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AD HOC NETWORKS (ELSEVIER) JOURNAL

Special Issue on
MULTIMEDIA AD HOC AND SENSOR NETWORKS

Multimedia applications enabled by quality-aware wireless multi-hop networks include online gaming, video conferencing, video streaming, mobile TV, and peer-to-peer streaming. In addition, they include monitoring applications such as video surveillance, traffic enforcement and control systems, advanced health care delivery, structural health monitoring, and industrial process control.

In spite of the increasing demand for multimedia wireless networking, we are still lacking a clear understanding of analytical and computational techniques, as well as best practices, to design resource allocation schemes, communication protocols, and self-organization algorithms for wireless multimedia ad hoc and sensor networks that will deliver, in a predictable and quantifiable fashion, the quality of service and experience required by the end user.

In addition, while significant advances in physical layer techniques offer new opportunities for cross-layer optimizations designed to satisfy application needs, efforts to leverage these techniques from a networking perspective to support the needs of multimedia traffic demands in multi-hop wireless networks are still at initial stages. In particular, dynamic spectrum access and cognitive radios, multiple-input multiple-output (MIMO) techniques, ultra-wide-band and cooperative communications, among other techniques, will have a profound impact on our ability to flexibly and predictably deliver multimedia content over wireless networks. Finally, with a few exceptions, processing of multimedia content has mostly been approached as a problem isolated from the network-design problem. However, in-network processing and delivery of multimedia content are not independent and their interaction has a major impact on the levels of quality of service (QoS) that can be delivered. Hence, it is necessary to develop flexible and self-organizing architectures and algorithms to flexibly perform in-network processing of multimedia contents.

This special issue solicits papers on all aspects of multimedia ad hoc and sensor networks, with a primary focus on three key aspects. First, content-aware cross-layer design and resource allocation techniques, as well as new networking protocols based on metrics associated with quality of service/video/experience are of particular interest. Second, original papers examining networking aspects that leverage advances in physical and multiple access techniques to support multimedia traffic are particularly welcome. Third, papers investigating the interdependencies between multimedia in-network processing and networking aspects are sought, e.g., architectures and techniques to store, process in real-time, correlate and fuse multimedia data originating from heterogeneous sources.

The objective of this special issue is to bring together state-of-the-art research contributions, tutorials, and position papers that address these key aspects of multimedia content delivery over ad hoc and sensor networks. Original papers describing completed and unpublished work not currently under review by any other journal/magazine/conference are solicited.

Topics of interest include, but are not limited to:

- Architectures and applications for multimedia ad hoc and sensor networks
- Protocols for real-time, reliable multimedia streaming
- Distortion and quality/experience-aware cross-layer design
- Optimization techniques for multimedia ad hoc and sensor networks
- Capacity modeling
- Quality-aware medium access control, scheduling, routing, and transport
- Quality-aware resource management and admission control
- Cross-layer design for P2P streaming
- Experimental and testbed-based studies
- Scalability and mobility issues in cross-layer design
- Standardization issues related to quality-aware cross-layer design
- Multimedia traffic on cognitive radio networks
- Cooperative communication techniques for real-time video streaming
- MIMO techniques for multimedia delivery
- Physical layer technologies for efficient delivery of multimedia content
- Secure multimedia communications
- Joint multimedia processing and communication
- Compressed sensing for multimedia sensor networks
- Distributed source/video coding and multimedia processing

Submission Instructions:
Prospective Authors: Please follow the Ad Hoc Networks (Elsevier) journal manuscript format described at http://www.elsevier.com/locate/adhoc and submit your papers to the online submission and reviewing system at http://www.editorialmanager.com/adhoc. Please select Article Type: **Multimedia Ad Hoc And Sensor Networks.** Papers must be in single-column format, double-spaced, and use at least 11 pt fonts, and should not exceed 25 pages including references.

Important Dates
Submission deadline (Extended): January 31st, 2010
First round notification date: April 15th, 2010
First round revision date: May 15th, 2010
Second round notification date: June 15th, 2010
Camera-ready due: July 15th, 2010

Guest Editors:

Prof. Tommaso Melodia
State University of New York (SUNY) at Buffalo, USA
E-mail: tmelodia@eng.buffalo.edu
http://www.eng.buffalo.edu/~tmelodia/

Prof. Martin Reisslein
Arizona State University, USA
E-mail: reisslein@asu.edu
http://www.eas.asu.edu/~mre/