Editorial

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Biographical notes: Ruay-Shiung Chang received his BSEE from National Taiwan University in 1980 and his PhD in Computer Science from National Tsing Hua University in 1988. He is now a Vice President of National Dong Hwa University and a Professor in the Department of Computer Science and Information Engineering. His research interests include internet, wireless networks and cloud computing. He is a Member of ACM, a Senior Member of IEEE, and Founding Member of ROC Institute of Information and Computing Machinery. He also served on the advisory council for the Public Interest Registry (www.pir.org) from 2004–2005 to 2007–2008. In 2009, he received the Outstanding Information Technology Elite Award from the ROC Information Month Committee.

Tai-hoon Kim received his MS and PhD in Electrics, Electronics and Computer Engineering from the Sungkyunkwan University, Korea. After working in the Technical Institute of Shindoricoh two years as a Researcher and working at the Korea Information Security Agency as a Senior Researcher for two years and six months, he worked at the DSC (Defense Security Command) for about two years. After working with E-wha Woman University a half-year as a Research Professor, now he is, currently, a Professor of Hannam University. He wrote 16 books about the software development, OS such as Linux and Windows and computer hacking and security. He researched security engineering, the evaluation of information security products or systems with Common Criteria and the process improvement for security enhancement. In these days, he researches also some approaches and methods making IT systems more secure.

Cho-Li Wang received his BS in Computer Science and Information Engineering from National Taiwan University in 1985. He obtained his MS and PhD in Computer Engineering from the University of Southern California in 1990 and 1995, respectively. He is currently affiliated with the Department of Computer Science at The University of Hong Kong. His research interests include parallel architecture, software systems for Cluster and Grid computing and virtualisation techniques for Cloud computing. He has served on the editorial boards of several international journals, including *IEEE Transactions on Computers*, *Multiagent and Grid Systems*, *International Journal of Pervasive Computing and Communications* and *Journal of Information Science and Engineering*. He is also the regional coordinator (Hong Kong) of IEEE Technical Committee on Scalable Computing (TCSC).

Sheng-Lung Peng received the BS in Mathematics from National Tsing Hua University in 1988, and the MS and PhD in Computer Science from National Chung Cheng University and National Tsing Hua University in 1992 and 1999, respectively. He is now an Associate Professor of the Department of Computer Science and Information Engineering in National Dong Hwa University. His research interests include graph theory, algorithms design, telematics and bioinformatics.

A Wireless Sensor Network (WSN) uses spatially distributed autonomous sensors to cooperatively monitor physical or environmental conditions, such as temperature, sound and pressure. WSN was initially used in military applications such as battlefield surveillance. They may be used in many conceivable applications such as industrial process monitoring and control, machine condition monitoring, environment and habitat monitoring, healthcare applications, home automation and traffic control. However, before WSN becomes a daily reality, many issues need to be addressed and solved. This special issue serves the purpose of highlighting the state-of-the-art research results in WSN. The call-for-paper has attracted 31 submissions from all over the world. Among them, six papers are selected. With regret that owing to space limitations, many high-quality papers have to be parted with.

The first paper 'A survey of Intrusion Detection Systems for Wireless Sensor Networks' serves to emphasise the importance of security in WSN. It classifies IDS approaches into three categories, purely centralised, purely distributed and distributed-centralised, and gives a comprehensive survey. The second paper 'Implementation of Wireless Automatic Routing Mechanism for the effective formation of Integrated Meter Reading network' designs an automatic wireless routing mechanism to create the wireless meter reading terminal route and communicate with the BPL terminal next to it. It also verifies the communication performance of the developed mechanism via a verification test. The third paper 'On multipath balancing and expanding for wireless multimedia sensor networks' investigates the use of directional geographical routing in multipath construction for multimedia data dissemination. It also studies how to achieve multipath balancing in proximity to the source/sink. The fourth paper 'The distance–power consumption trade-off with the optimal number of relays for cooperative Wireless Sensor Networks' tries to exploit the advantages in cooperative communication. Conventional cooperative communication causes lower data rates as diversity gain increases. One of the most important issues for cooperative WSN is the number of relays. This paper proposes an appropriate system model to achieve the optimal number of relays in terms of power consumption. The fifth paper 'Designing a flexible and low-cost testbed for Wireless Sensor Networks' constructs a framework for implementing a flexible and low-cost testbed for WSN. Downloading the experimental code, reprogramming, testbed control, logging and collecting experimental results and synchronisation can be carried out by the sensor motes wirelessly without extra devices. Finally, the last paper 'Mobility corresponding location-aware information services based on embedded RFID platform' integrates the existed RFID systems and digital information content services server to access the remote digital content database and broadcast the corresponding digital content such as advertisements, coupons, or multimedia related to the end-user's personal requirements, locations and historical user records.

As the guest editors of this special issue, we would like to thank all authors who have submitted papers to the special issue. Assistance from the editorial staff of the journal is also very much appreciated. Besides, the guest editors wish to acknowledge all reviewers who have generously given their time to review the papers. Finally, our special thanks go to Professor Yuh-Shyan Chen (Editor-in-Chief) for his support throughout the preparation of this special issue.