
Editorial

Neil Y. Yen

School of Computer Science and Engineering,
University of Aizu, Tsuruga, Ikkimachi,
Aizuwakamatsu, Fukushima 965-8580, Japan
Email: neilyyen@u-aizu.ac.jp

James J. Park

Department of Computer Science and Engineering,
Seoul National University of Science and Technology,
172 Gongreung 2-dong, Nowon-gu, Seoul, 139-743, Korea
Email: jhpark1@seoultech.ac.kr

Biographical notes: Neil Y. Yen is an Associate Professor at the University of Aizu, Japan. He received Doctorates in Human Sciences (major in Human Informatics) at Waseda University, Japan, and in Engineering (major in Computer Science) at Tamkang University, Taiwan in March and June 2012, respectively. His Doctor degree at Waseda University was funded by the JSPS (Japan Society for the Promotion of Science) under RONPAKU program. He has actively involved himself in the international activities, including editorial works in journals and books, society services in academic conferences sponsored by IEEE/ACM, etc., and devoted himself to discover advanced and interesting research directions. He has been engaged in the interdisciplinary realms of research, and his research interests are now primarily in the scope of big data science, computational intelligence, and human-centric computing.

James J. (Jong Hyuk) Park received his PhD in Graduate School of Information Security from Korea University, Korea and Graduate School of Human Sciences from Waseda University, Japan. He is a Professor at the Department of Computer Science and Engineering, SeoulTech, Korea. He has published about 150 research papers in international journals and conferences. He has been serving as chairs, program committee, or organising committee chair for many international conferences and workshops. He is Editor-in-Chief of Human-centric Computing and Information Sciences by Springer and *Journal of Convergence* by FTRA Publishing. He is an Associate Editor/Editor of 14 international journals. In addition, he has been serving as a Guest Editor for international journals by international major publishers. He got the best paper awards from ISA-08! and ITCS-11 conferences. His research interests include security, ubiquitous and pervasive computing, context awareness, etc.

The term ‘Smart space’ receives a rather high pulse of discussions in both academia and industry. Smart space (SS) conceptually identifies an advanced environment for communication featuring objects which are involved in our daily lives, especially to those non-expert users. It has led an exciting and emerging new paradigm that covers wide, and interdisciplinary as well, spectrum of research fields such as ubiquitous computing, awareness science and engineering, wireless sensor network, and human-centric computing.

This special issue concentrated on the research results in the fields of awareness computing, wireless sensor network, and their intersection towards well development of smart space. During the period, we received around 50 submissions from over 10 countries. In addition to the open calls from public researchers, those high quality and selected papers, with their substantially-extended versions, from the 2012 International Workshop on Context-Aware Computing Applications and Services via Wireless Sensor Networks (CAC-WSN’12) were included. After a rigorous and competitive refereed process, six papers with

significant contributions were accepted for further publication.

The issue will provide an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of context-aware computing and wireless sensor networks such as ubiquitous and context-aware computing, context-awareness reasoning and representation, location-awareness services, architectures, protocols and algorithms of WSN, energy, management and control of WSN, and so on.

The first paper entitled ‘A smart brain: an intelligent context inference engine for context-aware middleware’ by Xu et al. discusses a conceptual idea, namely smart brain, that refers to a middleware for service discovery, mobility enhancement, environmental changes, and information/knowledge retrieval under a context-aware environment. An inference engine is then proposed to integrate the three methods for activity context recognition, and further prompt the smart services development.

In the next paper entitled ‘Election-based method for fault tolerance in a hierarchical sensor network (EFTOHSN): a case study of an indoor localisation system’, Naili et al. propose a new protocol that automatically identifies the status of deployed sensors in the environment to reduce the false information delivery in a hierarchical sensor network. The proposed method is first applied for an indoor localisation purpose, and its significance can be revealed by the performance, especially on the needed time for reaction and response.

The paper entitled ‘Design and implementation of P2P home monitoring system architecture with IP cameras for a vacuum robot in ubiquitous environments’, by Choi et al. presents an architecture, with a smaller number of cameras than past studies, to well monitor the status at home. Experiment results demonstrate that the proposed architecture and its correlated algorithms can significantly alleviate the load on designated server(s). The prototype system has been applied to collect real-world experiences for further improvement.

In the paper entitled ‘Wireless body area networks towards empowering real-time healthcare monitoring: a survey’, Kumar et al. focus on the issues of personal health management. A framework, called WBANs: Wireless Body Area Networks, is especially considered to provide long term, real-time health monitoring of individual personal without any restriction in their daily life activities. Authors summarise the need of WBANs, simple WBANs system architecture, proposed real-time healthcare

monitoring system architecture, various requirement and challenges associated with WBANs.

In the paper entitled ‘An entropy-based clustering algorithm for load balancing in WSN’, Cha et al. propose a clustering algorithm to solve the energy and delay issues in wireless sensor network. This algorithm applies an entropy-based function to account the traffic load and the traffic variation. Experiment results reveal that the algorithm has longer lifetime and lower delay than LEACH and HEED.

The last paper entitled ‘Starcast: robust and energy-efficient geometric routing for mobile sensor networks’ by Jung et al. presents a new geometric routing protocol called Starcast to efficiently support node mobility as well as location services for mobile sensor networks. This protocol prompts the discovery of a non-geometric path to a destination by exploiting the path history of location updates. In addition, this protocol employs two location-based optimisations to further reduce the overhead of on-demand route discovery on inevitable voids.

Our special thanks go to Prof. Yang Xiao who is Editor-in-Chief of *International Journal of Sensor Networks* 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 external reviewers for their excellent help in reviewing the manuscripts.