Editorial: Special Issue on “Trustworthy and Intelligent Services for Ubiquitous Computing”

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Ubiquitous Computing (UC) has emerged rapidly as an exciting new computing paradigm and includes pervasive, grid, and peer-to-peer computing including sensor networks to provide computing and communication services at anytime and anywhere. There might be many issues to realize and provide UC services and much effort and enormous attention have been focused on the UC environments. The UC research area poses challenges such as context information fusion, security, reliability, autonomous and intelligent networking, trust application and framework, and so on.

In UC environments, the most important and final goal is to provide users a more secure and richer ubiquitous services. In a word, we should try to guarantee and provide trustworthy and intelligent services. Most of all, ubiquitous applications and services are required Wireless Networks. Therefore, much more attention and effort should be focused on the trustworthy and intelligent ubiquitous applications and services in wireless personal communication environments.

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We received 30 manuscripts. After the pre-review process, 24 manuscripts were selected for the first review. Eleven manuscripts were finally selected for this Special Issue after the first, second review processes. Each manuscript selected was blindly reviewed by at least three reviewers consisting of guest editors and external reviewers.

The first paper in this special issue is on An Ontology-driven Model for Digital Forensics Investigations of Computer Incidents under the UC Environments, by Hai-Cheng Chu, Der-Jiunn Deng, and Han-Chieh Chao. This paper presents an ontology-driven model for DF investigators based on the basic elements of UC.

The second paper in this special issue is on Anonymous Communication in Ubiquitous Computing Environments, by Min-Ho Park, Ju-Hyung Son, and Seung-Woo Seo. This work proposes a new and unique scheme which can guarantee anonymous communication in wireless access networks

The third paper in this special issue is on Uncertainty management in context-aware applications: Increasing usability and user trust, by Pedro Damián-Reyes, Jesús Favela, Juan Contreras-Castillo. They present an uncertainty classification aimed at facilitating its identification and treatment and propose simple, intuitive and computationally inexpensive procedure for creating an uncertainty management heuristic mechanism.

The fourth paper in this special issue is on An Adaptive Learning Scheme for Medium Access with Channel Reservation in Wireless Networks, by Sudip Misra, P. Venkata Krishna, and Kiran Isaac Abraham. They present a new medium access protocol named Learning Automata (LA) based Wireless Channel Reservation (LAWCR) by introducing reservation procedures using an adaptive learning approach.

The fifth paper in this special issue is on Analysis of a Buyer-Seller Watermarking Protocol for Trustworthy Purchasing of Digital Contents, by Raphael C.-W. Phan, Bok-Min Goi, Geong-Sen Poh, and Jongsung Kim. This work shows that for a recent variant of the buyer-seller watermarking protocols, it is possible for the buyer to remove his fingerprint from his copy of the bought content.

The sixth paper in this special issue is on A GHS-based Intelligent Management Platform with IP-camera security system, by KuoYuan Hwa, Ming-Chuan Wu, Sang-Soo Yeo, and Wenlung Li. They present a GHS e-system with an automatic function on emergency detection and warning on toxic and dangerous chemicals.

The seventh paper in this special issue is on Design of QoS in Intellignet Communication Environments Based on Neural Network, by N. Xiong, L. T. Yang, Y. Yang, J. H. Park, and Guiyi Wei. They describe a dynamic resource management mechanism for computer intelligent communication networks on the basis of an adapting BP neural network control technique. Also they explore the relevant theoretic foundations as well as the detailed implementation procedure for congestion control.

The eighth paper in this special issue is on A Study on Greenhouse Automatic Control System based on Wireless Sensor Network, by DaeHeon Park, Beom-Jin Kang, Kyung-Ryung Cho, Chang-Sun Shin, Sung-Eon Cho, Jang-Woo Park, and Won-Mo Yang. This paper proposes a system that can collect the information related to greenhouse environment and crop status and control the greenhouse automatically based on the collected information.

The ninth paper in this special issue is on A Security Model based on Relational Model for Semantic Sensor Networks, by Dongwon Jeong, Hyejin Jeong, Soo-Hyung Park, Young-Sik Jeong, Sangkyung Kim, and Changhwa Kim. This paper proposes a security model for secure query processing of semantic sensor ontology, named SS-RBAC.

The tenth paper in this special issue is on A Mobile Agent-Based Tool Supporting Web Services Testing, by Jia Zhang. She reports a design and a development of a Web

services-oriented testing platform, by seamlessly applying the mobile agent technology to enhance an existing testing tool.

The last paper in this special issue is on Verifiable Threshold Scheme in Multi-secret Sharing Distributions upon Extensions of ECC, by Shiu-Jeng Wang, Yuh-Ren Tsai, and Chien-Chih Shen. This paper proposes a dynamic threshold multi-secret sharing scheme which is of multi-use type and could reduce the burden on the system.

Finally, our special thanks go to Prof. Ramjee Prasad and all editorial staffs for their valuable supports throughout the preparation and publication of this Special Issue. We would like to thank all authors for their contributions to this special issue. We also extend our thanks to the following external reviewers for their excellent help in reviewing the manuscripts.

Author Biographies

Young-Sik Jeong received his B.S degree in Mathematics, Korea University, Seoul, Korea, in 1987. He received his M.S. degree and Ph.D. degree in Computer Science, Korea University, Seoul, Korea, in 1989 and 1993, respectively. He was a visiting scholar, Dept. of Computer Science and Engineering, Michigan State University, East Lansing, MI 48824, USA, 1997, and Dept. of Electrical and Computer Engineering, Wayne State University, Detroit, MI 48202, USA, 2004. He is a Director of Culture Contents Technology Society, from 2006 to Current, an Appraisal Committee of University Industrial Technology Force (UNITEF) for Patents, from 2003 to Current, a Chairman of IEC/TC 108 Korean Agency for Technology and Standards, 2003 to Current, a Committee of IEC/TC 100 Korean Agency for Technology and Standards, from 2002 to Current, and a Korean Committee, ISO/IEC JTC 1/SC 25, from 2002 to Current. He was a PC Member or Program/

Publicity/General Chair of many conferences and workshops. He is a Professor, Department of Computer Engineering, Wonkwang University, Iksan, Korea, from 1993 to Present. His interests include Grid Computing, Semantic Grid, Mobile Computing, and e-Learning.

Han-Chieh Chao is currently a jointly appointed professor in the institute of Computer Science and Information Engineering and the institute and department of electronic engineering at National Ilan University, Taiwan; jointly adjunct professor in the institute and department of electrical engineering at National Dong Hwa University, Taiwan; and honorary adjunct professor in Beijing Jiaotong University (211 University), Xiamen University (985 University), Lanzhou University (985 University) and Yantai University, China. His research interests include High Speed Networks, Wireless Networks, IPv6 based Networks, Digital Creative Arts and Digital Divide. He received his MS and Ph.D. degrees in Electrical Engineering from Purdue University in 1989 and 1993, respectively. He has authored or co-authored 4 books and has published about 200 refereed professional research papers. He has completed 90 MSEE and 2 Ph.D. thesis students. Dr.

Chao has received many research awards, including Purdue University SRC awards, and NSC research awards (National Science Council of Taiwan). He also received many funded research grants from NSC, Ministry of Education (MOE), RDEC, Industrial Technology of Research Institute, Institute of Information Industry and FarEasTone Telecommunications Lab., Dr. Chao has been invited frequently to give talks at national and international conferences and research organizations. Dr. Chao is also serving as an IPv6 Steering Committee member and co-chair of R&D division of the NICI (National Information and Communication Initiative, a ministry level government agency which aims to integrate domestic IT and Telecom projects of Taiwan), Co-chair of the Technical Area for IPv6 Forum Taiwan, the executive editor of the Journal of Internet Technology and the Editor-in-Chief for International Journal of Internet Protocol Technology and International Journal of Ad Hoc and Ubiquitous Computing. Dr. Chao has served as the guest editors for Mobile Networking and Applications (ACM MONET), IEEE JSAC, IEEE Communications Magazine,

Computer Communications, IEE Proceedings Communications, and Wireless Communications & Mobile Computing. Dr. Chao is an IEEE senior member, a Fellow of the Institution of Engineering and Technology (FIET), and Chartered Fellow of British Computer Society (FBCS).

Mieso Denko is an Associate Professor in the Department of Computing and Information Science, University of Guelph, Ontario, Canada. He is a founding Director of the Pervasive and Wireless Networking Research (PerWiN) Lab. His current research interests are in the areas of mobile computing and wireless networks with focus on wireless ad hoc and mesh networking, mobile and pervasive computing, autonomic and opportunistic networks, pervasive healthcare and network security. Dr. Denko's research publications in these areas have appeared in referred international journals, conferences and book chapters. He has edited/co-edited many books including the most recent one, entitled *Autonomic Computing and Networking*, published by Springer in May 2009. Dr. Denko is a senior member of the ACM and IEEE and the current vice chair of IFIP WG 6.9.

Charalampos Z. Patrikakis was born in Athens, Greece, in 1970. He received his Dipl.-Ing. degree and his Ph.D. from the Electrical Engineering and Computer Science Department of the National Technical University of Athens (NTUA), Greece. He has collaborated with many Universities as a research associate, and tutor-lecturer. He is currently working in the field of computer networks and applications research in both National and European projects as a senior research associate of the Telecommunications Laboratory of ICCS. He has participated in more than 25 National, European and International programs (ESPRIT, RACE, ACTS, IST, ICT, eContent, eContentPlus), in 9 of which he has been involve as technical coordinator or principal researcher. He has published 20 chapters in books, 24 papers in international journals, 43 papers in international conferences, 6 reports, and has 2 contributions in national legislation. He is a member of the editorial committee of 11 international journals, 29 international conferences, and has

acted as editor in the publication of 2 special issues of international journals. His research interests include: Mobile network applications and services, Mobile and pervasive computing, Broadband Network Communications, IP based data communications, Peer to peer and Ad hoc networks, Personal Networks Architectures, Multimedia streaming. He is a senior member of IEEE, a member of the Greek Computer Society, a certified trainer by the National Accreditation Centre of Vocational Training Structures and Accompanying Support Services and a member of the Technical Chamber of Greece.