Paper)	1034
<i>Takuo Suganuma, Kenji Sugawara, and Norio Shiratori</i>	

Multi-agent Software Control System with Hybrid Intelligence for Ubiquitous Intelligent Environments	1046
<i>Kevin I-Kai Wang, Waleed H. Abdulla, and Zoran Salcic</i>	
IUMELA: A Lightweight Multi-agent Systems Based Mobile Learning Assistant Using the ABITS Messaging Service	1056
<i>Elaine McGovern, Bernard J. Roche, Eleni Mangina, and Rem Collier</i>	
Towards Intuitive Spatiotemporal Communication Between Human and Ubiquitous Intelligence Based on Mental Image Directed Semantic Theory — A General Theory of Tempo-logical Connectives —	1066
<i>Masao Yokota</i>	
Graph-Based Semantic Description in Medical Knowledge Representation and 3D Coronary Vessels Recognition	1079
<i>Marek R. Ogiela, Ryszard Tadeusiewicz, and Mirosław Trzupiek</i>	
Persistent Storage System for Efficient Management of OWL Web Ontology	1089
<i>Dongwon Jeong, Myounghoi Choi, Yang-Seung Jeon, Youn-Hee Han, Laurence T. Yang, Young-Sik Jeong, and Sung-Kook Han</i>	
Prediction-Based Dynamic Thread Pool Management of Agent Platform for Ubiquitous Computing	1098
<i>Ji Hoon Kim, Seungwok Han, Hyun Ko, and Hee Yong Youn</i>	
A Ubiquitous Watch-Over System Based on Environmental Information and Social Knowledge	1108
<i>Takuo Suganuma, Kazuhiro Yamanaka, Yoshikazu Tokairin, Hideyuki Takahashi, Kenji Sugawara, and Norio Shiratori</i>	
Ubiquitous Intelligent Information Push-Delivery for Personalized Content Recommendation	1121
<i>Ranzhe Jing, Xun Qiu, Yiyi Tao, Caifen Guo, and Zhiyun Xin</i>	
Location-Based Recommendation System Using Bayesian User's Preference Model in Mobile Devices	1130
<i>Moon-Hee Park, Jin-Hyuk Hong, and Sung-Bae Cho</i>	
Fuzzy-Smith Control for QoS-Adaptive Notification Service	1140
<i>Yuying Wang and Xingshe Zhou</i>	

Security, Safety and Privacy

Petri Nets for the Verification of Ubiquitous Systems with Transient Secure Association	1148
<i>Fernando Rosa-Velardo</i>	

An Approach of Trusted Program Generation for User-Responsible Privacy	1159
<i>Ken'ichi Takahashi, Zhaoyu Liu, Kouichi Sakurai, and Makoto Amamiya</i>	
Self-updating: Strong Privacy Protection Protocol for RFID-Tagged Banknotes	1171
<i>Eun Young Choi, Su Mi Lee, and Dong Hoon Lee</i>	
Intelligent Detection Computer Viruses Based on Multiple Classifiers ...	1181
<i>Boyun Zhang, Jianping Yin, and Jingbo Hao</i>	
Designated Verifier Signature: Definition, Framework and New Constructions	1191
<i>Yong Li, Willy Susilo, Yi Mu, and Dingyi Pei</i>	
Towards Secure Agent Computing for Ubiquitous Computing and Ambient Intelligence	1201
<i>Antonio Maña, Antonio Muñoz, and Daniel Serrano</i>	
On the Analysis and Design of a Family Tree of Smart Card Based User Authentication Schemes	1213
<i>Raphael C.-W. Phan and Bok-Min Goi</i>	
Secret Key Revocation in Sensor Networks	1222
<i>YoungJae Maeng, Abdelaziz Mohaisen, and DaeHun Nyang</i>	
Hybrid Key Establishment Protocol Based on ECC for Wireless Sensor Network	1233
<i>Yoon-Su Jeong and Sang-Ho Lee</i>	
A Secure Pairwise Key Establishment Scheme in Wireless Ad Hoc Networks	1243
<i>TaeYeon Kim, HeeMan Park, and HyungHyo Lee</i>	
Author Index	1253