

# **2007 21st IEEE International Conference on Advanced Information Networking and Applications Workshops**

**Niagara Falls, Ontario, Canada  
21 – 23 May 2007**

**Volume 1  
Pages 1-511**



**IEEE Catalog Number: CFP0737C-PRT  
ISBN: 978-1-4244-3229-5**

# TABLE OF CONTENTS

## FINA 2007 SYMPOSIUM ON FRONTIERS IN NETWORKING WITH APPLICATIONS

### SESSION 1: INTELLIGENT NETWORKING

<b>Assessment of a Mobile Agent Based Routing Protocol for Mobile Ad-Hoc Networks</b> .....	1
<i>Lei Liang and Peter Graham</i>	
<b>Sentient Networks: A New Dimension in Network Capability</b> .....	6
<i>B.S. Manoj, R. Hegde, B.D. Rao, and R.R. Rao</i>	
<b>A Cell-based Approach for Evolutionary Component Repositories for Intelligent Service Robots</b> .....	12
<i>Hyung-Min Koo and In-Young Ko</i>	

### SESSION 2: SECRECY AND SECURITY

<b>Rank Theorems for Forward Secrecy in Group Key Management Protocols</b> .....	18
<i>Amjad Gawanmeh and Sofiène Tahar</i>	
<b>A Secure Group Agreement (SGA) Protocol for Peer-to-Peer Applications</b> .....	24
<i>Amy Beth Corman, Peter Schachte, and Vanessa Teague</i>	
<b>Service Provider Implementation of SIP Regarding Security</b> .....	30
<i>Vesselin Tzvetkov and Holger Zuleger</i>	
<b>A Service Architecture for Countering Distributed Denial of Service Attacks</b> .....	36
<i>Fareed Zaffar and Gershon Kedem</i>	

### SESSION 3: WIRELESS SENSOR NETWORKS

<b>Effective Caching in Wireless Sensor Network</b> .....	43
<i>Md Ashiqur Rahman and Sajid Hussain</i>	
<b>A Location Mechanism with Mobile Reference Nodes in Wireless Sensor Networks</b> .....	48
<i>Ying-Hong Wang, Chih-Peng Hsu, Chien-Min Lee, Kuo-Feng Huang, and Ting-Wei Chang</i>	
<b>Efficient Battery Management for Sensor Lifetime</b> .....	56
<i>Malka N. Halgamuge</i>	
<b>Coordination Protocols of Multiple Actuator Nodes in a Multi-Actuator/Multi-Sensor Model</b> .....	62
<i>Keiji Ozaki, Naohiro Hayashibara, and Makoto Takizawa</i>	

### SESSION 4: NETWORK MECHANISMS

<b>Multi-Agent Coordination Mechanism Based on Indirect Interaction</b> .....	68
<i>Satoshi Kurihara, Kensuke Fukuda, Shinya Sato, and Toshiharu Sugawara</i>	

<b>Self-Healing in Distributed Network Environments .....</b>	<b>73</b>
<i>Andreas Rott</i>	
<b>On the Miscollaboration of Congestion Control Mechanisms at the Transport and the Network Layers .....</b>	<b>79</b>
<i>Ageliki Tsioliariidou, Christos V. Samaras, and Vassilis Tsaoussidis</i>	
<b>Detecting Stepping-Stone with Chaff Perturbation .....</b>	<b>85</b>
<i>Han-Ching Wu and Shou-Hsuan Stephen Huang</i>	

## **SESSION 5: GRID, CLUSTERING AND P2P COMPUTING**

<b>Ontology Based Grid Information Interoperation .....</b>	<b>91</b>
<i>Sheng Di, Hai Jin, Shengli Li, Ling Chen, Li Qi, and Chengwei Wang</i>	
<b>A Coverage and Connectivity Method to Cluster Topology in Wireless Sensor Networks .....</b>	<b>97</b>
<i>Ying-Hong Wang, Chin-Yung Yu, and Ping-Fang Fu</i>	
<b>An Update Propagation Strategy for Delay Reduction and Node Failure Tolerance in Peer-to-Peer Networks .....</b>	<b>103</b>
<i>Toshiki Watanabe, Takahiro Hara, Yuki Kido, and Shojiro Nishio</i>	

## **SESSION 6: NETWORK SECURITY**

<b>Efficient Mediated Certificateless Public-Key Encryption Scheme without Pairings.....</b>	<b>109</b>
<i>Chen Yang, Furong Wang, and Xinmei Wang</i>	
<b>BER Analysis of a GMSK System Using Decision Feedback .....</b>	<b>113</b>
<i>Xiandeng He, Changxing Pei, Changhua Zhu, and Jiandong Li</i>	
<b>An Improved Approach to Secure Authentication and Signing .....</b>	<b>119</b>
<i>David Argles, Alex Pease, and Robert John Walters</i>	

## **SESSION 7: ROUTING AND MULTICASTING**

<b>The Pursuit Automaton Approach for Estimating All-Pairs Shortest Paths in Dynamically Changing Networks.....</b>	<b>124</b>
<i>Sudip Misra and B. John Oommen</i>	
<b>Cross Layer Routing for Reliable Connections in IP over WDM Networks.....</b>	<b>130</b>
<i>I-Hsuan Peng, Kuo-Wei Peng, and Yen-Wen Chen</i>	
<b>New Algorithms for the Minimum-cost Single-Source Unsplittable Flow Problem.....</b>	<b>136</b>
<i>Chao Peng, Yasuo Tan, and Laurence T. Yang</i>	
<b>A Scalable and Efficient Client Emulation Method for IP Multicast Performance Evaluation .....</b>	<b>142</b>
<i>Masafumi Watari, Atsushi Tagami, Teruyuki Hasegawa, and Shigehiro Ano</i>	

## **SESSION 8: NETWORK APPLICATIONS AND VIDEO STREAMING**

<b>Implementation and Field Experiments of a Remote Medical-Care Supporting System.....</b>	<b>148</b>
<i>Akio Koyama, Junpei Arai, Satoshi Sasaki, Takuya Numajiri, and Leonard Barolli</i>	

<b>Performance Evaluation of a New Teleconference System by High Definition Omni-Directional Video Transmission</b> .....	154
<i>Yosuke Sato, Yuya Maita, Koji Hashimoto, and Yoshitaka Shibata</i>	
<b>Adaptive Video Streaming Over P2P Multi-Hop Path</b> .....	160
<i>Jinfeng Zhang, Jianwei Niu, Rui He, and Jian Ma</i>	
<b>Common-Cause Failure Analysis for Dynamic Hierarchical Computer Systems</b> .....	166
<i>Akhilesh Shrestha and Liudong Xing</i>	

## **SESSION 9: NETWORK TRAFFIC ANALYSIS**

<b>Quasi-Orthogonal Time Division Multiplexing and its Applications Under Rayleigh Fading Channels</b> .....	172
<i>Enchang Sun, Yongchao Wang, Bin Tian, and Kechu Yi</i>	
<b>Assessment of Code Quality Through Classification of Unit Tests in VeriNeC</b> .....	177
<i>Dominik Jungo, David Buchmann, and Ulrich Ultes-Nitsche</i>	
<b>Specification Synthesis for Monitoring and Analysis of MANET Protocols</b> .....	183
<i>Natalia Stakhanova, Samik Basu, Wensheng Zhang, Xia Wang, and Johnny Wong</i>	

## **SESSION 10: DETECTION AND PRESENCE CONTROL**

<b>A Traffic Classification Algorithm for Intrusion Detection</b> .....	188
<i>Tarek Abbas, Adel Bouhoula, and Michaël Rusinowitch</i>	
<b>A New Approach to Early Detection of an Unknown Worm</b> .....	194
<i>Yuuki Yamada, Takashi Katoh, Bhed Bahadur Bista, and Toyoo Takata</i>	
<b>Online and Offline Presence Information Integrated with RFID and Instant Messaging Agent</b> .....	199
<i>Hiroaki Kikuchi and Yuichi Nakamura</i>	
<b>Conditional Random Fields for Intrusion Detection</b> .....	203
<i>Kapil Kumar Gupta, Baikunth Nath, and Kotagiri Ramamohanarao</i>	

## **SESSION 11: PROTOCOLS**

<b>WiMP-SCTP: Multi-Path Transmission Using Stream Control Transmission Protocol (SCTP) in Wireless Networks</b> .....	209
<i>Chung-Ming Huang and Ching-Hsien Tsai</i>	
<b>Sizing Router Buffers for Large-Scale TCP/IP Networks</b> .....	215
<i>Hiroyuki Hisamatsu, Go Hasegawa, and Masayuki Murata</i>	
<b>Recovery Protocols for Replicated Databases—A Survey</b> .....	220
<i>Luis H. García-Muñoz, J. Enrique Armendáriz-Íñigo, Hendrik Decker, and Francesc D. Muñoz-Escóí</i>	
<b>Self-Similar Property for TCP Traffic under the Bottleneck Restraint</b> .....	228
<i>Takuo Nakashima and Toshinori Sueyoshi</i>	

## **SESSION 12: NETWORK ARCHITECTURES AND ALGORITHMS**

<b>Sharing Software Components Using a Service-Oriented, Distributed and Secure Infrastructure .....</b>	<b>234</b>
<i>João Paulo F. de Oliveira, Michael Schuenck, and Glêdson Elias</i>	
<b>Enhancing IR with User-Centric Integrated Approach of Interest Change Driven Layered Profiling and User Contributions .....</b>	<b>240</b>
<i>Roman Y. Shtykh and Qun Jin</i>	
<b>A New Mutable Nonlinear Transformation Algorithm for S-box .....</b>	<b>246</b>
<i>Atsushi Watanabe, Hiroshi Haruki, Shun Shimotomai, Takeshi Saito, Tomoyuki Nagase, Yoshio Yoshikoka, and Yoshiei Hasegawa</i>	
<b>A Computational Approach to TSP Performance Prediction Using Data Mining.....</b>	<b>252</b>
<i>Paula Cecilia Fritzsche, Dolores Rexachs, and Emilio Luque</i>	

## **DMIR 2007 SYMPOSIUM ON DATA MINING AND INFORMATION RETRIEVAL**

### **SESSION 1: INFORMATION RETRIEVAL I**

<b>Evaluation of Open-Domain Question Answering Systems within a Time Constraint.....</b>	<b>260</b>
<i>Elisa Noguera, Fernando Llopis, Antonio Ferrández, and Alberto Escapa</i>	
<b>Towards Answering How do I Questions Using Classification .....</b>	<b>266</b>
<i>Kelvin Wu, Lei Yu, and Michal Cutler</i>	
<b>Arabic Sign Language Recognition n Image-Based Approach .....</b>	<b>272</b>
<i>M. Mohandes, S.I. Quadri, and M. Deriche</i>	

### **SESSION 2: INFORMATION RETRIEVAL II**

<b>Morphological Zerotree Compression Coding Based on Integer Wavelet Transform for Iris Image.....</b>	<b>277</b>
<i>Yuanning Liu, Xiaodong Zhu, Lingge Sui, and Zhen Liu</i>	
<b>Examining the Feasibility of Metasearch Based on Results of Human Judgements on Thai Queries .....</b>	<b>283</b>
<i>Shisanu Tongchim, Virach Sornlertlamvanich, and Hitoshi Isahara</i>	
<b>WaveQ: Combining Wavelet Analysis and Clustering for Effective Image Retrieval.....</b>	<b>289</b>
<i>Dany Gebara and Reda Alhadj</i>	

### **SESSION 3: INFORMATION RETRIEVAL II**

<b>Using Two-Stage Concept-Based Singular Value Decomposition Technique as a Query Expansion Strategy .....</b>	<b>295</b>
<i>Xuheng Xu, Xiaodan Zhang, and Xiaohua Hu</i>	
<b>A New Method of Cluster-Based Topic Language Model for Genomic IR.....</b>	<b>301</b>
<i>Jian Wen, Zhoujun Li, Lijuan Zhang, Xiaohua Hu, and Huowang Chen</i>	
<b>Mining Visual Knowledge for Multi-Lingual Image Retrieval .....</b>	<b>307</b>
<i>Masashi Inoue</i>	

<b>Proactive Documents—A New Paradigm to Access Document Information from Various Contexts</b> .....	313
<i>Karlheinz E.S. Toni</i>	

## **SESSION 4: DATA MINING I**

<b>Filtering Spam Using Kolmogorov Complexity Estimates</b> .....	321
<i>L.M. Spracklin and L.V. Saxton</i>	
<b>A Semi-Automatic Framework for Mining ERP Patterns</b> .....	329
<i>Jiawei Rong, Dejing Dou, Gwen Frishkoff, Robert Frank, Allen Malony, and Don Tucker</i>	
<b>Effectiveness of Multi-Perspective Representation Scheme on Support Vector Machine</b> .....	335
<i>Jia Zeng and Reda Alhajj</i>	
<b>An Investigation of Chip-Level Hardware Support for Web Mining</b> .....	341
<i>Kin Fun Li and Darshika Perera</i>	

## **SESSION 5: INFORMATION EXTRACTION**

<b>Learning Relations and Information Extraction Rules for Protein Annotation</b> .....	349
<i>Jee-Hyub Kim and Melanie Hilario</i>	
<b>ClusTex: Information Extraction from HTML Pages</b> .....	355
<i>Fatima Ashraf and Reda Alhajj</i>	
<b>Extracting Significant Phrases from Text</b> .....	361
<i>Yuan J. Lui, Richard Brent, and Ani Calinescu</i>	

## **SESSION 6: DATA MINING II**

<b>Hybrid Clustering of Large Text Data</b> .....	367
<i>Jacob Kogan</i>	
<b>Reduction in Dimensions and Clustering Using Risk and Return Model</b> .....	373
<i>Sayed W. Qaiyumi and Daniel Stamate</i>	
<b>Using Web Directories for Similarity Measurement in Personal Name Disambiguation</b> .....	379
<i>Quang Minh Vu, Tomonari Masada, Atsuhiko Takasu, and Jun Adachi</i>	
<b>Privacy-Preserving Two-Party K-Means Clustering Via Secure Approximation</b> .....	385
<i>Chunhua Su, Feng Bao, Jianying Zhou, Tsuyoshi Takagi, and Kouichi Sakura</i>	
<b>A Parallel Mining Algorithm for Closed Sequential Patterns</b> .....	392
<i>Tian Zhu and Sixue Bai</i>	

## **SSNDS 2007 SYMPOSIUM ON SECURITY IN NETWORKS AND DISTRIBUTED SYSTEMS**

### **SESSION 1: CRYPTOGRAPHIC ALGORITHMS**

<b>Fast and Efficient Implementation of AES Via Instruction Set Extensions</b> .....	396
<i>A.J. Elbirt</i>	

<b>Reducing the Complexity in the Distributed Multiplication Protocol of Two Polynomially Shared Values</b> .....	404
<i>Peter Lory</i>	

<b>Efficient Conjunctive Keyword-Searchable Encryption</b> .....	409
<i>Eun-Kyung Ryu and Tsuyoshi Takagi</i>	

## **SESSION 2: DISTRIBUTED ACCESS CONTROL AND FIREWALLS**

<b>Advanced Packet Filter Placement Strategies for Carrier-Grade IP-Networks</b> .....	415
<i>Birger Tödttmann and Erwin P. Rathgeb</i>	

<b>Obligations for Role based Access Control</b> .....	424
<i>Gansen Zhao, David Chadwick, and Sassa Otenko</i>	

<b>Effective Storage Security in Incompletely Trusted Environment</b> .....	432
<i>Chunming Rong and Won-Chol Kim</i>	

## **SESSION 3: WIRELESS AD HOC AND SENSOR NETWORK SECURITY**

<b>An Efficient Scheme for User Authentication in Wireless Sensor Networks</b> .....	438
<i>Canning Jiang, Bao Li, and Haixia Xu</i>	

<b>Using Social Network Theory Towards Development of Wireless Ad Hoc Network Trust</b> .....	443
<i>Sameer Pai, Tanya Roosta, Stephen Wicker, and Shankar Sastry</i>	

<b>Detecting Anomaly Node Behavior in Wireless Sensor Networks</b> .....	451
<i>Qinghua Wang and Tingting Zhang</i>	

<b>Mobile Jamming Attack and its Countermeasure in Wireless Sensor Networks</b> .....	457
<i>Hung-Min Sun, Shih-Pu Hsu, and Chien-Ming Chen</i>	

## **SESSION 4: NETWORK SECURITY ISSUES AND PROTOCOLS**

<b>Random Oracle Instantiation in Distributed Protocols Using Trusted Platform Modules</b> .....	463
<i>Vandana Gunupudi and Stephen R. Tate</i>	

<b>Information Security Threats and Access Control Practices in Norwegian Businesses</b> .....	470
<i>Janne Merete Hagen, Tormod Kalberg Sivertsen, and Chunming Rong</i>	

<b>Context-Aware Security Policy for the Service Discovery</b> .....	477
<i>Slim Trabelsi, Laurent Gomez, and Yves Roudier</i>	

<b>Adapting the UCONABC Usage Control Policies on CORBASec Infrastructure</b> .....	483
<i>Lau Cheuk Lung, Marcelo Shinji Higashiyama, Rafael R. Obelheiro, and Joni da Silva Fraga</i>	

## **SESSION 5: AUTHORIZATION SCHEMES**

<b>Enforcing Fine-Grained Authorization Policies for Java Mobile Agents</b> .....	489
<i>Giovanni Russello, Changyu Dong, and Naranker Dulay</i>	

<b>A Decentralized Authorization Architecture</b> .....	497
<i>Feike W. Dillema, Simone Lupetti, and Torge Stabell-Kulø</i>	

<b>Conflict Detection and Resolution in Context-Aware Authorization .....</b>	<b>505</b>
<i>Amirreza Masoumzadeh, Morteza Amini, and Rasool Jalili</i>	

## **SESSION 6: AUTHENTICATION AND ACCESS CONTROL**

<b>Authenticated Broadcast Encryption Scheme .....</b>	<b>512</b>
<i>Chik How Tan, Joseph Chee Ming Teo, and Jens-Are Amundsen</i>	
<b>Leveraging Identity-Based Cryptography for Node ID Assignment in Structured P2P Systems.....</b>	<b>519</b>
<i>Sunam Ryu, Kevin Butler, Patrick Traynor, and Patrick McDaniel</i>	
<b>A Certified Email Protocol Using Key Chains.....</b>	<b>525</b>
<i>J. Cederquist, M. Torabi Dashti, and S. Mauw</i>	

## **SESSION 7: KEY MANAGEMENT**

<b>Heuristics for Improving Cryptographic Key Assignment in a Hierarchy.....</b>	<b>531</b>
<i>Anne V.D.M. Kayem, Patrick Martin, and Selim G. Akl</i>	
<b>An Identity-Based Key Management Framework for Personal Networks .....</b>	<b>537</b>
<i>Khaled Masmoudi and Hossam Afifi</i>	
<b>Identity-Based and Inter-Domain Password Authenticated Key Exchange for Lightweight Clients.....</b>	<b>544</b>
<i>Ford Long Wong and Hoon Wei Lim</i>	
<b>A New and Efficient Key Management Scheme for Content Access Control within Tree Hierarchies.....</b>	<b>551</b>
<i>H. Ragab Hassen, A. Bouabdallah, and H. Bettahar</i>	

## **SESSION 8: DISTRIBUTED INTRUSION DETECTION AND PROTECTION SYSTEMS**

<b>Detecting Coordinated Distributed Multiple Attacks .....</b>	<b>557</b>
<i>S. Mukkamala, K. Yendrapalli, R.B. Basnet, and A.H. Sung</i>	
<b>Finding Logically Consistent Resource-Deception Plans for Defense in Cyberspace .....</b>	<b>563</b>
<i>Neil C. Rowe</i>	
<b>Intrusion Detection for Encrypted Web Accesses .....</b>	<b>569</b>
<i>Akira Yamada, Yutaka Miyake, Keisuke Takemori, Ahren Studer, and Adrian Perrig</i>	
<b>Relative Entropy-Based Filtering of Internet Worms by Inspecting TCP SYN Retry Packets.....</b>	<b>577</b>
<i>Byungseung Kim and Saewoong Bahk</i>	

## **SESSION 9: SOFTWARE SECURITY**

<b>Kernel and Application Integrity Assurance: Ensuring Freedom from Rootkits and Malware in a Computer System.....</b>	<b>583</b>
<i>Lifu Wang and Partha Dasgupta</i>	



<b>HTTPS Hacking Protection</b> .....	590
<i>Thawatchai Chomsiri</i>	
<b>Towards an Aspect Oriented Approach for the Security Hardening of Code</b> .....	595
<i>Azzam Mourad, Marc-André Laverdière, and Mourad Debbabi</i>	

## **SESSION 10: PKI AND DIGITAL SIGNATURES**

<b>An Online/Offline Signature Scheme Based on the Strong RSA Assumption</b> .....	601
<i>Ping Yu and Stephen R. Tate</i>	
<b>Authenticating Feedback in Multicast Applications Using a Novel Multisignature Scheme Based on Cubic LFSR Sequences</b> .....	607
<i>Saikat Chakrabarti, Santosh Chandrasekhar, Mukesh Singhal, and Kenneth L. Calvert</i>	
<b>A Robust and Efficient Mechanism to Distribute Certificate Revocation Information Using the Grid Monitoring Architecture</b> .....	614
<i>Daniel Kouril, Ludek Matyska, and Michal Procházka</i>	

## **SESSION 11: PRIVACY AND TRUST**

<b>Privacy Rights Management for Privacy Compliance Systems</b> .....	620
<i>Ronggong Song, Larry Korba, and George Yee</i>	
<b>The All-Or-Nothing Anti-Theft Policy—Theft Protection for Pervasive Computing</b> .....	626
<i>Jakob Illeborg Pagter and Michael Østergaard Pedersen</i>	
<b>On the Contribution of Preamble to Information Hiding in Mimicry Attacks</b> .....	632
<i>H. Günes Kayacik and A. Nur Zincir-Heywood</i>	

## **BLSC 2007 SYMPOSIUM ON BIOINFOMATICS AND LIFE SCIENCE COMPUTING**

### **SESSION 1: BIOINFORMATICS AND LIFE SCIENCE COMPUTING I**

<b>Detecting Protein-Domains DNA-Motifs Association in <i>Saccharomyces cerevisiae</i> Regulatory Networks</b> .....	639
<i>Nawar Malhis, Kelvin Xi Zhang, and Francis Ouellette</i>	
<b>A Spatial Indexing Approach for Protein Structure Modeling</b> .....	645
<i>Wendy Osborn</i>	
<b>Dealing with Some Conceptual Data Model Requirements for Biological Domains</b> .....	651
<i>José Antônio Fernandes de Macêdo, Fabio Porto, Sérgio Lifschitz, and Philippe Picouet</i>	

### **SESSION 2: BIOINFORMATICS AND LIFE SCIENCE COMPUTING II**

<b>A Greedy Correlation-incorporated SVM-Based Algorithm for Gene Selection</b> .....	657
<i>Mingjun Song and Sanguthevar Rajasekaran</i>	
<b>Investigation of Relationships among Excavate Taxa Using a New Quartet-Based Phylogenetic Analysis Method</b> .....	662
<i>Monther Tarawneh, Bing Bing Zhou, Penghao Wang, and Albert Zomaya</i>	

<b>Markov Models to Classify <i>M. tuberculosis</i> Spoligotypes</b> .....	668
<i>Georges Valétudie, Jacky Desachy, and Christophe Sola</i>	

### **SESSION 3: BIOINFORMATICS AND LIFE SCIENCE COMPUTING III**

<b>A Graph Based Approach to Discover Conserved Regions in DNA and Protein Sequences</b> .....	672
<i>Santan Challa and Parimala Thulasiraman</i>	
<b>Attractive Feature Reduction Approach for Colon Data Classification</b> .....	678
<i>Mohammad Al-Shalalfah and Reda Alhajj</i>	
<b>Biological Sequence Clustering and Classification with a Hybrid Method and Dynamic Programming</b> .....	684
<i>Wei-Bang Chen, Chengcui Zhang, and Xin Chen</i>	
<b>Biological Systems Analysis Using Inductive Logic Programming</b> .....	690
<i>Andrei Doncescu, Yoshitaka Yamamoto, and Katsumi Inoue</i>	

### **SESSION 4: BIOINFORMATICS AND LIFE SCIENCE COMPUTING IV**

<b>Database-Driven Grid Computing with GridBASE</b> .....	696
<i>Hans De Sterck, Chen Zhang, and Aleks Papo</i>	
<b>Parallel Contour Matching and 3D Partial Retrieval in Bio-Image Database</b> .....	702
<i>Yong Li, Xiujuan Chen, Saeid Belkasim, and Yi Pan</i>	
<b>Computational Methods for Analysis of Cryptic Recombination in the Performance of Genomi Recombination Detection Software</b> .....	707
<i>Jamal Alhiyafi, Cavitha Sebesan, Shiyong Lu, Melpine Harriott, Deborah Jurczynszyn, Raquel Ritchie, Felicitas S. Gonzales, and Jeffrey L. Ram</i>	
<b>A Grid System for the Ingestion of Biological Data into a Relational DBMS</b> .....	713
<i>Maria Mirto, Massimo Cafaro, Sandro Fiore, and Giovanni Aloisio</i>	

### **SESSION 5: BIOINFORMATICS AND LIFE SCIENCE COMPUTING V**

<b>A Circular Hamming Distance, Circular Gumbel Distribution, RNA Relics and Primitive Genome</b> .....	719
<i>Jacques Demongeot and Andrés Moreira</i>	
<b>Kinetic Analysis of Ligand-Receptor Complex Formation with the Aid of Computer Simulation</b> .....	727
<i>Hiroshi Kobayashi, Ryuzo Azuma, and Akihiko Konagaya</i>	
<b>Application of Double Clustering to Gene Expression Data for Class Prediction</b> .....	733
<i>Mohammed Al-Shalalfah and Reda Alhajj</i>	
<b>Efficiency of Hybrid Normalization of Microarray Gene Expression: A Simulation Study</b> .....	739
<i>Mehdi Pirooznia and Youping Deng</i>	
<b>Crick's Hypothesis Revisited: The Existence of a Universal Coding Frame</b> .....	745
<i>Jean-Louis Lassez, Ryan A. Rossi, and Axel E. Bernal</i>	

## **SESSION 1: SOFTWARE ENVIROMENTS AND SIMULATIONS**

<b>Sim-PowerCMP: A Detailed Simulator for Energy Consumption Analysis in Future Embedded CMP Architectures</b> .....	752
<i>Antonio Flores, Juan L. Aragon, and Manuel E. Acacio</i>	
<b>An Inter-Core Communication Enabled Multi-Core Simulator Based on SimpleScalar</b> .....	758
<i>Rongrong Zhong, Yongxin Zhu, Weiwei Chen, Mingliang Lin, and Weng Fai Wong</i>	
<b>Synthetic Trace-Driven Simulation of Cache Memory</b> .....	764
<i>Rahman Hassan, Antony Harris, Nigel Topham, and Aris Efthymiou</i>	

## **SESSION 2: SCHEDULING ALGORITHMS**

<b>A Real-Time Scheduling Algorithm with Buffer Optimization for Embedded Signal Processing Systems</b> .....	772
<i>Nan Guan, Mingsong Lv, Qingxu Deng, and Ge Yu</i>	
<b>Reliability-Driven Scheduling of Periodic Tasks in Heterogeneous Real-Time Systems</b> .....	778
<i>Wei Luo, Xiao Qin, and Kiranmai Bellam</i>	
<b>A Flexible Scheduling Framework for Deeply Embedded Systems</b> .....	784
<i>Karsten Walther and Jörg Nolte</i>	

## **SESSION 3: ARCHITECTURE DESIGN AND SYNTHESIS**

<b>Exploring Functional Unit Design Space of VLIW Processors for Optimizing Both Performance and Energy Consumption</b> .....	792
<i>Abhishek Pillai, Wei Zhang, and Laurence T. Yang</i>	
<b>An Area-Efficient Approach to Improving Register File Reliability Against Transient Errors</b> .....	798
<i>Mallik Kandala, Wei Zhang, and Laurence T. Yang</i>	
<b>Hardware-Software Cosynthesis of Multiprocessor Embedded Architectures</b> .....	804
<i>Gul N. Khan and Usman Ahmed</i>	
<b>Detecting VLIW Hard Errors Cost-Effectively Through a Software-Based Approach</b> .....	811
<i>Abhishek Pillai, Wei Zhang, and Dimitrios Kagaris</i>	

## **SESSION 4: EMBEDDED APPLICATIONS**

<b>Embedded Intelligent Intrusion Detection: A Behavior-Based Approach</b> .....	816
<i>Adrian P. Lauf, Richard A. Peters, and William H. Robinson</i>	
<b>High-Flexibility Rekeying Processor for Key Management in Secure Multicast</b> .....	822
<i>Abdulhadi Shoufan, Ralf Laue, and Sorin A. Huss</i>	
<b>A Soft Core for Pattern Recogniton</b> .....	830
<i>C. Gonzalez Concejero, V. Rodellar, A. Álvarez Marquina, E. Martínez De Icaya, and P. Gómez-Vilda</i>	
<b>Fault Tolerance in Small World Cellular Neural Networks for Image Processing</b> .....	835
<i>Katsuyoshi Matsumoto, Hideki Mori, and Minoru Uehara</i>	

<b>An Improved RAIM Scheme for Processing Multiple Outliers in GNSS</b> .....	840
<i>Junjie Ni, Yongxin Zhu, and Wei Guo</i>	

**TENAS 2007 WORKSHOP ON TELECOMMUNICATION NETWORKING,  
APPLICATIONS AND SYSTEMS**

**SESSION 1: NETWORK TECHNOLOGIES**

<b>Coordinate Magnetic Routing for Mobile Sinks Wireless Sensor Networks</b> .....	846
<i>Shih-Hao Chang, M. Merabti, and H.M. Mokhtar</i>	
<b>Conflict Free Address Allocation Mechanism for Mobile Ad Hoc Networks</b> .....	852
<i>Sudath Indrasinghe, Rubem Pereira, and John Haggerty</i>	
<b>Scalable Automaton Matching for High-Speed Deep Content Inspection</b> .....	858
<i>Ying-Dar Lin, Kuo-Kun Tseng, Chen-Chou Hung, and Yuan-Cheng Lai</i>	

**SESSION 2: NETWORK TECHNOLOGIES**

<b>Mobile Event Monitoring Protocol for Wireless Sensor Networks</b> .....	864
<i>F. Bouhaf, M. Merabti, and H. M. Mokhtar</i>	
<b>MAC Address Translation for Enabling Scalable Virtual Private LAN Services</b> .....	870
<i>Pi-Chung Wang, Chia-Tai Chan, and Po-Yen Lin</i>	
<b>Real Time Scheduling for Audio and Video Streams</b> .....	876
<i>Rubem Pereira and Ella Pereira</i>	

**SESSION 3: NETWORK TECHNOLOGIES**

<b>A New Low Cost Sessions-Based Misbehaviour Detection Protocol (SMDP) in MANET</b> .....	882
<i>Tarag Fahad, Djamel Djenouri, Robert Askwith, and Madjid Merabti</i>	
<b>A Toolkit for Virtual Large-Scale Storage in a Learning Environment</b> .....	888
<i>Minoru Uehara</i>	
<b>A Fuzzy-Based and Simulated IP Network Traffic Engineering Promoting Multi-Service Performance</b> .....	894
<i>Kenvi Wang, Lin-Yi Peng, Tsung-Mao Chen, and Szu-Yu Chen</i>	
<b>Multi-Purpose Models for QoS Monitoring</b> .....	900
<i>Stefan Wallin and Viktor Leijon</i>	
<b>Low-Complexity Parallel Systolic Architectures for Computing Multiplication and Squaring over GF(2<sup>m</sup>)</b> .....	906
<i>Chiou-Yng Lee and Yung-Hui Chen</i>	

**SESSION 4: NETWORK APPLICATIONS**

<b>Buffer Management for Multimedia QoS Control over HSDPA Downlink</b> .....	912
<i>Suleiman Y. Yerima and Khalid Al-Begain</i>	

<b>Planning and Design of TWAREN: Advanced National Research and Education Network in Taiwan</b> .....	918
<i>Te-Lung Liu and C. Eugene Yeh</i>	
<b>A Control Plane Architecture to Enhance Network Appliance Agility through Automatic Functionality</b> .....	923
<i>E.C.L. Watts, M. Merabti, and A. Taleb-Bendiab</i>	
<b>Constructing Enterprise Information Network Security Risk Management Mechanism by Using Ontology</b> .....	929
<i>Fong-Hao Liu</i>	
<b>Bridging the Gap Between Networked Appliances and Virtual Worlds</b> .....	935
<i>P. Fergus, D. Llewellyn-Jones, M. Merabti, and A. El Rhalibi</i>	

## **SOCNE 2007 WORKSHOP ON SERVICE ORIENTED ARCHITECTURES IN CONVERGING NETWORKED ENVIROMENTS**

### **SESSION 1: SERVICE- ORIENTED ARCHITECTURES IN EMBEDDED SYSTEMS**

<b>Making Embedded Software Development More Efficient with SOA</b> .....	941
<i>Daniel Barisic, Martin Krogmann, Guido Stromberg, and Peter Schramm</i>	
<b>Service-Oriented Device Communications using the Devices Profile for Web Services</b> .....	947
<i>François Jammes, Antoine Mensch, and Harm Smit</i>	
<b>Service-Oriented Architectures for Embedded Systems Using Devices Profile for Web Services</b> .....	956
<i>Elmar Zeeb, Andreas Bobek, Hendrik Bohn, and Frank Golasowski</i>	
<b>Bilateral Service Mapping Approaches Between Different Service Oriented Architectures Web Services and UPnP</b> .....	964
<i>Markus Zajac, Brigitte Oesterdiekhoff, Chris Loeser, and Hendrik Bohn</i>	

### **SESSION 2: KEY SERVICES IN SERVICE-ORIENTED ARCHITECTURES**

<b>Fuzzy Logic Based Admission Control for Multimedia Streams in the UPnP QoS Architecture</b> .....	970
<i>Michael Ditze and Matthias Grawinkel</i>	
<b>Architecture and Models for Self-Adaptability of Transport Protocols</b> .....	977
<i>Nicolas Van Wambeke, François Armando, Christophe Chassot, and Ernesto Expósito</i>	
<b>Convergent Online Charging for Context-Aware Mobile Services</b> .....	983
<i>Frank Bormann, Stephan Flake, and Jürgen Tacke</i>	
<b>Comparative Evaluation of Converged Service-Oriented Architectures</b> .....	989
<i>Davy Preuveneers, Julien Pauty, Dimitri Van Landuyt, Yolande Berbers, and Wouter Joosen</i>	

### **SESSION 3: SERVICE MANAGEMENT & SERVICE MEDIATION**

<b>Conceptual Framework for a Comprehensive Service Management Middleware</b> .....	995
<i>Farhana Zulkernine and Patrick Martin</i>	

<b>An Analysis of Web Services Mediation Architecture and Pattern in Synapse.....</b>	1001
<i>Chen Wu and Elizabeth Chang</i>	
<b>An User-Driven Slight Ontology Framework Based on Meta-Ontology for Change Management .....</b>	1007
<i>Lina Fang, Shengqun Tang, Yan Yang, Ruliang Xiao, Ling Li, Xinguo Deng, Yang Xu, and Youwei Xu</i>	

## **PCAC 2007 SYMPOSIUM ON PERVASIVE COMPUTING AND AD HOC COMMUNICATIONS**

### **SESSION 1: PERVASIVE SYSTEMS, COMPUTING AND COMMUNICATIONS I**

<b>Resource Discovery in Ubiquitous Health Care .....</b>	1014
<i>Gautham Pallapa and Sajal Das</i>	
<b>Managing Privacy in LBAC Systems .....</b>	1020
<i>Claudio Agostino Ardagna, Marco Cremonini, Ernesto Damiani, Sabrina De Capitani di Vimercati, and Pierangela Samarati</i>	
<b>Pervasive Computing with Frugal Objects .....</b>	1026
<i>Benoît Garbinato, Rachid Guerraoui, Jarle Hulaas, Maxime Monod, and Jesper H. Spring</i>	

### **SESSION 2: WIRELESS AD HOC, SENSOR AND MESH NETWORKING I**

<b>A Secure MANET Routing Protocol with Resilience Against Byzantine Behaviours of Malicious or Selfish Nodes.....</b>	1032
<i>Claude Crépeau, Carlton R. Davis, and Muthucumaru Maheswaran</i>	
<b>Trust Enhanced Secure Mobile Ad-Hoc Network Routing .....</b>	1040
<i>Venkat Balakrishnan, Vijay Varadharajan, Phillip Lucs, and Uday Kiran Tupakula</i>	
<b>A Protocol for Macro Mobility and Multihoming Notification in Wireless Mesh Networks .....</b>	1047
<i>Rainder Baumann, Olga Bondareva, Simon Heimlicher, and Martin May</i>	

### **SESSION 3: PERVASIVE SYSTEMS, COMPUTING AND COMMUNICATIONS II**

<b>VOICE: A Framework for Speech-Based Mobile Systems .....</b>	1051
<i>Adam Sharp and Stan Kurkovsky</i>	
<b>A Context-Based Delegation Access Control Model for Pervasive Computing.....</b>	1057
<i>Ramiro Liscano and Kaining Wang</i>	
<b>The Community Stack: Concept and Prototype.....</b>	1065
<i>Tuan Nguyen, Seng W. Loke, and Torab Torabi</i>	
<b>A Ubiquitous Fashionable Computer with an i-Throw Device .....</b>	1072
<i>Jupyung Lee, Seung-Ho Lim, Jong-Woon Yoo, Ki-Woong Park, Hyun-Jin Choi, and Kyu Ho Park</i>	

### **SESSION 4: WIRELESS AD HOC, SENSOR AND MESH NETWORKING II**

<b>Self-Organizing Spatial Regions for Sensor Network Infrastructures .....</b>	1079
<i>Nicola Bicchichi, Marco Mamei, and Franco Zambonelli</i>	

<b>Multi-channel Busy-tone Multiple Access for Scalable Wireless Mesh Network</b> .....	1085
<i>Hairong Zhou, Chihsiang Yeh, Hussein Mouftah</i>	
<b>Secure Real-Time Traffic in Hybrid Mobile Ad Hoc Networks</b> .....	1090
<i>Ilkka Uusitalo, Teemu Väisänen, and Juhani Latvakoski</i>	
<b>RODMRP: Resilient On-Demand Multicast Routing Protocol</b> .....	1098
<i>Dharmika Pathirana and Minseok Kwon</i>	

### **SESSION 5: PERVASIVE SYSTEMS, COMPUTING AND COMMUNICATIONS III**

<b>Building Pervasive Services Using Flock Sensor Network and Flock Container Middleware</b> .....	1106
<i>Arne Munch-Ellingsen, Bjørn Thorstensen, Dan Peder Eriksen, and Anders Andersen</i>	
<b>A Password-Based Authentication and Key Establishment Scheme for Mobile Environment</b> .....	1112
<i>Jun Liu, Jianxin Liao, and Xiaomin Zhu</i>	
<b>pKASSO: Towards Seamless Authentication Providing Non-Repudiation</b> .....	1118
<i>Ki-Woong Park, Hyunchul Seok, and Kyu-Ho Park</i>	

### **SESSION 6: WIRELESS AD HOC, SENSOR AND MESH NETWORKING III**

<b>Mobile Wireless Sensor Network: Architecture and Enabling Technologies for Ubiquitous Computing</b> .....	1126
<i>Saad Ahmed Munir, Biao Ren, Weiwei Jiao, Bin Wang, Dongliang Xie, and Jian Ma</i>	
<b>Minimum Energy Range Assignment in Heterogeneous Ad-Hoc Networks</b> .....	1134
<i>Miriam Di Ianni and Gianluca Rossi</i>	
<b>A Group-Based Dynamic Key Management Scheme in Wireless Sensor Networks</b> .....	1140
<i>Guorui Li, Jingsha He, and Yingfang Fu</i>	

### **SESSION 7: PERVASIVE SYSTEMS, COMPUTING AND COMMUNICATIONS IV**

<b>An Agent-Based Architecture for Context-Aware Communication</b> .....	1146
<i>Romelia Plesa and Luigi Logrippo</i>	
<b>Towards Device-Blending: Model and Challenges</b> .....	1152
<i>Harinder Seera, Seng Wai Loke, and Torab Torabi</i>	
<b>A Modular Architecture for Context Sensing</b> .....	1160
<i>Julián Grigera, Andrés Fortier, Gustavo Rossi, and Silvia Gordillo</i>	
<b>Performance Evaluation of RFID Anti-Collision Algorithm with FPGA Implementation</b> .....	1166
<i>Huansheng Ning, Yu Cong, Z.-Q. Xu, T. Hong, J.-C. Zhao, and Yan Zhang</i>	

### **SESSION 8: WIRELESS AD HOC, SENSOR AND MESH NETWORKING IV**

<b>Simulation Study of AODV Performance over IEEE 802.15.4 MAC in WSN with Mobile Sinks</b> .....	1172
<i>Canfeng Chen and Jian Ma</i>	
<b>Cross Layer Routing for Multihop Cellular Networks</b> .....	1178
<i>G Kannan, S.N. Merchant, and U.B. Desai</i>	

<b>An Efficient Online/Offline Signcryption Scheme for MANET</b> .....	1184
<i>Zhong Xu, Guanzhong Dai, and Deming Yang</i>	
<b>An Optimal Node Selection Scheme in Multi-Hop Wireless Network</b> .....	1190
<i>Jian Jiang and Jian Ma</i>	

## **SESSION 9: PERVASIVE SYSTEMS, COMPUTING AND COMMUNICATIONS V**

<b>A Robust Lightweight Security Solution for RFID Security</b> .....	1195
<i>Anahita Vyas, Sheikh I. Ahamed, Munirul M. Haque, and Madhavi V.S. Jayanthi</i>	
<b>Profile-Based Sustained Service Lookup in Areas of Sudden Dense Population</b> .....	1201
<i>Sherif G. Aly and Amal A. El-Nahas</i>	
<b>P2P-Leveraged Mobile Live Streaming</b> .....	1208
<i>Jinfeng Zhang, Jianwei Niu, Rui He, Jianping Hu, and Limin Sun</i>	

## **SESSION 10: WIRELESS AD HOC, SENSOR AND MESH NETWORKING V**

<b>PEAN: A Probabilistic Energy Aware Neighbor Monitoring Protocol for Mobile Ad Hoc Networks</b> .....	1214
<i>Hung-Yuan Hsu and Ali R. Hurson</i>	
<b>An Adaptable Crash Faults Detector for Mobile Ad-Hoc Networks</b> .....	1220
<i>Mourad Elhadef and Fahim Abdun-Nur</i>	
<b>A Parallel Multi-Path Routing Algorithm for Flexible Transmission in Wireless Sensor Networks</b> .....	1226
<i>Zhendong Wu and Shanping Li</i>	

## **SESSION 11: PERVASIVE SYSTEMS AND WIRELESS NETWORKS I**

<b>Design and Implementation of EPARK Wireless Parking Payment System Using Pervasive Computing</b> .....	1232
<i>Darrel A. Mazzari, Patrick Seraphine, Sheikh I. Ahamed, and Sreekanth G. Balasubramanian</i>	
<b>Friend Pointer Registration Strategy and its Scheme for Mobile Location Management</b> .....	1238
<i>Daqing Xu and Hisao Kameda</i>	
<b>Analytic Model of IEEE 802.15.4 with Download Traffic</b> .....	1244
<i>Tae Ok Kim, Jin Soo Park, and Bong Dae Choi</i>	
<b>TMBT: An Efficient Index Allocation Method for Multi-Channel Data Broadcast</b> .....	1249
<i>Shuoi Wang and Hsing-Lung Chen</i>	

## **SESSION 12: PERVASIVE SYSTEMS AND WIRELESS NETWORKS II**

<b>Dynamic Bandwidth Management for Handoffs with RSVP in 802.16/WLAN Environment</b> .....	1256
<i>Yen-Wen Chen, I-Hsuan Peng, and Shiu-Tsuen Guan</i>	
<b>Simulation-Based Performance Evaluation of Mobile Ad Hoc Routing Protocols in a Swarm of Unmanned Aerial Vehicles</b> .....	1262
<i>M.T. Hyland, B.E. Mullins, R.O. Baldwin, and M.A. Temple</i>	



# UCI 2007 SYMPOSIUM ON UBIQUITOUS COMPUTING AND INTELLIGENCE

## SESSION 1: ADAPTIVE AND LEARNING SYSTEMS

<b>Mining Concept Drifts from Data Streams Based on Multi-Classifiers</b> .....	1270
<i>Yue Sun, Guojun Mao, Xu Liu, and Chunnian Liu</i>	
<b>Interface Adaptation Based on User Expectation</b> .....	1277
<i>Xiaoyan Peng and Daniel L. Silver</i>	
<b>A Comparative Analysis of Personalization Techniques for a Mobile Application</b> .....	1283
<i>Petteri Nurmi, Marja Hassinen, and Kun Chang Lee</i>	

## SESSION 2: CONTEXT-AWARE COMPUTING

<b>Context-Aware Elevator Scheduling</b> .....	1289
<i>Thomas Strang and Christian Bauer</i>	
<b>A Location-Aware Mobile Call Handling Assistant</b> .....	1295
<i>Ibrahim Bokharouss, Wayne Wobcke, Yiu-Wa Chan, Andrew Limaru, and Anna Wong</i>	
<b>Context Inferring in the Smart Home: An SWRL Approach</b> .....	1303
<i>Vincent Riquebourg, David Durand, David Menga, Bruno Marhic, Laurent Delahoche, Christophe Logé, and Anne-Marie Jolly-Desodt</i>	

## SESSION 3: MOBILE COMPUTING

<b>Fuzzy Logic-Based Event Notification in Sparse MANETs</b> .....	1309
<i>Anna Lekova, Katrine Skjelsvik, Thomas Plagemann, and Vera Goebel</i>	
<b>Performance Analysis of Location Estimation Algorithm in ZigBee Networks Using Received Signal Strength</b> .....	1315
<i>Hyunggi Cho, Myungseok Kang, Jonghyuk Park, Byungjung Park, and Hagbae Kim</i>	
<b>Service Discovery Reliability and Network Neighbor Knowledge in Pervasive Computing Environments</b> .....	1320
<i>Michael S. Thompson and Scott F. Midkiff</i>	
<b>Cost-Function-Based Network Selection Strategy in Integrated Wireless and Mobile Networks</b> .....	1327
<i>Wei Shen and Qing-An Zeng</i>	

## SESSION 4: UBIQUITOUS AND PERVASIVE COMPUTING I

<b>Informing the Design of User Studies on Conceptual Interference Frameworks</b> .....	1333
<i>Ricardo Morla and Nigel Davies</i>	
<b>Domain Modelling for Ubiquitous Computing Applications</b> .....	1339
<i>Anthony Harrington and Vinny Cahill</i>	
<b>A Novel Adaptive Scheme to Improve the Performance of IEEE 802.11n WLANs</b> .....	1347
<i>Sangheetha Salai Parthasarathy and Qing-An Zeng</i>	

<b>A Dynamic Retargettable Multi-Protocol RFID Reader/Writer .....</b>	<b>1353</b>
<i>Shinsuke Kobayashi, Ken Sakamura, and Tatsushi Morokuma</i>	

## **SESSION 5: NOVEL APPLICATIONS AND SYSTEMS**

<b>Speaker Tracking and Identifying Based on Indoor Localization System and Microphone Array .....</b>	<b>1360</b>
<i>Xiaojie Chen, Yuanchun Shi, and Wenfeng Jiang</i>	
<b>Java (J2ME) Front-End for Distributed Speech Recognition.....</b>	<b>1366</b>
<i>Dmitry Zaykovskiy and Alexander Schmitt</i>	
<b>Design of a Digital Baseband Processor for UWB Transceiver on RFID Tag.....</b>	<b>1371</b>
<i>Yuechao Niu, Majid Baghaei Nejad, Hannu Tenhunen, and Li-Rong Zheng</i>	

## **SESSION 6: INTELLIGENT ENVIRONMENTS**

<b>Service Configuration Management for Ambient Intelligence: The COMANCHE Approach.....</b>	<b>1375</b>
<i>Sara Grilli, Effie Makri, Konrad Steblovnik, Sofoklis Efremidis, Nikos Mouratidis, Petri Mähönen, and Elena Meshkova</i>	
<b>Phyigital Map: Accessing Digital Multimedia from Physical Map.....</b>	<b>1381</b>
<i>Jin Nakazawa and Hideyuki Tokuda</i>	
<b>Using Mobile Agent-Based Middleware to Support Distributed Coordination for Vehicle Telematics .....</b>	<b>1387</b>
<i>Jinhua Guo and Guangming Xing</i>	

## **SESSION 7: SENSOR NETWORKS**

<b>On the Problem of Energy Efficiency of Multi-Hop vs One-Hop Routing in Wireless Sensor Networks.....</b>	<b>1393</b>
<i>Szymon Fedor and Martin Collier</i>	
<b>A Robust Error Concealment Algorithm in Wireless Networks.....</b>	<b>1399</b>
<i>Jianwei Niu, Congying Wei, Rui He, and Jian Ma</i>	
<b>Role Assignment for Data Aggregation in Wireless Sensor Networks .....</b>	<b>1403</b>
<i>Maulin Patel, S. Venkatesan, and Doug Weiner</i>	
<b>Networks of Sensors in Public Spaces: Combining Technology with Art.....</b>	<b>1409</b>
<i>Sameer Pai, Philip Kuryloski, Henry Yip, Srikant Yennamandra, Stephen Wicker, Kirsten Boehner, and Geri Gay</i>	

## **SESSION 8: UBIQUITOUS AND PERVASIVE COMPUTING II**

<b>Verifying Identifier-Authenticity in Ubiquitous Computing Environment .....</b>	<b>1416</b>
<i>Tetsuo Kamina, Toshinori Aoki, Yoshiteru Eto, Noboru Koshizuka, Jun Yamada, and Ken Sakamura</i>	
<b>A Routing Metric for Load-Balancing in Wireless Mesh Networks .....</b>	<b>1422</b>
<i>Liang Ma and Mieso K. Denko</i>	

<b>Design and Optimization of Wireless Sensor Network with Mobile Gateway</b> .....	1428
<i>Mukesh Shakya, Jianhua Zhang, Ping Zhang, and Mattias Lampe</i>	

## **UBISAFE 2007 SYMPOSIUM ON UBISAFE COMPUTING**

<b>mCoupons: An Application for Near Field Communication (NFC)</b> .....	1434
<i>Sandra Dominikus and Manfred Aigner</i>	
<b>A Distributed Efficient Architecture for Wireless Sensor Networks</b> .....	1442
<i>Chuan Lin, Yan-Xiang He, Chao Peng, and Laurence T. Yang</i>	
<b>Functional Safety Problems in the Ubiquitous Environment</b> .....	1448
<i>Lei Jing and Zixue Cheng</i>	
<b>A Verifiable Lightweight Escape Analysis Supporting Creational Design Patterns</b> .....	1453
<i>Gilles Grimaud, Yann Hodique, and Isabelle Simplot-Ryl</i>	
<b>Password-Based Access Control Scheme with Remote User Authentication Using Smart Cards</b> .....	1461
<i>Chen Yang, Wenping Ma, Benxiong Huang, and Xinmei Wang</i>	
<b>Flexible and Manageable Delegation of Authority in RBAC</b> .....	1466
<i>Tuan-Anh Nguyen, Linying Su, George Inman, and David Chadwick</i>	
<b>The Dual Ownership Model: Using Organizational Relationships for Access Control in Safety Supply Chains</b> .....	1472
<i>Alexander Ilic, Florian Michahelles, and Elgar Fleisch</i>	
<b>S3PAS: A Scalable Shoulder-Surfing Resistant Textual-Graphical Password Authentication System</b> .....	1480
<i>Huanyu Zhao and Xiaolin Li</i>	
<b>Graph Matching Based Authorization Model for Efficient Secure XML Querying</b> .....	1486
<i>Seunghan Chang, Artem Chebotko, Shiyong Lu, and Farshad Fotouhi</i>	

## **SESSION 3: TRUSTED AND DEPENDABLE COMPUTING**

<b>Certificate Chain Discovery in Web of Trust for Ad Hoc Networks</b> .....	1492
<i>Hisashi Mohri, Ikuya Yasuda, Yoshiaki Takata, and Hiroyuki Seki</i>	
<b>Mobile Agents and the Deus Ex Machina</b> .....	1499
<i>Shane Balfe and Eimear Gallery</i>	
<b>Presumptive Selection of Trust Evidences: A Non Invasive, Application-Contained Solution</b> .....	1506
<i>Pierpaolo Dondio and Stephen Barrett</i>	
<b>Integrating Fault Recovery and Quality of Security in Real-time Systems</b> .....	1513
<i>Kiranmai Bellam, Ziliang Zong, Mohammed I. Alghamdi, Mais Nijim, and Xiao Qin</i>	

## **SESSION 4: GRID, WORKFLOW, AND WEB SERVICES**

<b>Itinerary-Based Access Control for Mobile Tasks in Scientific Workflows</b> .....	1519
<i>Zijiang Yang, Shiyong Lu, and Ping Yang</i>	
<b>Pattern Templates for Automating Business Choreography on Web Services</b> .....	1525
<i>Incheon Paik and Hiroto Suzuki</i>	

<b>Advanced OSGi Security Layer</b> .....	1531
<i>Chi-Chih Huang, Pang-Chieh Wang, and Ting-Wei Hou</i>	
<b>QoS-LI: QoS Loss Inference in Disadvantaged Networks</b> .....	1537
<i>Vidyaraman Sankaranarayanan, Shambhu Upadhyaya, and Kevin Kwiat</i>	

## **SESSION 5: INTELLIGENCE AND DATA MINING**

<b>U&amp;I Aware: A Framework Using Data Mining and Collision Detection to Increase Awareness for Intersection Users</b> .....	1543
<i>Flora Dilys Salim, Seng Wai Loke, Andry Rakotonirainy, and Shonali Krishnaswamy</i>	
<b>Interaction Analysis of Heterogeneous Monitoring Data for Autonomic Problem Determination</b> .....	1549
<i>Mohammad A. Munawar, Kevin Quan, and Paul A.S. Ward</i>	
<b>Integration of Data Compression and Cryptography: Another Way to Increase the Information Security</b> .....	1556
<i>Chuanfeng Lv and Qiangfu Zhao</i>	

## **SESSION 6: AUTONOMIC AND AGENT SYSTEMS**

<b>Determining Configuration Probabilities of Safety-Critical Adaptive Systems</b> .....	1561
<i>Rasmus Adler, Marc Förster, and Mario Trapp</i>	
<b>A Utility-Based Adaptivity Model for Mobile Applications</b> .....	1569
<i>Mourad Alia, Viktor S. Wold Eide, Nearchos Paspallis, Frank Eliassen, Svein Olav Hallsteinsen, George A. Papadopoulos</i>	
<b>AEGIS: A Proactive Methodology to Shield Against Zero-Day Exploits</b> .....	1577
<i>Madhusudhanan Chandrasekaran, Mukarram Baig, and Shambhu Upadhyaya</i>	

## **WAMIS 2007 WORKSHOP ON WEB AND MOBILE INFORMATION SERVICES**

### **SESSION 1: SERVICE MODELLING AND COORDINATION**

<b>A Versioning Model for Enterprise Services</b> .....	1583
<i>Rainer Weinreich, Thomas Ziebermayr, and Dirk Draheim</i>	
<b>Formalizing Web Service Choreography Interface</b> .....	1589
<i>Yu Huang, Chunxiang Xu, Hanpin Wang, Yunni Xia, Jiaqi Zhu, and Cheng Zhu</i>	
<b>Research Issues of Privacy Access Control Model for Mobile Ad Hoc Healthcare Applications with XACML</b> .....	1595
<i>Patrick C. K. Hung, Jude Andrade, Yongming Chen, Ranny Huang, Miguel Vargas Martin, and Yi Zheng</i>	
<b>Using Argumentative Agents to Manage Communities of Web Services</b> .....	1601
<i>Jamal Bentahar, Zakaria Maamar, Djamel Benslimane, and Philippe Thiran</i>	

### **SESSION 2: ADVANCED TECHNIQUES FOR SERVICE PROVISIONING**

<b>QoS-Broker for Transactional Workloads</b> .....	1607
<i>Celso Rafael Santos, João Costa, and Pedro Furtado</i>	

<b>Building Web-Base SIP Analyzer with Ajax Approach.....</b>	1613
<i>Quincy Wu and Yan-Hsiang Wang</i>	
<b>Performance Evaluation of Agent Network Topologies Based on the AOCD Architecture.....</b>	1618
<i>Hao Lan Zhang, Clement H.C. Leung, and Gitesh K. Raikundalia</i>	
<b>Learning Business Strategies for Competitive Electronic Marketplaces .....</b>	1624
<i>Isabel Praça, Maria João Viamonte, Carlos Ramos, and Zita Vale</i>	

### **SESSION 3: MOBILE SERVICES**

<b>Mobile Phone as an Inspections Tool – Experiences with a Service for Field Force.....</b>	1630
<i>Teemu Jalava and Jukka K. Nurminen</i>	
<b>Mobile Devices for Personal Smart Spaces.....</b>	1636
<i>Iván Marsá-Maestre, Miguel A. López-Carmona, Juan R. Velasco, and Álvaro Paricio</i>	
<b>On the Integration of Mobility in a Fault-Tolerant e-Health Web Information System .....</b>	1642
<i>Florencia Balbastro, Alfredo Capozucca, and Nicolas Guelfi</i>	

### **HWISE 2007 WORKSHOP ON HETEROGENEOUS WIRELESS NETWORKS**

#### **SESSION 1: ARCHITECTURE OF HETEROGENEOUS WIRELESS NETWORKS**

<b>Multi-Agent System for Directed Diffusion in Wireless Sensor Networks.....</b>	1648
<i>Haroon Malik, Elhadi Shakshuki, Travis Dewolf, and Mieso K. Denko</i>	
<b>On Slave-Slave Bridging with Non-Acknowledged GTS Access in 802.15.4 Beacon Enabled Networks .....</b>	1654
<i>Jelena Mišić</i>	
<b>A Novel Model for User Mobility in Wireless Sensor Networks .....</b>	1660
<i>Sang-Sik Kim and Ae-Soon Park</i>	

#### **SESSION 2: DESIGN OF HETEROGENEOUS WIRELESS NETWORKS**

<b>A Novel Distributed Topology Control Algorithm for Ad Hoc Networks.....</b>	1666
<i>Peng He, Jiandong Li, and Wei Dong</i>	
<b>Efficient Hybrid Channel Access for Data Intensive Sensor Networks.....</b>	1672
<i>Chih-Kuang Lin, Vladimir Zadorozhny, and Prashant Krishnamurthy</i>	
<b>E-ITRC Protocol with Long &amp; Adjustable Range on Underwater Acoustic Sensor Network.....</b>	1678
<i>Donghoon Kim, Yong-Man Cho, Changhwa Kim, Sangkyung Kim, Soo-Hyun Park, and Tae-Wong Kang</i>	

#### **SESSION 3: NETWORKING ON HETEROGENEOUS NETWORKS**

<b>Dynamic Route Selection Policy Protocol in MANET .....</b>	1686
<i>Fang Jing, R.S. Bhuvaneswaran, Yoshiaki Katayama, and Naohisa Takahashi</i>	
<b>Comparative Study of Reactive and Proactive Routing Protocols Performance in Mobile Ad Hoc Networks .....</b>	1692
<i>C. Mbarushimana and A. Shahrabi</i>	

<b>A Geo-Routing Algorithm in Planar Graph for Ad Hoc Wireless Networks</b> .....	1698
<i>Rashid Bin Muhammad</i>	

<b>Hierarchical Communications for Battlefields</b> .....	1703
<i>Mimoza Durrezi, Arjan Durrezi, and Leonard Barolli</i>	

## **SESSION 4: ENERGY-AWARE PROTOCOLS I**

<b>Energy Efficient Query Processing in Wireless Sensor Network</b> .....	1709
<i>Ashiqur Rahman and Sajid Hussain</i>	

<b>A Routing Method by Reactive Energy Decisive in Wireless Sensor Networks</b> .....	1714
<i>Ying-Hong Wang, Chih-Peng Hsu, Yi-Chien Lin, Chien-Shan Kuo, and Hsin-Yi Ho</i>	

<b>Power-Efficient and Path-Stable Broadcasting Scheme for Wireless Ad Hoc Networks</b> .....	1720
<i>Yeim-Kuan Chang, Yi-Wei Ting, and Shang-Chun Wu</i>	

<b>Evaluation of Reliable Data Transmission Protocol in Wireless Sensor-Actuator Network</b> .....	1726
<i>Kiyohiro Morita, Keiji Ozaki, Naohiro Hayashibara, Tomoya Enokido, and Makoto Takizawa</i>	

## **SESSION 5: ENERGY –AWARE PROTOCOLS II**

<b>Energy Efficient Spatial Query Processing in Wireless Sensor Networks</b> .....	1732
<i>Kyungseo Park, Byoungyong Lee, and Ramez Elmasri</i>	

<b>DSSP: A Dynamic Sleep Scheduling Protocol for Prolonging the Lifetime of Wireless Sensor Networks</b> .....	1738
<i>Eyuphan Bulut and Ibrahim Korpeoglu</i>	

<b>A Testbed with a Practical Smart Antenna for Directional MAC Protocols in Ad hoc Networks</b> .....	1744
<i>Hikaru Mitsuhashi, Masahiro Watanabe, Sadao Obana, Masaki Bandai, and Takashi Watanabe</i>	

## **SESSION 6: APPLICATIONS OF HETEROGENEOUS WIRELESS NETWORKS**

<b>Secure Mobile Ad Hoc Routing</b> .....	1750
<i>Xu Li, Amiya Nayak, Isabelle Ryl, David Simplot, and Ivan Stojmenovic</i>	

<b>A Data Dissemination Method for Information Sharing Based on Inter-Vehicle Communication</b> .....	1756
<i>Hiroyuki Sago, Masako Shinohara, Takahiro Hara, and Shojiro Nishio</i>	

<b>A Scheme for Low Path Loss in Object Monitoring in Grid Sensor Network</b> .....	1762
<i>Thanh Hai Trinh, Ji Hoon Kim, and Hee Yong Youn</i>	

## **SMARTEL 2007 WORKSHOP ON SMART HOMES FOR TELE-HEALTH**

### **SESSION 1: TELE-HEALTH TECHNOLOGIES 1**

<b>Smart Carpet: A Footstep Tracking Interface</b> .....	1767
<i>Domnic Savio and Thomas Ludwig</i>	

<b>Prediction Models for a Smart Home Based Health Care System</b> .....	1774
<i>Vikramaditya Jakkula, Diane J. Cook, and Gaurav Jain</i>	

<b>Wearable System-on-a-Chip Pulse Radar Sensors for the Health Care: System Overview</b> .....	1779
<i>Domenico Zito, Domenico Pepe, Bruno Neri, Danilo De Rossi, and Antonio Lanatà</i>	

## **SESSION 2: MONITORING AND SERVICES 1**

<b>Services Driven Cross-Layer Routing Protocol for Mobile Ad Hoc Networks</b> .....	1783
<i>Jun Ren, Xiaolin Zhang, and Yunhui Liu</i>	
<b>Towards Integrated Services for Health Monitoring</b> .....	1789
<i>Chunming Rong, Hein Meling, and Dagfinn Waage</i>	
<b>Multi-Stage Real Time Health Monitoring via ZigBee in Smart Homes</b> .....	1795
<i>S. Dagtas, G. Pekhteryev, and Z. Sahinoglu</i>	

## **SESSION 3: INTELLIGENT AND CONTEXT AWARE SERVICES 1**

<b>Location Learning for Smart Homes</b> .....	1800
<i>Eric D. Manley and Jitender S. Deogun</i>	
<b>Bayesian Filtering and Anonymous Sensors for Localization in a Smart Home</b> .....	1806
<i>Youcef Rahal, Philippe Mabilleanu, and Hélène Pigot</i>	
<b>Addressing Context Awareness Techniques in Body Sensor Networks</b> .....	1811
<i>Barbara T. Korel and Simon G.M. Koo</i>	
<b>Engineering Tele-Health Solutions in the Ambient Assisted Living Lab</b> .....	1817
<i>Eric Ras, Martin Becker, and Jan Koch</i>	
<b>Wireless Sensor Network Applications in Urban Telehealth</b> .....	1823
<i>Patricia A. Morreale</i>	

## **SESSION 4: TELE- HEALTH TECHNOLOGIES 2**

<b>Multimodal Home Monitoring of Elderly People—First Results from the LASS Study</b> .....	1828
<i>Michael Marschollek, Wolfram Ludwig, Ines Schapiewski, Elin Schriever, Rainer Schubert, Hartmut Dybowski, Hubertus Meyer zu Schwabedissen, Juergen Howe, and Reinhold Haux</i>	
<b>Integration of Smart Home Technologies in a Health Monitoring System for the Elderly</b> .....	1833
<i>Amaya Arcelus, Megan Howell Jones, Rafik Goubran, and Frank Knoefel</i>	
<b>Low Cost HIV Testing System for Tele-Health Applications</b> .....	1839
<i>Ali El Kateeb and Lubna Al Azzawi</i>	
<b>Wireless Sensor Networks for Home Health Care</b> .....	1845
<i>Chris R. Baker, Kenneth Armijo, Simon Belka, Merwan Benhabib, Vikas Bhargava, Nathan Burkhart, Artin Der Minassians, Gunes Dervisoglu, Lilia Gutnik, M. Brent Haick, Christine Ho, Mike Koplou, Jennifer Mangold, Stefanie Robinson, Matt Rosa, Miclas Schwartz, Christo Sims, Hanns Stoffregen, Andrew Waterbury, Eli S. Leland, Trevor Pering, and Paul K. Wright</i>	

## **SESSION 5: INTELLIGENT AND CONTEXT AWARE SERVICES 2**

<b>An Ontology-Based Context Model for Home Health Monitoring and Alerting in Chronic Patient Care Networks</b> .....	1851
<i>F. Paganelli and D. Giuli</i>	

<b>OWL-Based Context-Dependent Task Modeling and Deducing</b> .....	1859
<i>Hongbo Ni, Xingshe Zhou, Zhiwen Yu, and Kejian Miao</i>	
<b>Tangible User Interfaces for Cognitive Assistance</b> .....	1865
<i>Baptiste Boussemart and Sylvain Giroux</i>	
<b>An Evidentiary Study of the Uses of Automated Behavioral Monitoring</b> .....	1871
<i>Anthony P. Glascock and David M. Kutzik</i>	

## **SESSION 6: MONITORING AND SERVICES 2**

<b>Sensor/Actuator Networks in Smart Homes for Supporting Elderly and Handicapped People</b> .....	1876
<i>Sebastian Dengler, Abdalkarim Awad, and Falko Dressler</i>	
<b>Linearized Transformation of RF Data for Capsule Tracking in Wireless Telemetry</b> .....	1882
<i>Khalil Arshak and Francis Adepouju</i>	
<b>Fall Detection from Human Shape and Motion History Using Video Surveillance</b> .....	1888
<i>Caroline Rougier, Jean Meunier, Alain St-Arnaud, and Jacqueline Rousseau</i>	
<b>Applicability and Usability of Off-the-Shelf Smart Appliances in Tele-Care</b> .....	1894
<i>Gerhard Leitner, Martin Hitz, and David Ahlström</i>	

## **PAEWN 2007 WORKSHOP ON PERFORMANCE ANALYSIS AND ENHANCEMENT OF WIRELESS NETWORKS**

### **SESSION 1: STOCHASTIC PERFORMANCE MODELING**

<b>Analysis of MPR Selection in the OLSR Protocol</b> .....	1900
<i>Dang Nguyen and Pascale Minet</i>	
<b>Stochastic Modeling and Performance Evaluation of Fading Channel for Wireless Network Design</b> .....	1906
<i>Anjana Jain, Raksha Upadhyay, P.D. Vyavahare, and L.D. Arya</i>	
<b>An Analytical Model for Evaluating IEEE 802.15.4 CSMA/CA Protocol in Low-Rate Wireless Application</b> .....	1911
<i>Zhijia Chen, Chuang Lin, Hao Wen, and Hao Yin</i>	

### **SESSION 2: ROUTING AND SCHEDULING**

<b>FP/EDF versus FP/FIFO Local Scheduling and Probabilistic QoS Guarantees in a Bluetooth Piconet</b> .....	1917
<i>Karima Maâlaoui and Leila Azouz Saidane</i>	
<b>Reference Path Ad Hoc Routing Mechanism</b> .....	1923
<i>Fabricio Figueiredo, Paulo Cardieri, Marcel C. Castro, and Marcos A. Siqueira</i>	
<b>An Adaptive Real-Time Routing Scheme for Wireless Sensor Networks</b> .....	1930
<i>Han Peng, Zhou Xi, Li Ying, Chen Xun, and Gao Chuanshan</i>	



## **SESSION 3: TRAFFIC CONTROL AND PROTOCOL**

<b>Coverage Based Intercluster Communication for Load Balancing in Wireless Sensor Networks</b> .....	1935
<i>Nauman Israr and Irfan Awan</i>	
<b>Profiling Delay and Throughput Characteristics of Interactive Multimedia Traffic over WLANs Using OPNET</b> .....	1941
<i>Suhaimi Bin Abd Latif, M.A. Rashid, and F. Alam</i>	
<b>A New Adaptive Congestion Control Mechanism for the Internet Based on RED</b> .....	1946
<i>F. AL-Raddady and Mike Woodward</i>	
<b>The Effect of TRS/TCS Handshake on TCP</b> .....	1952
<i>Stylianios Papanastasiou, Mohamed Ould-Khaoua, and Vassilis Charissis</i>	

## **INVITE 2007 WORKSHOP ON NETWORK-BASED VIRTUAL REALITY AND TELE-EXISTENCE**

### **SESSION 1: TELE-IMMERSION**

<b>Distance Learning in Tele-Immersion Environment</b> .....	1959
<i>Tetsuro Ogi and Hiroaki Sakon</i>	
<b>Tele-Immersive Collaboration Using High-Resolution Video in Tiled Displays Environment</b> .....	1965
<i>Yasuo Ebara, Nobuyuki Kukimoto, Jason Leigh, and Koji Koyamada</i>	
<b>VR Interaction in Real-time between Avatar with Voice and Gesture Recognition System</b> .....	1971
<i>Shunji Uchino, Norihiro Abe, Kazuaki Tanaka, Tetsuya Yagi, Hirokazu Taki, and Shoujie He</i>	
<b>Design and Construction of Virtual Spaces for Communications</b> .....	1977
<i>Yuki Sogabe</i>	

### **SESSION 2: VIRTUAL REALITY**

<b>An Implementation and Experimentation of a Composite Video Streaming</b> .....	1983
<i>Kaoru Sugita and Masao Yokota</i>	
<b>Asynchronous CVE Support System by Continuous VR Space Archiver</b> .....	1989
<i>Hiroki Ogasawara and Yoshitaka Shibata</i>	
<b>Collaborative Virtual Environments Using Traditional Japanese Crafting Objects over the Ultra High-Speed Network</b> .....	1993
<i>Tomoyuki Ishida, Go Chiba, Akihiro Miyakawa, and Yoshitaka Shibata</i>	
<b>A Theoretical Consideration on Artificial Imitation of Human Action Based on Mental Image Directed Semantic Theory</b> .....	1999
<i>Masao Yokota</i>	

### **SESSION 3: SERVICE-ORIENTED APPROACH**

<b>Resource-Oriented Computing: Towards a Universal Virtual Workspace</b> .....	2005
<i>Jing-Ying Chen</i>	

<b>Middleware for Ubiquitous Service-Oriented Spaces on the Web</b> .....	2013
<i>Geert Vanderhulst, Kris Luyten, and Karin Coninx</i>	
<b>Providing More Customized Services for Online Games Using Service Oriented Architecture and Three-Tier Views: A Case Study “Mankind”</b> .....	2019
<i>Alan Y. S. Chiang, Dickson K.W. Chiu, Patrick C. K. Hung, and Yi Zheng</i>	
<b>Decentralized Information Retrieval Systems Based on Contents Information for Ubiquitous Services</b> .....	2025
<i>Takeshi Tsuchiya, Hirokazu Yoshinaga, and Keiichi Koyanagi</i>	

## **SESSION 4: E-LEARNING**

<b>An Implementation of Understanding Information Management System for Real-time Interactive Distance Education Environment</b> .....	2029
<i>Aiguo He</i>	
<b>Enhanced Semantic Question Answering System for e-Learning Environment</b> .....	2035
<i>Ying-Hong Wang, Wen-Nan Wang, and Chu-Chi Huang</i>	
<b>A Prediction Mechanism of Adaptive Learning Content in the Scalable E-Learning Environment</b> .....	2041
<i>Chih-Ping Chu and Yi-Chun Chang</i>	
<b>Functional Safety Problems in the Ubiquitous Environment</b> .....	2047
<i>Lei Jing and Zixue Cheng</i>	

## **Author Index**