IoT Symposium Special Issue Proposal

Special issue on Embedded Computing for Internet-of-Things (IoT)

The Internet of Things (IoT) promises to revolutionize fields ranging from health care to manufacturing to personal living by connecting the Internet to physical things. VLSI and embedded computing are central to the achievement of the IoT vision---advanced computation and communication must be delivered at extremely low energy levels and manufacturing costs. A great deal of research on communication for IoT devices is underway but the challenges in VLSI and embedded computing have received less attention.

Traditional system-on-chip design is concerned with the design of large chips that maximize performance delivered for an application. IoT devices inhabit a very different part of the design space---very cheap devices with high connectivity and ultra low energy consumption to provide real-time, on-line analysis and reaction. We believe that IoT devices present substantial new challenges in the design of embedded computing hardware and software.

This special section of the ACM TECS is related to the first IoT Symposium at Embedded Systems Week. In addition, this special issue is also inviting submissions that were not part of the symposium. All submissions will go through the same review process and will be treated equally in their consideration for publication in the special issue.

Topics of interest include:

- VLSI Systems: ultra low energy systems, energy harvesting, integrated sensors, 3D, platform architectures.
- Networking and Communications: Physical layer, protocols, network management.
- Algorithms and Infrastructures: Distributed and cloud computing, big data methods, heterogeneous sensors, sensor fusion, standards, design methodologies.
- Security and Privacy: Low-energy encryption, authentication, hardware security, privacy management.
- Applications: Industrial control, logistics, smart homes, smart cities, office management, smart vehicles and fleets.

IoT Symposium papers may only be submitted if the paper was completely re-written or substantially extended (30%) in both novelty and textual volume. Papers should be submitted via the Manuscript Central website and should adhere to standard ACM TECS formatting requirements. The page count limit is 25.

Authors should adhere to the formatting instructions on the TECS Web page and indicate that you are submitting to the Special Issue on Embedded Computing for Internet-of-Things (IoT) on the first page and in the field “Author’s Cover Letter” in Manuscript Central. For additional questions please email the Guest Editors.

Guest Editors:
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Submission Deadline: Dec 1st, 2015
Preliminary notification: Mar 1st, 2016
Final paper due: Jun 1st, 2016

Comparison To Other Special Issues

This proposed special issue differs from the scheduled special issue on M2M in several respects:

- We invite VLSI-oriented topics important to embedded computing such as ultra low energy and 3D architectures.
- We emphasize security and privacy.
- We put more emphasis on real-time, on-line processing.