Editorial

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Biographical notes: Hui Chen studied Geophysics and Computer Science, and worked in related industry. He is currently with Department of Mathematics and Computer Science, Virginia State University. He primarily works in the area of computer networks. He served as journal guest editors and various IEEE conference program committees, and publishes frequently. He is members of IEEE and ACM.

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.

In recent years, sensor networks have attracted attention of many researchers, developers and practitioners. We set forth a forum, i.e. the International Workshop on Sensor Networks (SN), to promote research, development and applications of sensor networks. The second installment of the workshop (SN 2009) was held in conjunction with the 2009 International Conference on Computer Communications and Networks (ICCCN 2009), on 6 August 2009, in San Francisco, California, USA.

This special issue is a collection of the extended version of eight selected papers presented in SN 2009. We would like to briefly summarise their work as follows.

Seung-Joon Seok, Wang-Cheol Song and Deokjai Choi proposed a peer-to-peer architecture similar to 'Pastry' to integrate sensor networks with the internet. Details of the architecture and the implementation and deployment of the system can be found in their paper entitled 'Implementation of Pastry-based P2P system to share sensor data'.

Jorge M. Soares, Bruno J. Gonçalves and Rui M. Rocha in their paper entitled 'Practical issues in the development of a minimalistic power management solution for WSNs' studied and experimented various architecture, design and implementation choices to extend sensor network lifetime by optimising power consumption in their sensor network testbed 'TagusPM'. The authors point out, among many other choices, cross-layer design is critical to improve power consumption of sensor nodes.

Researches have shown that Mobile Data Collectors (MDCs) can benefit variety of sensor network applications. Ataul Bari, Da Teng, Rashid Ahmed and Arunita Jaekel in their paper entitled 'Relay node placement with energy and buffer constraints in wireless sensor networks using mobile data collector' devised a linear programming solution to determine optimal relay node placement scheme, i.e. the locations and the number of relay nodes.

Mohammad Al-Otaibi and Hamdy Soliman proposed and evaluated two stateless geographic routing protocols in the paper entitled 'Efficient geographic routeless routing protocols with enhanced location update mechanism'. Taking advantage of the features in two previously proposed protocols, Location Aided Routing (LAR) and Received signal strength-Aided Flooding (RAF), the proposed protocols outperform LAR and RAF, as evidenced by computer simulations.

M. Zennaro and Antoine B. Bagula present a design and implementation of wireless sensor network gateway nodes using off-the-shelf components. Readers are referred to the paper entitled 'Design of a flexible and robust gateway to collect sensor data in intermittent power environments' for detail.

Piotr Szczechowiak, Michael Scott and Martin Collier studied key distribution protocols in the paper 'Securing wireless sensor networks: an identity-based cryptography approach'. They proposed an Identity-Based Cryptography (IBC) approach and evaluated it for a few WSN applications on 8-bit sensor devices.

Manki Min, Austin F. O'Brien and Sung Y. Shin studied minimum energy multicast tree problem in the paper entitled 'Improved PSOR algorithm for minimum power multicast tree problem in wireless ad hoc networks'. This work expands their previous work based on a heuristic solution, i.e. *Partition-based Shrinking Overlapped Range (PSOR)* for broadcast tree to multicast tree.

Sensor nodes in wireless sensor network can become problematic. It is beneficial to detect and exclude them from applications' use. H.T. Kung and D. Vlah in the paper entitled 'A spectral clustering approach to validating sensors via their peers in distributed sensor networks' devised an spectral clustering approach to detect bad nodes via their peers.

The above summary demonstrates the breadth of the papers presented in the workshop. We are very grateful to all the authors who have submitted papers and expressed interests. It is unfortunate that we could not include more papers in the workshop and this special issue. Without the dedicated reviewers and technical programme committee members, it would have been impossible to make the workshop a successful event. In addition, we would like to thank the ICCCN 2009 organising committee, in particular, Xiaolin (Andy) Li, Oklahoma State University, USA, and Xiaobo Zhou, University of Colorado at Colorado Springs, USA, for their outstanding leadership. The workshop received many submissions. We owe a great deal to the authors of all submitted papers. Last, but not the least, we would like to thank the editorial staff of the *International Journal of Sensor Networks* and the workshop co-organisers.