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EDITORIAL

Special issue on "Intelligent systems and services for ubiquitous computing"

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Ubiquitous computing is emerging rapidly as an exciting new paradigm to provide computing and communication services anytime and anywhere. To offer smart services at the right time, right place and using the right means, ubiquitous systems must possess appropriate levels of intelligence. Our special issue provides an opportunity for academic and industry professionals to present recent progress in the area of intelligent ubiquitous computing systems including models, infrastructures, new directions and novel applications associated with the utilization and acceptance of intelligent ubiquitous devices and systems. This special issue aims to foster the dissemination of high quality, original research on new intelligent systems and services.

Submissions to this special issue come from an open call for papers as well as from selected papers presented at the 3rd International Symposium on Ubiquitous Application and Security Service (UASS-08) held at Ginowan, Okinawa, Japan, from 25 March to 28 March 2008.

Accordingly, a number of papers included in this special issue concentrate on intelligent systems and its building blocks, including routing schemes, broadcasting protocols, collision avoidance mechanism, information processing and middleware architectures for ubiquitous computing environments. Others focus on specific intelligent services and applications based on ubiquitous computing environments.

More specifically, H. Kim presents an intra-domain route optimization scheme for ubiquitous networks. Her scheme shows cost-effectiveness in every hierarchical domain that spans mesh network topology and it performs much better than the Network Mobility protocol, when the number of mobile nodes or mobile routers or correspondent nodes increases in hierarchically nested in ubiquitous networks.

Vaidya also presents a routing scheme guaranteeing robustness and security, and this scheme is especially designed for wireless multi-hop networks. His routing protocol achieves better performance in terms of various metrics than other protocols.

Zhang introduces concepts bringing quality of service (QoS) to peer-to-peer (P2P)-based semantic service discovery for the universal network. Generally, service discovery in the universal network is quite distinct from that of present networks. Zhang puts QoS measurements into service discovery so as to adapt to the universal network, especially P2P networks, as an infrastructure to fulfill the service discovery due to the large amount of services in the network.

Peng presents adaptive broadcasting protocols, which can be used in ubiquitous intelligent VOD applications. Peng's schemes can intelligently adjust the solution

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according to available bandwidth and local storage in order to achieve an ideal waiting time.

Hsu proposes adaptive mechanisms alleviating the reader collision problem in mobile and wireless RFID environments. In detail, he presents the TPDM technique, which consists of regional scheduling and hidden terminal scheduling phases, aims to efficiently perform communications between readers and tags in high density and mobile RFID networks. This will be an important building block for various intelligent services with RFID systems.

Y. Kim presents an efficient target classification and fusion scheme for wireless sensor networks. In particular, he proposes a confidence-based fusion algorithm to improve the target classification accuracy among sensor nodes in a group level and then shows good experimental results.

Waluyo introduces a lightweight middleware for personal wireless body area networks. The prototype system of the middleware has been built and is presented with its performance evaluations. Waluyo presents a prototype system of the middleware with its performance evaluations.

Coronato introduces a multimodal semantic location service for intelligent environments and then presents an application of the proposed approach for a smart hospital. The key advantages of the service is customizing itself depending on the user location, as well as enabling mobile users to gain access.

Chen presents an intelligent application, a ubiquitous personal learning service framework that supports accessing, managing, organizing, sharing and recommending information. Moreover, he focuses on discussing the design and implementation issues of the method of implementing it with Web 2.0 mash-up technology and open source software architectures.

Finally, we strongly believe that the selected papers make a significant contribution to researchers, practitioners and students working in the areas of the intelligent systems and services for ubiquitous computing. We would like to express our sincere appreciation to all the authors for their valuable contributions and also to the referees for their cooperation and hard work in reviewing the papers in a timely and professional manner. Our special thanks go to the editorial board for this SI and Professor Peter Thomas, who is the Editor-in-Chief of Personal and Ubiquitous Computing (PUC) for his support throughout the whole publication processes.

Jong Hyuk Park received his Ph.D. degree from the Graduate School of Information Security from Korea University, Korea. He is now a professor at the Department of Computer Science and Engineering, Kyungnam University, Korea. He has published many research papers in international journals and conferences. He has been serving as chairs, program committee or organizing committee chair for many international conferences and workshops. He is Editor-in-Chief of the International Journal of Multimedia and Ubiquitous Engineering (IJMUE) and the Managing Editor of the International Journal of Smart Home (IJSH). In addition, he has been serving as a guest editor for international journals by some publishers. His research interests include digital forensics, security, ubiquitous and pervasive computing, context awareness, multimedia services, etc. He received the best paper award in the ISA-08 conference, April 2008.

Dr. Jianhua Ma is a professor at the Faculty of Computer and Information Sciences of Hosei University since 2000. Since 2003, he has been devoted to what he called smart worlds (SW) pervaded with smart/intelligent u-things including three kinds of essential elements: smart object, smart space/hyperspace and smart system. Dr. Ma is the Co-Editor-in-Chief of three international journals: Journal of Ubiquitous Computing and Intelligence (JUCI), Journal of Mobile Multimedia (JMM) and Journal of Autonomic and Trusted Computing (JoATC). He has edited more than 10 journal special issues as a guest editor. Dr. Ma obtained his B.S., M.S. and Ph.D. in 1982, 1985 and 1990, respectively. He was awarded the Excellent Graduate Student by NUDT in 1982. He received the Annual Excellent Paper awards from China Information Theory Society, Electronics Society and Association of Hunan Science and Technology, respectively.

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Dr. Anind K. Dey is an assistant professor in the Human–Computer Interaction Institute at Carnegie Mellon University. His research interests lie at the intersection of human–computer interaction and ubiquitous computing. Specifically, he performs research in context-aware computing, modeling human behavior and sensor-based

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Guest Editors

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