The 9th IEEE International Conference on Ubiquitous Intelligence and Computing (IEEE UIC 2012)
The 9th IEEE International Conference on Autonomic and Trusted Computing (IEEE ATC 2012)
The 12th International Conference on Algorithm and Architectures for Parallel Processing (ICA3PP 2012)

Advance Program

Hosted by: Kyushu Sangyo University, Japan
September 4~7, 2012

Sponsored by:
IEEE, IEEE Computer Society
IEEE Technical Committee on Scalable Computing
Fukuoka Convention and Visitors Bureau (FCVB)

In cooperation with:
The Information Processing Society of Japan (IPSJ)
The Institute of Electronics, Information and Communication Engineers (IEICE)
The IPSJ Special Interest Group on Distributed Processing Systems (IPSJ SIG-DPS)
The IEICE Special Interest Group on Dependable Computing (IEICE SIG-DC)
The IPSJ Special Interest Group on Computer Security (IPSJ SIG-CSEC)
The IPSJ Special Interest Group on Mobile Computing and Ubiquitous Communication (IPSJ SIG-MBL)
# IEEE UIC/ATC/ICA3PP 2012 Program Overview

## Day 1 - September 4, 2012 (Tuesday)

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<tr>
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<tr>
<td>08:00-17:00</td>
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<tr>
<td>09:20-09:50</td>
<td>Opening (Bldg 12, Room #12107)</td>
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<td>09:50-10:00</td>
<td>Break</td>
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<tr>
<td>10:00-11:00</td>
<td>Keynote I - Kazuo Iwano (Mitsubishi Corporation) (Bldg 12, Room #12107)</td>
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<tr>
<td>11:00-11:20</td>
<td>Break</td>
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<tr>
<td>11:20-13:00</td>
<td>Session 1 (100 minutes) UIC 1a UIC 1b ICA3PP 1a ICA3PP 1b ATC 1 MENS 1 UIPM 1 USMAP 1</td>
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<td>13:00-14:30</td>
<td>Lunch</td>
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<td>14:30-15:30</td>
<td>Keynote II - Miroslaw Malek (Humboldt University of Berlin, Germany) (Bldg 12, Room #12107)</td>
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<td>15:30-15:50</td>
<td>Break (Demo and Poster)</td>
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<tr>
<td>15:50-17:30</td>
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<td>18:00-20:00</td>
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## Day 2 - September 5, 2012 (Wednesday)

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<tr>
<td>09:00-10:20</td>
<td>Session 3 (80 minutes) UIC 3a UIC 3b ICA3PP 3a ICA3PP 3b ATC 3 CDCN 1 UFirst 1 WEISS 1</td>
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<tr>
<td>10:40-12:00</td>
<td>Session 4 (80 minutes) UIC 4a UIC 4b ICA3PP 4a ICA3PP 4b ATC 4 CDCN 2 UFirst 2 WEISS 2</td>
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<td>12:00-13:20</td>
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<td>13:20-14:20</td>
<td>Keynote III - Wanlei Zhou (Deakin University, Australia) (Bldg 1, S201)</td>
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<td>14:20-14:40</td>
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<tr>
<td>14:40-16:00</td>
<td>IEEE UIC/ATC Panel Discussion I (Bldg 1, S201)</td>
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<td>16:00-17:00</td>
<td>ICA3PP Panel Discussion II (Bldg 1, S201)</td>
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<td>09:00-10:00</td>
<td>Keynote IV - Masafumi Yamashita (Kyushu University, Japan) (Bldg 12, Room #12107)</td>
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The 2012 IEEE International Conference on Autonomic and Trusted Computing  
(ATC 2012)

Session Chair: Jianhua Ma, Hosei University, Japan

**Keynote: Retrospect of Autonomic Computing and its influences on the recent computing trends**

Kazuo Iwano (Mitsubishi Corporation, Japan)

**Summary:**
This talk covers the original concept and technology of Autonomic Computing which was initiated by IBM in 2001. Although the Autonomic Computing initiative started a decade ago, it has been affecting ways of service delivery, infrastructure, and its architecture in a major way. The talk will elaborate on such influences of Autonomic Computing on the recent computing trends such as Grid Computing, Service Oriented Architecture, Cloud Computing, Cyber Physical Systems, and Smarter Planet. Moreover, it will also cover topics related to dependability.

**About the keynote speaker**
Dr. Kazuo Iwano helps Mitsubishi Corporation as an advisor to develop new business opportunities based on information technology focusing on services and infrastructure in society. Before joining Mitsubishi Corporation in March 2012, he had been in IBM and engaged in Research and Development and Emerging Businesses. After graduating Tokyo University in Japan with Mathematics major, he joined IBM Japan in 1975. He acquired Ph. D. in Computer Science from Princeton University in 1987. He was Director of Tokyo Research Laboratory, IBM Research from 1995 to 2000. During his stay in T. J. Watson Research Center from 2000 to 2003, he was a key member of the Autonomic Computing initiative as Director of Autonomic Computing, IBM Research. He was also in charge of Emerging Business in IBM Asia Pacific and Japan from 2002 to 2003 focusing on Autonomic Computing and Grid Computing, and he was in charge of Yamato Software Development from 2003 to 2008. He was, then, in charge of Smarter Cities and Cloud Computing as VP of Smarter Cities CTO and VP, Future Value Creation Team from 2009 to March 2012. His research interest includes combinatorial optimization, cloud computing, and Cyber Physical Systems. He is a member of IEEE, ACM, and SIAM, a fellow of Information Processing Society of Japan since 2003, and an associated member of Science Council of Japan since 2004. He has been a visiting professor of Tokyo Institute of Technology since 2010.
Keynote: Securability: the Key Challenge for Autonomic and Trusted Computing
Miroslaw Malek (Humboldt University of Berlin, Germany)

Summary:
Rapid proliferation of computing and communication systems, ranging from clouds to cyber-physical systems, puts ever-growing demands on dependability and security. Securability, the key challenge for autonomic and trusted computing, focuses on both these properties, namely dependability and security. Main techniques to meet this challenge will be outlined and concepts such as proactive fault management, failure prediction, translucency and qq-plane will be introduced.

About the keynote speaker
Miroslaw Malek is professor and holder of Chair in Computer Architecture and Communication at the Department of Computer Science at Humboldt University in Berlin. His research interests focus on dependable architectures and services in parallel, cloud, distributed and embedded computing environments including failure prediction, dependable architectures and service availability. He has participated in two pioneering parallel computer projects, contributed to the theory and practice of parallel network design, developed the comparison-based method for system diagnosis, codeveloped comprehensive WSI and networks testing techniques, proposed the consensus-based framework for responsive (fault-tolerant, real-time) computer systems design and has made numerous other contributions, reflected in over 200 publications and nine books.
He has supervised 26 Ph.D. dissertations and three habilitations (ten of his students are professors) and founded, organized and co-organized numerous workshops and conferences. He served and serves on editorial boards of several journals and is consultant to government and companies on technical and strategic issues in information technology. Malek received his PhD in Computer Science from the Technical University of Wroclaw in Poland, spent 17 years as professor at the University of Texas at Austin and was also, among others, visiting professor at Stanford, Universita di Roma “La Sapienza”, Politecnico di Milano, Keio University, Technical University in Vienna, New York University, Chinese University of Hong Kong, and guest researcher at Bell Laboratories and IBM T.J. Watson Research Center.
Trust Management and Privacy Preservation in Wireless and Sensor Networks

Wanlei Zhou (Deakin University, Australia)

Summary:
Because of the wireless transmission requirement and the self-organizing nature of its architecture for a Wireless and Sensor Network (WSN), the trust management and privacy protection for WSNs have become an especially challenging problem. In this talk, we analyze current threats and attacks in WSNs and survey state-of-the-art trust management and privacy protection schemes in WSNs. Then we classify and describe trust management schemes into two aspects in secure routing and secure data, respectively and privacy protection schemes into data-oriented and context-oriented privacy, respectively. Finally we try to present a clear direction to design and construction of trust mechanisms and privacy protection techniques in WSNs and discuss some interesting and challenging open issues on this topic.

About the keynote speaker

Professor Wanlei Zhou received the B.Eng (Computer Science and Engineering) and M.Eng (Computer Science and Engineering) degrees from Harbin Institute of Technology, Harbin, China in 1982 and 1984, respectively, and the PhD degree from The Australian National University, Canberra, Australia, in 1991. He also received a DSc degree (a higher Doctorate degree) from Deakin University in 2002 for his substantial contribution to knowledge and authoritative standing in the field of distributed computing. He is currently the Chair Professor in Information Technology and Head of School, School of Information Technology, Deakin University. Before joining Deakin University, Professor Zhou served as a system programmer in HP at Massachusetts, USA; a lecturer in Monash University, Melbourne, Australia; and a lecturer in National University of Singapore, Singapore. His research interests include theory and practical issues of building distributed systems, security and reliability of computer networks, bioinformatics, and e-learning. Professor Zhou has published more than 200 papers in refereed international journals and refereed international conferences proceedings and has edited 5 books and authored 1 book. He has also chaired a number of international conferences. Prof Zhou is a Senior Member of the IEEE.
**Keynote: Autonomous Distributed Systems of Mobile Robots**

Masafumi Yamashita (Kyushu University, Japan)

**Summary:**
We regard a set of autonomous mobile robots as a distributed system and investigates it from the view of distributed computing. After introducing the model of mobile robot system, we observe that a system of anonymous and memory-less robots can successfully exhibit some autonomous properties such as the self-organization and the self-stability, which are considered to be an important property required for e.g., robust sensor networks. Through the talk, we explore what problems the robots can solve without identifiers and memory, and discuss why they can. We then come up with the fact that molecules can exhibit autonomy without identifiers and memory -- a similarity between robots and molecules, which may justify an abuse of our using the robot model as a model of more general distributed systems including e.g., molecular computing.

**About the keynote speaker**

Dr. Yamashita received his Doctor of Engineering degree from Nagoya University, Nagoya, Japan in 1981. From 1980 to 1985, he was a research associate at Toyohashi University of Technology. In 1985, he joined Hiroshima University as an associate professor, and was a professor from 1992 to 1998. Since 1998, he is a professor at Kyushu University. He has held visiting appointments many times with Simon Fraser University, Ottawa University, Carleton University, University of Wisconsin-Milwaukee and Paris 6 University. His research interest includes distributed algorithms. He is a member of IEICE, IPSJ, JSIAM and IEEE.
The IEEE UIC 2012 Technical Program

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<td>11:20-13:00</td>
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<td>14:30-15:30</td>
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<td>15:30-16:00</td>
<td>Break (Demo and Poster)</td>
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<tr>
<td>16:30-17:30</td>
<td>UIC 2a</td>
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<tr>
<td>18:00-20:00</td>
<td>Welcome Reception (Bldg 12, 7th floor)</td>
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**UIC 1a: Ubiquitous and Intelligent Systems**

**Session Chair:**

1. Treatment of Missing Data in Intelligent Lighting Applications  
   Aravind Kota Gopalakrishna, Tanir Özcelebi, Antonio Liotta, and Johan J. Lukkien
2. Development of the Smart Toilet Equipment with Measurements of Physiological Parameters  
   Ji-Jer Huang, Sheng-J Yu, and Hao-Yi Syu
   Yasuaki Sumida, Masaki Hayashi, Kazuaki Goshi, and Katsuya Matsunaga
4. A Linguistic Approach for Robustness in Context Aware Applications  
   Young-Mok Min, Joon-Young Paik, and Eun-Sun Cho

**UIC 1b: Wireless and Ad-Hoc Network**

**Session Chair:**

1. Downlink Scheduling and Resource Allocation in EPON-WiMAX Integrated Networks  
   Chung-Chih Kuo, Hung-Yi Teng, and Ren-Hung Hwang
2. SocioTelematics: Leveraging Interaction-Relationships in Developing Telematics Systems to Support Cooperative Convoys  
   Muhammad Ashad Kabir, Jun Han, Alan Colman, and Jian Yu
3. Data Gathering in a Hybrid Wireless Sensor Network  
   Hua-Wen Tsai, Tzung-Shi Chen, Bing-Hong Tsai, Cheng-Hao Chu, and Jeng-Shian Tsai
4. Anycast Routing Based on Connectivity Metric for Sensor and Ad Hoc Networks  
   Satoru Ohta and Shingo Toda

**Poster / Demo**

1. Safe Driving Education System ASSIST—Education Anywhere, Anytime  
   Kazuaki Goshi, Masaki Hayashi, and Katsuya Matsunaga
2. A New Generation Children Tracking System Using Bluetooth MANET Composed of Android Mobile Terminals  
   Koki Morii, Koji Taketa, Yuichiro Mori, Hideharu Kojima, Eitaro Kohno, Shinji Inoue, Tomoyuki Ohta, and Yoshiaki Kakuda
UIC 2a: Vehicle Ad-Hoc Network
Session Chair:

1. A Content-Based Publish/Subscribe System for Efficient Event Notification over Vehicular Ad Hoc Networks
   Fusang Zhang, Beihong Jin, Wei Zhuo, Zhaoyang Wang, and Lifeng Zhang
2. Performance Analysis of LTE Smartphones-Based Vehicle-to-Infrastructure Communication
   Hassan Abid, Tae Choong Chung, Sungyoung Lee, and Saad Qaisar
3. Improving the Estimation of Residual Delay based Forwarding Method in Opportunistic Vehicular Networks
   Jia Jianbin, Chen Yingwen, Xu Ming, and Yu Gu

UIC 2b: Smart Environment
Session Chair:

1. Exploiting Ultrasonic Reflections for Improving Accuracy of Indoor Location Tracking
   Kang-Wook Kim, Myung-Gon Park, Takao Hishikawa, Junghie Han, and Chang-Gun Lee
2. Routine Based Analysis for User Classification and Location Prediction
   Yibing Xiong and Huiping Lin
3. MPIGate: A Solution to Use Heterogeneous Networks for Assisted Living Applications
   Hugo Cruz-Sánchez, Lionel Havet, Moufit Chehaider, and Ye-Qiong Song
4. 3D Modeling and Simulation of Human Activities in Smart Spaces

September 5, 2012 (Wednesday)

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<td>10:40-12:00</td>
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<td>19:00-21:00</td>
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UIC 3a: Wireless Sensor Network
Session Chair:

   Xing Liu, Xunxing Diao, Kun Mean Hou, Hailun Zhu, Xin Liu, Yazhou Wang, and Wei Jia
2. Situation-Based Design: A Rapid Approach for Pervasive Application Development
   Lei Tang, Xingshe Zhou, Christian Becker, Zhiwen Yu, and Gregor Schiele
3. A Mobile Application Framework for Rapid Integration of Ubiquitous Web Services
   Meng-Yen Hsieh, Hua-Yi Lin, Ching-Hung Yeh, Kuan-Ching Li, and Bo-Shiung Wu
UIC 3b: Intelligent and Social Computing
Session Chair:

1. Study of a Conversational Agent System Encouraging “Real” Answers of Individuals in a Group of Acquaintances
   Akihito Yoshii and Tatsuo Nakajima
2. Intelligent Systems that Combine Pervasive Computing and Social Networking
   Sarah Gallacher, Elizabeth Papadopoulou, Nick K. Taylor, Fraser R. Blackmun, and M. Howard Williams
3. A Four-Stage Gate-Keeper Model of Social Service Engineering: Lessons from Golden Rules of Mobile Social Game Design
   Toshihiko Yamakami
4. Predicting Mobile Phone User Locations by Exploiting Collective Behavioral Patterns
   Haoyi Xiong, Daqing Zhang, Daqiang Zhang, and Vincent Gauthier

UIC 4a: Ubiquitous Systems and Applications
Session Chair:

1. Contribution-Based User Reputation Modeling in Collaborative Recommender Systems
   Wei Hu, Yuoxue Zhang, Yuechi Zhou, and Zhi Xue
2. Knowledge Transfer in Activity Recognition Using Sensor Profile
   Yi-ting Chiang and Jane Yung-jen Hsu
3. Hybrid SN: Interlinking Opportunistic and Online Communities to Augment Information Dissemination
   Bin Guo, Zhiwen Yu, Xingshe Zhou, and Daqing Zhang
4. Global Sensor Modeling and Constrained Application Methods Enabling Cloud-Based Open Space Smart Services
   Anh Lê Tuán, Hoan N. Mau Quoc, Martin Serrano, Manfred Hauswirth, John Soldatos, Thanasis Papaioannou, and Karl Aberer

UIC 4b: Energy Efficient and Green Computing
Session Chair:

1. A Battery-Aware Energy-Efficient Android Phone with Bayesian Networks
   Si-Hyuk Yi and Sung-Bae Cho
2. An Energy-Efficient Data Collection Mechanism with a Mobile Sink for Wireless Sensor Networks
   Wen-Hwa Liao and Ssu-Chi Kuai
3. Demand Response Control Strategies for On-campus Small Data Centers
   Cheng-Jen Tang and Miau-Ru Dai
4. Hilbert-Chain Topology for Energy Conservation in Large-Scale Wireless Sensor Networks
   Yih-Chuan Lin and Jia-Hong Zhong
Recent advances in Pervasive Computing and Intelligent Environments research give a glimpse into the future of our planet and reveal exciting visions of smart everything - smart cities, smart homes, smart workplaces, smart hotels, smart schools, and much more. Driven by technological evolution offering low power many-things and wireless almost-everything (e.g., IEEE 802.15.4 radio, wireless sensor networks, sensor platforms), we could, in only a decade, envision and prototype impressive cyber-physical systems and ubiquitous applications. In most of these systems, the goal has been clear and convincing, and the technology proved to be promising and exciting. But prototyping is only a beginning, and much remains to be innovated and done before smart cities and smart environments become common places.

This panel will discuss the exciting and promising future of smart planet in terms of the challenging impediments and the potential enablers. Some of the challenges include:

- **The need to integrate research and education across disciplines.** Many research disciplines must collaborate among and within themselves, including domain experts (of the particular environment, e.g., gerontologist for assisted living spaces), behavior scientists, engineers, computer scientists. Collaboration within the computer science and engineering discipline is key enabler to a smart planet.

- **The need for novel cyber-physical software architectures.** Systems support and middleware are essential foundation to building any systems – a smart planet is no exception. Software engineering is urgently needed to understand and support the full lifecycle of intelligent environments and smart spaces. New programming models are also needed for developing safe and adaptive applications and services. New notions of trust must be formulated and supported to ensure symbiotic relationship between the users and their smart environments.

- **Broader support is needed for effective human computer interaction.** Understanding the broader requirements of human computer interaction is crucial for both individuals and the masses. Effective persuasion is also proving to be of paramount importance to the success of the operation of such smart spaces.

- **The need to integrate computational intelligence with systems research.** Without machine learning and computational intelligence techniques, the potential utility and “ceiling of goals” of smart spaces would be severely limited. Without expanding the computer system’s research to encompass proven and established machine learning and computational intelligence techniques, it will be difficult to increase the capacity of appropriately trained smart space engineers.

Panelists will present their position statements and highlight what they identify as challenges and enablers to smart planet progress and advancements.
Professor Sumi Helal
Director of the Mobile & Pervasive Computing Laboratory, University of Florida, USA
Email: helal@cise.ufl.edu

Short Biography
Sumi Helal is a Professor at the Computer and Information Science and Engineering Department (CISE) at University of Florida (UF), and a Finland Distinguished Professor (FiDiPro) at Aalto University, Finland. He is a pioneer and recognized leader in the field of Pervasive and Ubiquitous Computing. He is well known, worldwide, for his interdisciplinary research on smart spaces and Health Telematics in support of Health Care, Aging, Disabilities and Independence. He directs the Mobile and Pervasive Computing Laboratory in the CISE department at UF. He is co-founder and director of the Gator Tech Smart House, an experimental home for applied research in the domains of eldercare and health telematics. He led and directed the NIDRR-funded Rehabilitation Engineering Research Center (RERC) on Successful Aging (2001-2007), and is currently leading a continuation project on smart home based personal health and independence, funded by the National Institutes of Health (NIH).

Dr. Helal organized over 20 IEEE and ACM conferences or workshops and is currently serving as the associate Editor-in-Chief of IEEE Computer, the flagship magazine of the IEEE Computer Society. Dr. Helal earned his B.E. and M.E. degrees summa cum laude in Computer Engineering and Automatic Control from Alexandria University, Egypt, in 1982 and 1985 respectively. He earned his Ph.D. in Computer Sciences from Purdue University in 1991.

Professor Dr. Christian Becker
Chair of Information Systems II, University of Mannheim, Germany
Email: christian.becker@uni-mannheim.de

Short Biography
Christian Becker is a full professor of Information Systems at the University of Mannheim since 2006. Prior to this, he was a visiting professor for distributed systems at the University of Duisburg-Essen in Spring Term 2006. He studied Computer Science at the Universities of Karlsruhe and Kaiserslautern where he received the Diploma in 1996. From 1997 till 2001 he was a researcher at the distributed systems and operating systems group at the University of Frankfurt where he received his PhD in 2001 with a thesis about “Quality of Service Management in Distributed Object Systems”. In 2001 he joined the distributed systems group at the University of Stuttgart as Post Doc. His research focused on system support for Pervasive Computing and Peer to Peer Computing. He is specifically interested in architectures for adaptive systems. In 2004 he received the venia legendi (Habilitation) for Computer Science (Informatik). Christian’s research interests are Distributed Systems, Self-Organizing Systems and Context-Aware Computing.
**Professor Wanlei Zhou**  
Head of School of Information Technology,  
Deakin University, Melbourne, Australia  
Email: wanlei.zhou@deakin.edu.au

*Short Biography*
Professor Wanlei Zhou received the B.Eng and M.Eng degrees from Harbin Institute of Technology, Harbin, China in 1982 and 1984, respectively, and the PhD degree from The Australian National University, Canberra, Australia, in 1991. He is currently the Chair Professor of Information Technology and the Head of the School of Information Technology at Deakin University, Melbourne, Australia.

**Professor Zhiwen Yu**  
Professor & Vice-Dean, School of Computer Science  
Northwestern Polytechnical University, China  
Email: zhiwenyu@nwpu.edu.cn

*Short Biography*
Dr. Zhiwen Yu is currently a professor and vice dean of the School of Computer Science, Northwestern Polytechnical University, P. R. China. He received his B.Eng, M.Eng and Ph.D. degree of Engineering in computer science and technology in 2000, 2003 and 2005 respectively from the Northwestern Polytechnical University. He has worked as a research fellow at the Academic Center for Computing and Media Studies, Kyoto University, Japan from Feb. 2007 to Jan. 2009, and a post-doctoral researcher at the Information Technology Center, Nagoya University, Japan in 2006-2007. He has been a visiting researcher at the Context-Aware Systems Department, Institute for Infocomm Research (I2R), Singapore from Sep. 2004 to May 2005. He has been an Alexander von Humboldt Fellow at the Mannheim University, Germany from Nov. 2009 to Oct. 2010.

**Professor Jadwiga Indulska**  
School of Information Technology & Electrical Engineering,  
University of Queensland, Australia  
Email: jaga@itee.uq.edu.au

*Short Biography*
Jadwiga Indulska is a Professor in the School of Information Technology and Electrical Engineering at The University of Queensland, Brisbane, Australia. She received a Master degree in Mathematics from Jagiellonian University and her PhD degree in Computer Science from AGH University of Science and Technology, both in Krakow, Poland. Her research interests are in the areas of computer networks, distributed computing and pervasive/ubiquitous computing. Over the last 10 years, her research has addressed many problems in pervasive and autonomic computing including context
information models for context-aware applications; autonomic management of context information; privacy of context information; software engineering of context-aware applications; balancing user control and software autonomy; and autonomic, rapidly deployable mesh networks. She has led research projects on interoperability of distributed applications, mobile computing, and pervasive computing at the DSTC, an Australian Government funded Collaborative Research Centre on Distributed Systems Technology (1992-2005). She has been a Research Leader at NICTA (Australian National Centre of Excellence in Information and Communication Technology) since 2006.
ICA3PP 2012 Panel on

Future and Challenges of Parallel and Distributed Computing

Panel Chair: Professor Xu Huang, University of Canberra, Australia

Panelists:
Professor Miroslaw Malek, Humbold-Universität zu Berlin, Germany
Professor Stephen S. Yau, Arizona State University, USA
Professor Koji Nakano, Hiroshima University, Japan
Professor Camille Coti, University of Paris North (Paris XIII), France

Today, both parallel and distributing computing have became ubiquitous in the forms of clouds and cyber physical systems. We have witnessed the fast developing technology fundamentally changing the balances and paradigms between cost of computing, communication and programming: At the hardware level, the essential aspect of quickly changing landscape is the difference in growth of network bandwidth, processor speed and memory access times. High speed networks are changing balance on the networking side, because port throughput is more limited by the processor speed than by the network bandwidth, as it was in the past. At the same time, the latency of the networks is fundamentally limited by the speed of light and the distance that the transferred data need to travel. On the other hand, the speed of a processor is growing faster than the access time to the memory (where the technological advances are used to increase the memory chip capacity rather than its speed). The resulting use of buffering to mask the speed differences has led to the multi-memory hierarchy in which registers, primary cache, secondary cache and main memory are typical layers with progressively lower speed but larger capacity.

This panel will discuss the exciting and promising future of parallel and distributed computing. The challenges and future development will be discussed, such as:

- **Energy** - What makes sustainable and green parallel and distributed computing?
- **Hardware** - What is the future of the hardware of parallel and distributed computing? The price of hardware plays a role as cheaper devices are better received by customers.
- **Software** - What are the challenges of software development? No matter the software development paradigm goes centralized or distributed, parallelism is still a key to performance.
- **Security** - As systems become more complex year by year, their role in everyday life gains importance as well. As a result, security and privacy have become the major concern.

Panelists will present their position statements and highlight what they identify as challenges and potential future development in parallel and distributed computing.

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**Professor (Dr) Xu Huang, University of Canberra, Australia**

*Short Biography*

Dr Xu Huang has received the B.E. and M.E. degrees and Ph.D. in Electrical Engineering and Optical Engineering prior to 1989 and the second Ph.D. in Experimental Physics in the University of New South Wales, Australia in 1992. He has earned the Graduate Certificate in Higher Education in 2004 at the University of Canberra, Australia. He has been working on the
areas of the telecommunications, networking engineering, wireless communications, optical communications, and
digital signal processing more than 30 years. Currently he is the Head of the Engineering at the Faculty of Information
Sciences and Engineering, University of Canberra, Australia. He is the Course Conveners “Doctor of Philosophy,”
“Masters of Information Sciences (by research),” and “Master of Engineering.” He has been a senior member of IEEE
in Electronics and in Computer Society since 1989 and a Fellow of Institution of Engineering Australian (FIEAust),
Chartered Professional Engineering (CPEng), a Member of Australian Institute of Physics. He is a member of the
Executive Committee of the Australian and New Zealand Association for Engineering Education, a member of
Committee of the Institution of Engineering Australia at Canberra Branch. Professor Huang has published about two
hundred papers in high level of the IEEE and other Journals and international conference; he has been awarded 9
patents in Australia.

Professor Miroslaw Malek, Humboldt-Universität zu Berlin, Germany

Short Biography
Miroslaw Malek is professor and holder of Chair in Computer Architecture and Communication
at the Department of Computer Science at Humboldt University in Berlin. His research interests
focus on dependable architectures and services in parallel, cloud, distributed and embedded
computing environments including failure prediction, dependable architectures and service availability. He has
participated in two pioneering parallel computer projects, contributed to the theory and practice of parallel network
design, developed the comparison-based method for system diagnosis, co-developed comprehensive WSI and networks
testing techniques, proposed the consensus-based framework for responsive (fault-tolerant, real-time) computer systems
design and has made numerous other contributions, reflected in over 200 publications and nine books.
He has supervised 26 Ph.D. dissertations and three habilitations (ten of his students are professors) and founded,
organized and co-organized numerous workshops and conferences. He served and serves on editorial boards of several
journals and is consultant to government and companies on technical and strategic issues in information technology.
Malek received his PhD in Computer Science from the Technical University of Wroclaw in Poland, spent 17 years as
professor at the University of Texas at Austin and was also, among others, visiting professor at Stanford, Universita di
Roma “La Sapienza”, Politecnico di Milano, Keio University, Technical University in Vienna, New York University,
Chinese University of Hong Kong, and guest researcher at Bell Laboratories and IBM T.J. Watson Research Center.

Professor Stephen S. Yau, Arizona State University, USA

Short Biography
Stephen S. Yau is currently professor of computer science and engineering at Arizona State
University (ASU), Tempe. He served as the chair of the Department of Computer Science and
Engineering at ASU in 1994-2001. Previously, he was on the faculty of Northwestern University,
Evanston, Illinois and the University of Florida, Gainesville. He received the Ph.D. degree in electrical engineering
from University of Illinois at Urbana.
He served as the president of the Computer Society of the Institute of Electrical and Electronics Engineers (IEEE)
and American Federation of Information-Processing Societies. He also served as the editor-in-chief of COMPUTER
magazine of the IEEE Computer Society.

His current research interests are in cyber security, ubiquitous computing, distributed computing systems, service-based systems and software engineering. He has received many awards and recognition for his accomplishments, including the Tsutomu Kanai Award and Richard E. Merwin Award of the IEEE Computer Society, the IEEE Centennial and Third Millennium Medals, and the Louis E. Levy Medal of the Franklin Institute. He is a Fellow of the IEEE and the American Association for the Advancement of Science.

Professor Koji Nakano, Hiroshima University, Japan

Short Biography

Koji Nakano received the BE, ME and Ph.D degrees from Department of Computer Science, Osaka University, Japan in 1987, 1989, and 1992 respectively. In 1992-1995, he was a Research Scientist at Advanced Research Laboratory, Hitachi Ltd. In 1995, he joined Department of Electrical and Computer Engineering, Nagoya Institute of Technology. In 2001, he moved to School of Information Science, Japan Advanced Institute of Science and Technology, where he was an associate professor. He has been a full professor at School of Engineering, Hiroshima University from 2003. He has published extensively in journals, conference proceedings, and book chapters. He served on the editorial board of journals including IEEE Transactions on Parallel and Distributed Systems, IEICE Transactions on Information and Systems, and International Journal of Foundations on Computer Science. He has also guest-edited several special issues including IEEE TPDS Special issue on Wireless Networks and Mobile Computing, IJFCS special issue on Graph Algorithms and Applications, and IEICE Transactions special issue on Foundations of Computer Science. He has organized conferences and workshops including International Conference on Networking and Computing, International Conference on Parallel and Distributed Computing, Applications and Technologies, IPDPS Workshop on Advances in Parallel and Distributed Computational Models, and ICPP Workshop on Wireless Networks and Mobile Computing. His research interests include image processing, hardware algorithms, GPU-based computing, FPGA-based reconfigurable computing, parallel computing, algorithms and architectures.

Professor Camille Coti, University of Paris North (Paris XIII), France

Short Biography

Camille Coti graduated with a MSc in telecommunications (majoring in parallel and distributed computing) from Telecom SudParis and a PhD in computer science from University of Paris South. She made several visits to the Innovative Computing Laboratory at the University of Tennessee, Knoxville, totaling 22 months in Knoxville. Then she worked as a post-doctoral research associate at Iowa State University. She is now an Assistant Professor at the University of Paris North (Paris XIII). She works on parallel computing on hierarchical memory and highly-distributed systems. Her interests include parallel algorithms, run-time environments and distributed computing on volatile environments.
### September 6, 2012 (Thursday)

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<td>10:00-10:20</td>
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<tr>
<td>10:20-12:00</td>
<td>UIC 5a</td>
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<tr>
<td>12:00-13:00</td>
<td>Lunch</td>
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<td>13:30-20:00</td>
<td>Half-Day Tour</td>
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**UIC 5a: Security and Intelligent Systems**  
Session Chair:  
1. The Challenge of Preparational Behaviors in Preference Learning for Ubiquitous Systems  
   Sarah Gallacher, Eliza Papadopoulou, Nick K. Taylor, and M. Howard Williams  
2. Risk-Based Intelligent Software Release Planning  
   Shunsuke Tokumoto and Tadashi Dohi  
3. Efficient Time Series Disaggregation for Non-intrusive Appliance Load Monitoring  
   Yao-Chung Fan, Xingjie Liu, Wang-Chien Lee, and Arbee L.P. Chen  
4. User Identification Based on Touch Dynamics  
   Frode Eika Sandnes and Xiaoli Zhang

**UIC 5b: P2P & RFID**  
Session Chair:  
1. Neighbor Selection Method Based on Sending Capacity for P2P Live Streaming with Layer Coding  
   Rei Endo, Kazuyuki Takayama, Yoshiki Sakata, and Hiroshi Shigeno  
2. Using Dynamic Slots Collision Tracking Tree Technique Towards an Efficient Tag Anti-collision Algorithm in RFID Systems  
   Chiu-Kuo Liang and Hsin-Mo Lin  
3. AB-Chord: An Efficient Approach for Resource Location in Structured P2P Networks  
   Yufeng Wang, Xiangming Li, Qun Jin, and Jianhua Ma  
   Jung-Min Yun and Peom Park

### September 7, 2012 (Friday)

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<td>09:00-10:40</td>
<td>UIC 6a</td>
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<tr>
<td>10:40-11:00</td>
<td>Break</td>
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<tr>
<td>11:00-12:40</td>
<td>UIC 7a</td>
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<tr>
<td>12:40-13:30</td>
<td>Lunch</td>
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<tr>
<td>13:30-14:00</td>
<td>Closing Session</td>
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**UIC 6a: Wireless Sensor Network and Mobile Computing**  
Session Chair:  
1. A Transmission Scheduling for Data-Gathering Wireless Sensor Networks  
   Chao Gao, Ilkka Kivelä, Xinya Tan, and Ismo Hakala  
   A. Masoum, N. Meratnia, and P.J.M. Havinga  
   Weigang Wu, Jiannong Cao, Hejun Wu, and Jingjing Li  
4. The IG-Ferry Protocol to Support Efficient Controlled Replication in Vehicular Delay Tolerant Network  
   Ing-Chau Chang, Chien-Hsün Li, and Cheng-Fu Chou
UIC 6b: Intelligent Systems, Software and Objects
Session Chair:

1. Wireless Smart Home Sensor Networks: Mobile Agent Based Anomaly Detection
   Muhammad Usman, Vallipuram Muthukumarasamy, Xin-Wen Wu, and Surraya Khanum
2. An Efficient Method for Lane-Mark Extraction in Complex Conditions
   Chin-Yu Chang and Chang-Hong Lin
3. An Intelligent Accessing Control System Based on Human Intention Analysis
   Teng-Hui Tseng, Chin-Lun Lai, Sheng-Ta Hsieh, and Jun-Horng Chen
4. Comparative Study on Advanced TV Interface Types in the Smart Media World
   Youngjae Lim, Jaekyu Park, Eui S. Jung, David Ho Chung, Taeil Kim, Kwangsoo Choi, and Seunghun Lee

UIC 7a: Theory and Applications
Session Chair:

1. A Novel Interval Grey Number and Entropy-based Solution for Multiple-Criteria Group Decision Making Problem
   Hyung Ku Kang, Dae Gun Kim, Hwi Woon Jeong, Geon Yong Park, and Hee Yong Youn
2. An Overlap Aware Technique for Redundant Reader Elimination
   Ching-Hsien Hsu, Chia-Hao Yu, Chun-Yao Chung, Chao-Tung Yang, and Chih-Hsun Chou
   Xin Lai, Cong Liu, Zhiying Wang, and Quanyou Feng
4. Hydra: An Ubiquitous Application for Service Rerouting
   Lucas A. Almeida, Fabricio N. Buzeto, Ana H.O.R. Castillo, Carla D. Castanho, and Ricardo P. Jacobi

UIC 7b: Security and Fault Management
Session Chair:

1. Confidential Enhancement with Multi-code Keying Reconfiguration over Time-Shifted CHPC-based 2D OCDMA Networks
   Yao-Tang Chang and Chuen-Ching Wang
2. Fault Management for Smart Wireless Sensor Networks
   Radosveta Sokullu and Ozlem Karaca
3. An Efficient Clustering Authentication Mechanism for Mobile Ad Hoc Networks
   Chung-Hung Yeh, Meng-Yen Hsieh, and Kuan-Ching Li
4. A Fault Detection and Diagnosis Framework for Ambient Intelligent Systems
   Ahmed Mohamed, Christophe Jacquet, and Yacine Bellik
<table>
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<tr>
<td>09:20-09:50</td>
<td>Opening (Bldg 12, Room #12107)</td>
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<td>09:50-10:00</td>
<td>Break</td>
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<tr>
<td>10:00-11:00</td>
<td>Keynote I (Bldg 12, Room #12107)</td>
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<tr>
<td>11:00-11:20</td>
<td>Break</td>
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<tr>
<td>11:20-13:00</td>
<td>ICA3PP 1a</td>
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<tr>
<td>13:00-14:30</td>
<td>Lunch</td>
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<tr>
<td>14:30-15:30</td>
<td>Keynote II (Bldg 12, Room #12107)</td>
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<td>15:30-15:50</td>
<td>Break (Demo and Poster)</td>
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<tr>
<td>15:50-17:30</td>
<td>ICA3PP 2a</td>
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<tr>
<td>17:30-18:00</td>
<td>Free Time</td>
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<tr>
<td>18:00-20:00</td>
<td>Welcome Reception (Bldg 12, 7th floor)</td>
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### ICA3PP 1a: Parallel Algorithms
**Session Chair:**

1. Parallel Algorithm for Nonlinear Network Optimization Problems and Real-Time Applications
   *Shin-Yeu Lin and Xian-Chang Guo*
2. Fast Parallel Algorithms for Blocked Dense Matrix Multiplication on Shared Memory Architectures
   *G. Nimako, E. J. Otoo and D. Ohene-Kwofie*
3. Vectorized Algorithms for Quadtree Construction and Descent
   *Eraldo P. Marinho and Alexandro Baldassin*
4. Exploiting Multi-grain Parallelism for efficient Selective Sweep Detection
   *Nikolaos Alachiotis, Pavlos Pavlidis, and Alexandros Stamatakis*

### ICA3PP 1b: Distributed Scheduling and Load Balancing
**Session Chair:**

1. Optimal Linear Programming Solutions for Multiprocessor Scheduling with Communication Delays
   *Sarad Venugopalan and Oliver Sinnen*
2. A Hybrid Heuristic-Genetic Algorithm for Task Scheduling in Heterogeneous Multi-core System
   *Chuan Wang, Jianhua Gu, Yulan Wang, and Tianhai Zhao*
3. Multi-Core Fixed Priority DVS Scheduling
   *Liu Yang and Man Lin and Laurence T. Yang*
4. A Dependency Aware Task Partitioning and Scheduling Algorithm for Hardware-Software Codesign on MPSoCs
   *Chunsheng Li, Xi Li, Chao Wang, Xuehai Zhou, and Fangling Zeng*

### ICA3PP 2a: Parallel Architectures and Networks
**Session Chair:**

1. Ultrasound Simulation on the Cell Broadband Engine using the Westervelt Equation
   *Andrew A. Haigh, Bradley E. Treeby, and Eric C. McCreath*
2. Experiments in Parallel Matrix Multiplication on Multi-Core Systems
   *Joeffrey Legaux, Sylvain Joubertie, and Frédéric Loulergue*
3. A Verified Library of Algorithmic Skeletons on Evenly Distributed Arrays
   *Wadoud Bousdira, Frédéric Loulergue, and Julien Tesson*
4. Security Computing for the Resiliency of Protecting from Internal Attacks in Distributed Wireless Sensor Networks
   *Xu Huang, Dharmendra Sharma, and Muhammad Ahmed*

### ICA3PP 2b: Performance Management
**Session Chair:**

1. Efficient Task Assignment on Heterogeneous Multicore Systems Considering Communication Overhead
   *Li Wang, Jing Liu, Jingtong Hu, Qingfeng Zhuge, Duo Liu, and Edwin H.-M. Sha*
   Mei-Ling Chiang, Chen-Yu Yang, and Shin-Lu Lien
   Eddy Caron, Frédéric Desprez, Adrian Muresan, and Frédéric Suter
4. On Modelling and Prediction of Total CPU Usage for Applications in MapReduce Environments
   Nikzad Babaii Rizvandi, Javid Taheri, Reza Moraveji, and Albert Y. Zomaya

<table>
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<td>10:40-12:00 ICA3PP 4a</td>
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<td>12:00-13:20 Lunch</td>
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<tr>
<td>13:20-14:20 Keynote III (Bldg 1)</td>
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<td>14:20-14:40 Break</td>
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<td>14:40-15:40 Panel Discussion I (Bldg 1)</td>
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<td>15:40-16:00 Break</td>
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<tr>
<td>16:00-17:00 Panel Discussion II (Bldg 1)</td>
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<tr>
<td>17:00-19:00 Free Time</td>
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<tr>
<td>19:00-21:00 Banquet (Nikko Hotel Hakata)</td>
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ICA3PP 3a: Parallel Algorithms
Session Chair:
1. A Regular Group Quorum System of Degree $\lceil \sqrt{(n/2)} \rceil$
   Fouad B. Chedid
2. A Note on Developing Optimal and Scalable Parallel Two-List Algorithms
   Fouad B. Chedid
3. High-performance Matrix Multiply on a massively Multithreaded Fiteng1000 Processor
   Jie Liu, Lihua Chi, Chunya Gong, Han Xu, Jie Jiang, Yihui Yan, and Qingfeng Hu
4. BIDE-based Parallel Mining of Frequent Closed Sequences with MapReduce
   Dongjin Yu, Wei Wu, Suhang Zheng, and Zhixiang Zhu
5. An Implementation of Parallel 2-D FFT Using Intel AVX Instructions on Multi-Core Processors
   Daisuke Takahashi
6. A New Low Latency Parallel Turbo Decoder Employing Parallel Phase Decoding Method
   Wen-Ta Lee, Min-Sheng Chang, and Wei-Chieh Shen
7. Towards Multi-Level Adaptation for Distributed Operating Systems and Applications
   Djawida Dib, Nikos Parlavantzas, and Christine Morin

ICA3PP 3b: Performance of Parallel & Distributed Computing Systems
Session Chair:
1. Analytical Modeling for Multi-transaction bus on distributed systems
   Jih-Ching Chiu, Kai-Ming Yang, and Chen-Ang Wong
2. Performance Evaluation of OpenMP and CUDA on Multicore Systems
   Chao-Tung Yang, Tzu-Chieh Chang, Kuna-Lung Huang, Jung-Chun Liu, and Chih-Hung Chang
3. Leveraging the Strengths of Transactional Memory While Maintaining System Performance for a Multiplayer Gaming Application
   LihChyun Shu, Ying-Cheng Su, Chang-Ming Tasi, and Huey-Min Sun
4. Maintaining Consistency in Software Transactional Memory through Dynamic Versioning Tuning
   Elsion Atoofian and Amir Ghambari Bavarsad
5. Design of n-gram based Dynamic Pre-fetching for DSM
   Sitaramaiah Ramisetti, Rajeev Winkar, and C.R. Rao
6. Exploring Object-Level Parallelism on Chip Multi-Processors
   Weixing Ji, Yizhuo Wang, Zhi Huang, Junqing Zhao, and Xi Li

ICA3PP 4a: Distributed Computing Environments
Session Chair:
1. A Semantic Impact in Decentralized Resource Discovery Mechanism for Grid Computing Environments
   Abdul Khalique Shaikh, Saadat M. Alhashmi, and Rajendran Parthiban
2. Solving a 2-covered Path Problem with Variable Radii for Wireless Sensor Networks
Da-Ren Chen, Chiun-Chieh Hsu, You-Shyang Chen, and Jan-Fu Guo
3. Small Business-oriented Index Construction of Cloud Data
   Kai Peng, Hua Zou, Rongheng Lin, and Fangchun Yang
4. On Construction of Cloud IaaS for VM Live Migration Using KVM and OpenNebula
   Chao-Ting Yang, Shao-Feng Wang, Kuan-Lung Huang, and Jung-Chun Liu
5. Enhancing the Performance of a Distributed Mobile Computing Environment by Topology Construction
   Il-Young Kim and Jong-Kook Kim
6. Determining Quality of S-Boxes Using Pseudo Random Sequences Generated from Stream Ciphers
   Anh P. Nguyen and Thuc D. Nguyen

ICA3PP 4b: Fault-tolerant Computing, Distributed Scheduling, and Application
Session Chair:
1. On Affirmative Adaptive Failure Detection
   Ahmad Shukri Mohd Noor, Mustafa Mat Deris, Tutut Herawan, and Mohamad Nor Hassan
2. Frame Error Rate Testing for High Speed Optical Interconnect
   Yi Dai, Ke-fei Wang, Wei-xia Xu, He-ying Zhang, Shao-gang Wang
3. Efficient Task Scheduling for Hard Real-Time Tasks in Asymmetric Multicore Processors
   Sung Il Kim, Jong-Kook Kim, Hyoung Uk Ha, Tae Ho Kim, and Kyu Hyun Choi
4. Complexity of the Resource Allocation/Matching Problem with Weight Based Ceilings
   Charles Karemera and John Ngubiri
5. FIDs Classifier for Artificial Intelligence and its Application
   Chih-Chiang Wei
6. Design of an Application-dependent Static-based Shared Memory Network
   Yoshimasa Ohnishi and Takaichi Yoshida

September 6, 2012 (Thursday)

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<td>10:20-12:00</td>
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<td>12:00-13:00</td>
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<td>13:00-20:00</td>
<td>Half-Day Tour</td>
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ICA3PP 5a: Parallel Architectures
Session Chair:
1. Performance, Scalability, and Semantics of Concurrent FIFO Queues
   Christoph M. Kirsch, Hannes Payer, Harald R?ck, and Ana Sokolova
2. Scalable Distributed Architecture for Media Transcoding
   Horacio Sanson, Luis Loyola, and Daniel Pereira
3. Overcoming the Scalability Limitations of Parallel Star Schema Data Warehouses
   João Pedro Costa, José Cecílio, Pedro Martins, and Pedro Furtado
4. Enhancing Service-Oriented Computing with Software Mobility
   Hervé Paulino and Gilberto Camacho

ICA3PP 5b: Reliability and Fault-tolerant
Session Chair:
1. Fault Tolerance Logical Network Properties of Irregular Graphs
   Christophe Cérin, Camille Coti, and Michel Koskas
2. Non-Blocking Atomic Commitment in Asynchronous Distributed Systems with Faulty Processes
   Sung-Hoon Park and Seon-Hyong Lee
3. Comparing Checkpoint and Rollback Recovery Schemes in a Cluster System
   Noriaki BESSHO and Tadashi DOHI
   Chayoung Kim and Jinho Ahn
September 7, 2012 (Friday)

08:00-12:00  Registration
09:00-10:40  ICA3PP 6a  ICA3PP 6b
10:40-11:00  Break
11:00-12:40  ICA3PP 7a  ICA3PP 4b
12:40-13:30  Lunch
13:30-14:00  Closing Session

ICA3PP 6a:  System and Reliability
Session Chair:

1. The Hamiltonicity of WK-recursive Pyramid
   Yi-Chun Wang and Justie Su-Tzu Juan
2. A Bitstream Relocation Technique to Improve Exibility of Partial Reconfiguration
   Yoshihiro Ichinomiya, Motoki Amagasaki, Masahiro Iida, Morihiro Kuga, and Tosihinori Sueyoshi
3. Fault Recovery Technique for TMR Softcore Processor System using Partial Reconfiguration
   Makoto Fujino, Hiroki Tanaka, Yoshihiro Ichinomiya, Motoki Amagasaki, Morihiro Kuga, Masahiro Iida, and Tosihinori Sueyoshi
   Tyler Crain, Eleni Kanellou, and Michel Raynal

ICA3PP 6b:  Parallel Programming
Session Chair:

1. Accelerating the Dynamic Programming for the Optimal Polygon Triangulation on the GPU
   Kazufumi Nishida, Koji Nakano, and Yasuaki Ito
2. Optimization of a short-range Proximity Effect Correction Algorithm in E-Beam Lithography using GPGPUs
   Max Schneider, Nikola Belic, Christoph Sambale, Ulrich Hofmann, and Dietmar Fey
3. An Optimal Parallel Prefix-sums Algorithm on the Memory Machine Models for GPUs
   Koji Nakano
4. GPU-Accelerated Restricted Boltzmann Machine for Collaborative Filtering
   Xianggao Cai, Zhanpeng Xu, Guoming Lai, Chengwei Wu, and Xiaola Lin

ICA3PP 7a:  Performance of Parallel & Distributed Computing Systems
Session Chair:

1. A Multi-level Monitoring Framework for Stream-based Coordination Programs
   Vu Thien Nga Nguyen, Raimund Kirner, and Frank Penczek
2. Performance Measurement of Parallel Vlasov Code for Space Plasma on Various Scalar-Type Supercomputer Systems
   Takayuki Umeda and Keiichiro Fukazawa
3. The Impact of Global Communication Latency at Extreme Scales on Krylov Methods
   Thomas J. Ashby, Pieter Ghysels, Wim Heirman, and Wim Vanroose
4. Study on the Data Flow Balance in NFS Server with iSCSI
   Nianmin Yao, Yong Han, Shaobin Cai, and Qilong Han

ICA3PP 7b:  Parallel Programming for GPUs
Session Chair:

1. On a Wideband Fast Fourier Transform Using Piecewise Linear Approximations: Application to a Radio Telescope Spectrometer
   Hiroki Nakahara, Hiroyuki Nakanishi, and Tsutomu Sasao
2. A multi-GPU Programming Library for Real-Time Applications
   Sebastian Schaeutz and Martin Uecker
3. An Insightful Program Performance Tuning Chain for GPU Computing
   Haipeng Jia, Yunque Zhang, Guang Long, and Shengen Yan
4. Power Efficiency Evaluation of Block Ciphers on GPU-Integrated Multicore Processor
   Naoki Nishikawa, Keisuke Iwai, and Takakazu Kurokawa
# The IEEE ATC 2012 Technical Program

### September 4, 2012 (Tuesday)

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<td>08:00-17:00</td>
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<td>09:20-09:50</td>
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<td>11:20-13:00</td>
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<td>15:30-15:50</td>
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<td>18:00-20:00</td>
<td>Welcome Reception (Bldg 12, 7th floor)</td>
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## ATC 1: AC/OC Architectures and Systems, Components and Modules

**Session Chair:**

1. Guaranteeing Asymptotic Stability of Clustering by Autonomous Decentralized Structure Formation  
   *Ryo Hamamoto, Chisa Takano, Kenji Ishida, Masaki Aida*
2. Semantic Modeling and Reasoning at Runtime for Autonomous Systems Engineering  
   *Tarak Chaari, Kaouthar Fakhfakh*
   *Luis Assuncao, Carlos Goncalves, Jose Cunha*
4. Automatic I/O scheduler selection through online workload analysis  
   *Ramon Nou, Jacobo Giralt, Toni Cortes*

## ATC 2: Trust Models and Specifications, Tools and Interfaces

**Session Chair:**

1. Composite trust model for an information sharing scenario  
   *Kevin Chan, Jin-Hee Cho, Sibel Adalı*
2. Insuring Sensitive Processes through Process Mining  
   *Jorge Munoz-Gama, Isao Echizen*
3. On Enhancing Adaptive Random Testing for AADL Model  
   *Bo Sun, Yunwei Dong*
4. Component Importance Analysis of Virtualized System  
   *Junjun Zheng, Hiroyuki Okamura, Tadashi Dohi*
### September 5, 2012 (Wednesday)

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#### ATC 3: Trusted Reliable and Dependable Systems I

**Session Chair:**

1. Performance Analysis of Virtual Disk System for Transparent Computing  
   **Yuan Gao, Yaoxue Zhang, Yuezhi Zhou**
2. Optimizing Software Rejuvenation Policies under Interval Reliability Criteria  
   **Tadashi Dohi, Hiroyuki Okamura, Kishor Trivedi**
3. Combined Server Rejuvenation in a Virtualized Data Center  
   **Fumio Machida, Jianwen Xiang, Kumiko Tadano, Yoshiharu Maeno**

#### ATC 4: Trusted Reliable and Dependable Systems II

**Session Chair:**

1. Model-Based Performance Optimization of Generalized Snapshot Isolation in Database System  
   **Chao Luo, Hiroyuki Okamura, Tadashi Dohi**
2. Filesystem Layout Reorganization in Virtualized Environment  
   **Masaya Yamada, Saneyasu Yamaguchi**
3. An Availability-aware Virtual Machine Placement Approach for Dynamic Scaling of Cloud Applications  
   **Wenting Wang, Haopeng Chen, Xi Chen**

### September 6, 2012 (Thursday)

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#### ATC 5: AC/OC Communication and Services, Tools and Interfaces

**Session Chair:**

1. iSac : Intimacy based Access Control for Social Network Sites  
   **Yonggang Wang, Ennan Zhai, Eng Keong Lua, Jianbin Hu, Zhong Chen**
2. PKU-STRAW-L: a simulative platform evaluate the energy save rate of the intelligent street lamp system  
   **Yang Tao, Wang Yinyang, Hu Jianbin, Chen Zhong**
   **Toshiaki Hayashi, Satoru Ohta**
September 7, 2012 (Friday)

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<td>13:30-14:00</td>
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ATC 6: Trust-related Security and Privacy
Session Chair:

1. A Self-protection Mechanism against Stepping-stone Attacks for IaaS Clouds  
   Kenichi Kourai, Takeshi Azumi, Shigeru Chiba
2. Neighbor Similarity Trust against Sybil Attack in P2P E-Commerce  
   Felix Musau, Guojun Wang, Song Guo, Muhammad Abdullahi
3. Accuracy of Privacy-preserving Collaborative Filtering Based on Quasi-homomorphic Similarity  
   Hiroaki Kikuchi, Yoshiki Aoki, Masayuki Terada, Kazuhiko Ishii, Kimihiko Sekino

ATC 7: Trustworthy Services and Applications
Session Chair:

   Wei Chen, Xiaoqiang Qiao, Jun Wei, Tao Huang
2. A Frame Rate Up-Conversion Algorithm for 3-D Video  
   Shen-Chuan Tai, Chuen-Ching Wang, Chien-Shiang Hong, Chih-Pei Yeh, Yao-Tang Chang
3. A Power Saving Method with Consideration of Performance in Android Terminals  
   Nagata Kyosuke, Saneyasu Yamaguchi, Hisaio Ogawa
# The MENS 2012 Technical Program

## September 4, 2012 (Tuesday)

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<td>MENS 2</td>
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## MENS 1: Modeling of Multidisciplinary Emerging Networks and Systems

**Session Chair:**

1. Dependability Modeling and Analysis of Random Port Hopping  
   *Kousaburo HARI and Tadashi DOHI*

2. An Assurance Enhanced Route-Split Routing for Non-uniform Node Density in Mobile Ad Hoc Networks  
   *Mario Takeuchi, Anri Kimura, Eitaro Kohno, Tomoyuki Ohta and Yoshiaki Kakuda*

3. An Extension of Routing Tree Algorithm Considering Link Speed Change in IEEE 802.11n Protocol for Wireless Mesh Network  
   *Nobuo Funabiki, Wataru Maruyama, Toru Nakanishi and Kan Watanabe*

4. Quasi-Static Approach for Analyzing Interactions Between Networks and Users Based on Decomposition of Timescales  
   *Masaki Aida, Chisa Takano, Masayuki Murata and Makoto Imase*

## MENS 2: Application of Multidisciplinary Emerging Networks and Systems

**Session Chair:**

1. Toward Remote Service Invocation in Android  
   *Kazuhiro Nakao and Yukikazu Nakamoto*

2. Achieving High Availability of Consistent Data in the Presence of Network Partitions  
   *Tatsuhiro Tsuchiya*

3. A Routing ID-based Node-disjoint Multipath Scheme for Ad Hoc Networks  
   *Takahide Uemori, Eitaro Kohno and Yoshiaki Kakuda*

   *Leonardo Martucci, Albin Zuccato, Ben Smeets, Sheikh M. Habib, Thomas Johansson and Nahid Shahmehri*
# The UIPM 2012 Technical Program

## September 4, 2012 (Tuesday)

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### UIPM 1: Ubiquitous Computing Techniques for Multimedia Systems and Applications

**Session Chair:** Wei-Jen Wang (Room #12103) / Yue-Shan Chang (Room #12216)

**Room #12103**

1. The Modulation Method based on Reed-Solomon code for Watermarking  
   Huang-Chi Chen, Yu-Wen Chang, Rey-Chue Hwang
2. Dual-watermarking by QR-code Applications in Image Processing  
   Fu-Hau Hsu, Min-Hao Wu, Shih-Jeng Wang
3. Employing LSB and VQ for Undetectable Secret Data Hiding  
   Cheng-Ta Huang, Wei-Jen Wang, Min-Yi Tsai, Chin-Feng Lee
4. The Design and Realization of Video Phone System in Embedded Platform  
   Ching-Lung Chang, Chang-Hsuan Hung

**Room #12216**

1. A framework for scalable cloud video recorder system in surveillance environment  
   Chia-Feng Lin, Shyan-Ming Yuan, Muh-Chyi Leu
   Yu-Sheng Wu, Yue-Shan Chang, Tong-Ying Juang
3. A Project-based Curriculum for Teaching C++ Object-Oriented Programming  
   Yen-Liu Chen, Chuan-Yen Chiang, Yo-Ping Huang, Shyan-Ming Yuan

### UIPM 2a: Applications and Tools for Ubiquitous Information Processing and Management

**Session Chair:** Chun-Chuan Chen (Room #12103) / Shyan-Ming Yuan (Room #12216)

**Room #12103**

1. An Expert System Application for Respiratory Infection Diagnostic  
2. Accelerating Computation of DCM for ERP by GPU-Based Parallelism  
   Wei-Jen Wang, I-Fan Hsieh, Chun-Chuan Chen
3. Applying pervasive computing in an architecture for homecare environments  
   Leandro O. Freitas, Giovani R. Librelotto, Henrique G. G. Pereira, Jeferson Kasper, Ricardo G. Martini, Bruno Mozzaquatro, Rafael T. Pereira
4. Assessing the Relationships between IS Success with Intellectual Capital for International Medical Services Centers in Taiwan- The Perspective of Physicians  
   Hsien-Cheng Lin, Chen-Chia Chen, Echo Huang, Ya-Hui Yang

**Room #12216**

1. Squareknot: a Flexible Framework for Actuators and Controllers in Smart Environment  
   Takeru Ujinawa, Naohiro Hayashibara
2. FOSS4G Based Mobile Web-GIS for Field Survey in Natural Environmental Studies  
   Yu Nakayama, Suguru Mori
3. Constructing Private Cloud Storage Using Network Attached Storage  
   Guo-Heng Luo, Wen-Feng Hsu, Shyan-Ming Yuan
The USMAP 2012 Technical Program

September 4, 2012 (Tuesday)

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USMAP 1:
Session Chair:

1. Ubiquitous Computing and Evaluation of Water Quality by Grey Relational Analysis
   Hung-Jin Chen, Yo-Ping Huang and Yun-Kai Ke
2. Design and Implementation of Assisted Body Movement System for Visually Impaired Children
   Hung-Chi Chu, Wei-Tai Wu, Fang-Lin Chao and Liza Lee
3. Execution Time Prediction Using Rough Set Theory in Hybrid Cloud
   Chih-Tien Fan, Yue-Shan Chang, Wei-Jen Wang, Shyan-Ming Yuan
4. A Finite State Machine-Based Fall Detection Mechanism on Smartphones
   Shang-Lin Hsieh, Ming Hsiung Su, Wey-Wen Jiang, and Lu Feng Liu

USMAP 2:
Session Chair:

1. System Design of an Intelligent Nutrition Consultation and Recommendation Model
   En-Yu Lin, Don-Lin Yang, Ming-Chuan Hung
2. An Enhanced IOT Gateway in a Broadcast System
   Xianyang Jiang, Deshi Li, Shaobo Nie, Jing Luo, Zhonghai Lu
3. How Online Social Network Affect Offline Events: A Case Study on Douban
   Jianwei Han, Jianwei Niu, Alvin Chin, Wei Wang, Chao Tong, Xia Wang
4. Mixed-Style Print Advertising Combining Fashion Photography and Digital Illustrations:
   Examining the Print Advertising of Consumer Products in Taiwan
   Yi-Lin Yu
The CDCN 2012 Technical Program

September 5, 2012 (Wednesday)

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CDCN 1: Theory of Cognitive Distributed Computing and Networking

Session Chair:

1. Wireless Sensor Network internal attacker Identification with Multiple Evidence by Dempster-Shafer Theory
   *Muhammad Ahmed, Xu Huang, Dharmendra Sharma, and Li Shutao*

2. A Novel Feature Selection Scheme For Energy Efficient Wireless Sensor Networks
   *Moh'd ALWADI and Girija CHETTY*

3. A Comprehensive Survey of The Feature Extraction Methods in The EEG Research
   *Mohammad A Rahman, Wanli Ma, Dat Tran, and John Campbell*

4. Development of a Smart e-Health Portal for Chronic Disease Management
   *Maryam Haddad and Girija Chetty*

CDCN 2: Practice of Cognitive Distributed Computing and Networking

Session Chair:

1. A Novel Approach to Protein Structure Prediction Using PCA Based Extreme Learning Machines and Multiple Kernels
   *Lavneet singh, Girija Chetty, and Dharmendra Sharma*

2. A Novel Approach to Guarantee Causal Message Ordering in Pre-Planned Wireless Sensor Networks
   *Chayoung Kim and Jinho Ahn*

3. People Identification with RMS-based Spatial Pattern of EEG Signal
   *Salahiddin Altuhat, Xu Huang, Dat Tran, and Dharmendra Sharma*

4. Gait Based Human Identity Recognition From Multi-View Surveillance Videos
   *Emdad Hossain and Girija Chetty*
# The UFirst 2012 Technical Program

## September 5, 2012 (Wednesday)

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<td>Banquet (Nikko Hotel Hakata)</td>
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### UFirst 1: Smart devices and mobile computing

**Session Chair:**

1. Ubiquitous Smart Devices and Applications for Disaster Preparedness
   

2. A Surveillance System Designed for the Correction of Sitting Posture in Writing
   
   Yi-Ping Wu and Jun-Horng Chen

3. Development of an Intelligent App for Obstructive Sleep Apnea Prediction on Android Smartphone Using Data Mining Approach
   
   Ming-Hseng Tseng, Hsueh-Chen Hsu, Che-Chia Chang, Hua Ting, Hui-Ching Wu, and Ping-Hung Tang

### UFirst 2: Theorem and Applications

**Session Chair:**

1. Mining Distributed Frequent Itemsets Using a Gossip Based Protocol
   
   Maryam Bagheri, Seyed-Hassan Mirian-Hosseinabadi, Hoda Mashayekhi, and Jafar Habibi

2. An Intelligent Virtual Fence Security System for the Detection of People Invading
   

3. From User Experience to Social Experience: A New Perspective for Mobile Social Game Design
   
   Toshihiko Yamakami

## September 7, 2012 (Friday)

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</table>

### UFirst 3: Smart Environments & E-health Systems

**Session Chair:**

1. A Distributed Integrated Fare Collection and Accounting System for Metropolitan Railway Transit
   
   Pintsang Chang

2. Interval-Valued Cloud Model Based Personal Sub-health Status Diagnosing Prototype System on TCM Syndrome Data
   
   Feng Guo, Ying Lin, Shaozi Li, and Ying Dai

3. A New RFID Anti-collision Algorithm for the EPCglobal UHF Class-1 Generation-2 Standard
   
   Wen-Tzu Chen

4. Design and Implementation of an Auto-Configuration and Cooperation Generation of Web Service User Interface Based on TR-069 Protocol
   
   Jin-Neng Wu, Chia-Ching Chan, Ping-Yu Chen, and Cheng-Lung Chu
The WEISS 2012 Technical Program

September 5, 2012 (Wednesday)

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<td>09:00-10:20</td>
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<td>13:20-14:20</td>
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<td>14:40-15:40</td>
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<td>16:00-17:00</td>
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<td>19:00-21:00</td>
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**WEISS 1:**
**Session Chair:** Jing Chen, National Cheng Kung University, Taiwan

1. Enhancing Traditional Games with Augmented Reality Technologies  
   Hiroyuki Sakuma, Tetsuo Yamabe, Tatsuo Nakajima
2. Toward Efficient Detection of Semantic Exceptions in Context-Aware Systems  
   Eun-Sun Cho, Sumi Helal
3. A Vision-Based Vehicle Speed Warning System  
   Ming-Shi Wang, Shih-Chieh Huang, Liang-Da Lin

**WEISS 2:**
**Session Chair:** Jing Chen, National Cheng Kung University, Taiwan

1. Recovery Mechanism for Diff-based Reprogramming in WSNs  
   Shin-Lu Lien, Mei-Ling Chiang
2. Compiler Optimization to Reduce Cache Power with Victim Cache  
   Cheng-Yu Lee, Jen-Chieh Chang, Rong-Guey Chang
3. F-VT: A Friendly Virtualization Framework  
   Yuan-Cheng Lee, Tang-Hsun Tu, Chih-Wen Hsueh
4. HeapDefender: A Mechanism of Defending Embedded Systems against Heap Overflow via Hardware  
   Dongfang Li, Zhenglin Liu, Yizhi Zhao
The WiNA 2012 Technical Program

September 6, 2012 (Thursday)

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<td>12:00-13:00</td>
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WiNA:
Session Chair:

1. Smart Trend-Traversal Protocol with Shortcutting for Memory-less RFID Tag Collision Resolution
   Xin-Qing Yan, Rui-Xia Zhang, Bin Li
2. Reverse Nearest Neighbors Search in Wireless Broadcast Environments
   Che-Lun Mak, Chuan-Ming Liu, Wei-Chi Yeh
3. SARM: An Congestion Control Algorithm for DTN
   Chengjun Wang, Baokang Zhao, Wanrong Yu, Chunqing Wu, Zhenghu Gong
4. Station Decision Problem in Bicycle Ad Hoc Networks
   Wen Ouyang, Chang Wu Yu, Kun-Ming Yu, Ko-Jui Lin, Jo-Heng Yu, Hsin-Wen Chang, Lin-Li Tai, Chung-Han Lin
   Wen Ouyang, Yu-Ting Liu, Yu-Wei Lin, Yi-Hao Chen
# The DDCPD 2012 Technical Program

## September 6, 2012 (Thursday)

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### DDCPD:

**Session Chair:** Bernady O. Apduhan, Kyushu Sangyo University, Japan

1. The Design of Multisource Application Layer Multicast with Fast Route Recovery  
   *Chia-Hui Huang, Kai-Wei Ke, Ho-Ting Wu*
2. IRDT-GEDIR: Next-Hop Selection in Intermittent Wireless Multihop Sensor Networks  
   *Hiroaki Higaki, Takanori Takehira*
3. DCSim: Design analysis on Virtualization Data Center  
   *Chia-Jung Chen, Yi-Sheng Liu, Rong Guey Chang*
# The GreenPS 2012 Technical Program

## September 6, 2012 (Thursday)

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### GreenPS 1: Energy-efficient algorithms

**Session Chair:** Beihong Jin

1. GreenTech: A Case Study for Using the Web of Things in Household Energy Conservation  
   *Yang Liu, Yan Liu, Qiang Li, Weijun Qin, Limin Sun*

2. IdleCached: An Idle Resource Cached Dynamic Scheduling Algorithm in Cloud Computing  
   *Hu Song, Jing Li, Xinchun Liu*

3. Multi-Periodic Data Aggregation Scheme Based on Interest for Energy Efficiency in wireless sensor network  
   *A-Jeong Jeong, Se-Mi Kim, Chae-Seok Lee, Jong-Deok Kim*

4. Implementation of Smart Power Management and Service System on Cloud Computing  
   *Chao-Tung Yang, Wei-Sheng Chen, Kuan-Lung Huang, Wen-Hung Hsu, Ching-Hsien Hsu*

## September 7, 2012 (Friday)

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### GreenPS 2: Environment-related Pervasive Applications

**Session Chair:** Zhiwen Yu

1. WaterLady: A Case Study for Connecting Physical Devices into Social Networks  
   *Longbiao Chen, Yaochun Li, Zeming Zheng, Li Zhang, Dan He, Xiaolong Li, Sha Zhao, Shijian Li, Gang Pan*

2. PPCare: A Personal and Pervasive Health Care System for the Elderly  
   *Yan Tang, Shuangquan Wang, Yiqiang Chen, Zhenyu Chen*

3. Towards Scalable Processing for a Large-Scale Ride Sharing Service  
   *Beihong Jin, Jiafeng Hu*

### GreenPS 3: Intelligent Human-Computer Interaction

**Session Chair:** Jing Li

1. Context-Aware Mobile Web Browsing based on HTML5  
   *Xinxin Zhang, Zhiwen Yu, Jilei Tian, Zhitaow Wang, Bin Guo*

2. Fall Detection Using Features from A Five-phase Model on Mobile Phones  
   *Yue Shi, Jin Huang, Yuanchun Shi, Xia Wang*

3. UI Portals: Sharing Arbitrary Regions of User Interfaces on Traditional and Multi-User Interactive Devices  
   *Jie Liu, Haijun Xia, Yuanchun Shi*
# The UISTA 2012 Technical Program

## September 7, 2012 (Friday)

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### UISTA 1:
**Session Chair:** Eric Jui-Lin Lu

1. A Universal Lightweight Authentication Scheme Based on Delegation Mechanism in Heterogeneous Networks
   *Chou-Chen Yang, Shin-Hao Lo and Eric Jui-Lin Lu*

2. A Patient Privacy-aware e-Health System based on Passive RFID
   *Kuo-Hui Yeh, N.W. Lo and Chieh Wang*

3. Efficiently Preserving Data-Privacy Range Queries in Two-Tiered Wireless Efficiently Sensor Networks
   *Thuc D. Nguyen, Thach V. Bui, Van H. Dang, Deokjai Choi*

4. Trusted Service Application Framework on Mobile Network
   *Xin Gu, Zhengquan Xu, Yilin Fang*

### UISTA 2:
**Session Chair:** Chin-Hung Teng

1. Developing QR Code based Augmented Reality Using SIFT Features
   *Chin-Hung Teng and Bing-Shiun Wu*

2. A Web-based Interaction Design Tool: Pattern Language Toolkit
   *Chieh-Jen Chen, Chin-Hung Teng and Tsai-Yen Li*

3. An Augmented Reality Environment for Learning OpenGL Programming
   *Chin-Hung Teng and Jr-Yi Chen*

### UISTA 3:
**Session Chair:** Ching-Hu Lu

1. Imperceptible Visible Watermarking Scheme using Color Distribution Modulation
   *Wei-Fan Hsieh and Pei-Yu Lin*

2. A Self-authentication Mechanism for a (3, 3)-threshold Secret Sharing Scheme
   *Yi-Hui Chen and Ci-Wei Lan*

3. Enhancement of Human-Preference Assisted Activity Recognition Using a Cooperative ADL Infrastructure
   *Ching-Hu Lu and Li-Chen Fu*