Wireless Communications and Mobile Computing

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Special Issue on

Efficient Data Forwarding in Internet of Things and Sensor Networks

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During the past decades, we have witnessed significant research and development efforts related to sensor networks (SNs) with both wired and wireless technologies. Those efforts resulted in the development of benchmark application paradigms for SNs with applications in both safety critical and nonsafety critical fields, including environmental monitoring, military apps, tactics, smart sensing, underwater sensing, pollution sensing, fire alarms, and other hundreds of applications to improve our lifestyles. Similarly, the Internet of Things (IoT) has been promoting the emergence of various networking technologies with standardization efforts being carried out by the IEEE community. The IoT is also expected to support various applications with faster decision-making capabilities and reliable transmissions between consumer electronic devices. In this context, SNs have been proven to be the most investigated topic for enabling IoT applications. For example, sensors installed in a house may update the owner on his/her cell phone about any medical or security threat. Similarly, researchers are using IoT and SNs together to bring autonomous driving vehicles into reality. However, to support such applications, SNs and IoT come up against several constraints posed by their properties, like low capacity processing capabilities, battery operated devices, limited transmission ranges as well as limited data transmission capacity, and so on. One of the key issues in IoT and SNs is the efficient data forwarding in terms of energy consumption, multihop data retrieval, safety/emergency message dissemination, and so forth. Similarly, different scenarios require unique analytical models in addition to a variety of new algorithms to guarantee the optimal performance.

The objective of this special issue is to provide high-quality research and development activities being performed by the researchers from both academia and industry. Research articles with novel application scenarios, new algorithms, and original results will be solicited. In addition to the technical novel contributions, we also welcome the state-of-the-art review articles that provide our readers with current research trends in both sensor networking and Internet of Things efficient data forwarding techniques.

Potential topics include but are not limited to the following:

- Cross-layer protocols for sensor networks
- Routing protocols for sensor networks
- Energy efficient data forwarding in IoT
- Transport layer protocols for sensor networks
- MAC layer protocols for sensor networks and IoT
- New emerging architectures for IoT and sensor networks
- New applications and test bed for IoT and sensor networks
- Energy efficient protocols for WSN and IoT
- Energy harvesting/scavenging for WSN and IoT
- Security and privacy architectures for WSN and IoT
- Interrelationship between WSN and IoT: similarities and differences
- WSN aspects that are critical for future IoT
- Intelligent transportation system applications with respect to WSN and IoT
- Energy efficient data forwarding protocols for underwater sensor networks
- WSN issues and technologies for IoT applications
- IoT management and monitoring
- Experimental results and technical reports for WSN and IoT
- Cohesion of WSN and IoT to build smart home, smart cities, and smart buildings

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Papers are published upon acceptance, regardless of the Special Issue publication date.

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Submission Deadline
Friday, 23 March 2018

Publication Date
August 2018