

## Call for Papers

### ***IEEE Network Magazine* Special Issue on Wireless Mesh Networks: Applications, Architectures and Protocols**

Wireless mesh network (WMN) technologies have been actively researched and developed as key solutions to improve the performance and services of wireless personal area networks (WPANs), wireless local area networks (WLANs), and wireless metropolitan area networks (WMANs) for a variety of applications, such as voice, data and video. Compared with mobile ad hoc networks (MANETs), wireless sensor networks (WSNs) and infrastructure-based mobile cellular networks, WMNs are (1) quasi-static in network topology and architecture, (2) not resource constrained at mesh routers and (3) easy and flexible to deploy. These technological advantages are especially appealing to the emerging market requirements on future wireless networks and services, such as flexible network architecture, easy deployment and self-configuration, low installation and maintenance costs, interoperable with the existing WPAN, WLAN and WMAN networks, support of multiple radios and access methods, hierarchical mobility management, ability to attain efficient frequency reuse, high system capacity, reliable multi-hop and multi-path communications. Potential applications of WMNs include broadband home networking, community and neighbourhood networking, enterprise networking, building automation, health and medical systems, public safety and security systems, intelligent transportation systems, emergency/disaster networking, metropolitan area broadband Internet access and so on. This wide range of applications have different technical requirements and challenges in the design and deployment of mesh networking architectures, algorithms and protocols. This special issue aims to systematically address a variety of technical challenges and advanced solutions in the design, implementation and deployment of mesh networking algorithms, equipments and applications.

#### **Scope of Contributions**

This special issue will present the state-of-the-art applications of WMN technologies and the corresponding technical advances in the design and deployment of feasible network architectures and protocols. We are soliciting original survey and research articles written in a tutorial manner comprehensible to the non-specialists. Contributions from academic researchers, industrial engineers, equipment manufacturers and service providers are all very welcome and will go through an open call-for-papers and a rigorous peer review process. Specifically, topics of interest include:

- Applications and usage scenarios, such as neighbourhood and community networking, campus and enterprise networking, emergency and instant networking, and wireless broadband Internet access services
- Network design and planning, such as homogeneous and heterogeneous network architectures, tradeoff study of computation, storage and bandwidth requirements for real implementations, techniques to ensure network reliability, scalability and interoperability
- Network management and operation, such as self-configuration, self-management, self-healing, low overhead control protocols for discovery, establishment and maintenance of mesh networks
- Resource management algorithms and communication protocols, such as MAC protocols, routing protocols, end-to-end QoS support and system-wide admission control algorithms
- Performance analysis and optimisation, such as network capacity, coverage, fairness, energy efficiency, frequency reuse and interference management
- Standardization and internetworking of WPAN-, WLAN-, WMAN- and cellular-based wireless mesh networks
- Mesh platforms, such as testbed experiments, design and deployment of mesh nodes and networks with multiple radios, channels and antennas

### **Manuscript Submission**

The special issue will consider original research and survey articles prepared in accordance to the guidelines of the IEEE Network magazine (<http://www.comsoc.org/pubs/net/ntwrk/authors.html>) written in a tutorial manner comprehensible to the non-specialists. The manuscripts must be written in English and submitted electronically in PDF format with a separate cover letter, which contains the paper title, authors, affiliations, contact information, a 250-word abstract and 3-5 keywords, via email to Dr. Yang Yang ([YangYang@ieee.org](mailto:YangYang@ieee.org)) before the deadline. Please prepare your manuscript in single-column and double-spaced format with the font size larger than 10 points.

### **Important Dates**

Paper submission due date: **April 15, 2007**

Notifications of acceptance: August 15, 2007

Final version ready: October 1, 2007.

Publication of the special issue: First Quarter 2008

### **Guest Editors**

**Dr. Yang Yang**, Department of Electronic and Electrical Engineering, University College London (UCL), London WC1E 6BT, UK. Email: [y.yang@ee.ucl.ac.uk](mailto:y.yang@ee.ucl.ac.uk)

**Dr. Konstantina Papagiannaki**, Intel Research Pittsburgh CM2, 4720 Forbes Avenue, Suite 410, Pittsburgh, PA 15213, USA. Email: [dina.papagiannaki@intel.com](mailto:dina.papagiannaki@intel.com)

**Professor Song Ci**, Department of Computer and Electronics Engineering, University of Nebraska-Lincoln, 200B Peter Kiewit Institute, Omaha, NE 68182, USA. Email: [sci@engr.unl.edu](mailto:sci@engr.unl.edu)

**Professor Sherman Shen**, Department of Electrical and Computer Engineering, University of Waterloo, 200 University Avenue West, Waterloo Ontario N2L 3G1, Canada. Email: [xshen@bcr.uwaterloo.ca](mailto:xshen@bcr.uwaterloo.ca)