# Editorial

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**Biographical notes:** Hui Chen is on the faculty of the Department of Mathematics and Computer Science, Virginia State University. Before he worked as a software developer in industry, he spent a few years in geophysical research. His primary research interest is in computer systems and networking. He served as journal guest editors and various IEEE conference programme committees. He is a member of the IEEE and the ACM. His research has been supported by the US National Science Foundation.

Ming Li has been a faculty in the Department of Computer Science, California State University, Fresno, since August 2006. He received his MS and PhD degrees in Computer Science from The University of Texas at Dallas in 2001 and 2006, respectively. His research interests include QoS strategies for wireless networks, robotics communications, and multimedia streaming over wireless networks. He is a member of ACM and IEEE.

A few years ago, we launched the International Workshop on Sensor Networks for researchers and practitioners to exchange research and development in sensor networks and their applications. We were fortunate to witness the continuing success of the workshop. The fourth installment of the workshop (SN 2011) attracted many submissions and had a good turn-out in the workshop programme collocated with the IEEE 31st International Conference on Distributed Computing System (ICDCS 2011), Minneapolis, Minnesota, USA.

This special issue includes extended work of a few papers that were presented in the workshop programme.

Goodney and Cho developed a system that uses acoustic sensor nodes to map lateral variation of water temperature in small-scale marine environments. They coined the term 'microtomography' to describe their work. Continued development of their work can lead to a method that provides great spatial resolution of physical characteristics of Earth's vast water body. Such methods matters a great deal to the environment and to the humankind, for instance, they can be used to 'monitor the effects of ecological changes on the plants and animals living in these waters'. We invite readers to check out their paper entitled 'Water temperature sensing with microtomography' in this special issue and pay attention to this research team's continuous development.

Zheng et al. examined range-based localisation algorithms in wireless sensor networks. They argue that although the localisation algorithms are often associated with higher accuracy, the localisation errors are mainly derived under overly simplistic assumptions. The authors studied the relationship between the location estimation error and the distance measurement error in their paper entitled 'Error analysis of range-based localisation algorithms in wireless sensor networks'. Their contribution can help effective design of range-based localisation algorithms.

Swain and Hansdah proposed a solution for clock synchronisation problem in wireless sensor networks. They designed a weighted average based internal clock synchronisation protocol and an external clock synchronisation protocol. According to the authors, the two protocols work together and provide upper-bounded clock accuracy. Clock synchronisation is basic service for wireless sensor networks. We believe interested readers can benefit from their paper entitled 'A weighted average-based external clock synchronisation protocol for wireless sensor networks'.

Luu and Tang investigated the construction of multi-path routing structures for data collection in wireless sensor networks. They exploited the broadcasting nature of wireless transmission and demonstrated that their methods

achieve significantly better trade-off among the robustness, latency and energy efficiency of data collection in wireless sensor networks. We welcome readers to check out their paper entitled 'An efficient data collection scheme through multi-path routing structures in wireless sensor networks'.

We are very pleased that these research teams allow us to entertain our readership with their work. We believe our readers can certainly benefit from their contribution.

Last, but not the least, the ICDCS 2011 organisers' outstanding leadership has made the workshop a success and the journal editorial staff's diligent work has also made this special issue possible. We are grateful to the ICDCS 2011 organisers, in particular, Dr. David H.C. Du, University of Minnesota, USA, Dr. Edward Ho, IBM Almaden, USA, and Dr. Dongyan Xu, Purdue University, USA and to the journal editorial staff.