

# Call for Papers IEEE Signal Processing Society

## Network-Aware Multimedia Processing and Communications

Recent applications such as monitoring of targets, habitat, traffic, health and industrial environments; live streaming, and distributed video conferencing, have stimulated research for new technologies in the areas of multimedia architectures, processing, and communications. Multimedia architectures have undergone significant changes from centralized to distributed, self-organizing structures. Consequently, multimedia content processing has employed new paradigms that include distributed, collaborative, and resource-constrained models, whereas multimedia communications have addressed the new application challenges by focusing on cross-layer design.

With few exceptions, such as joint source channel coding and adaptive streaming, processing of multimedia content has been approached as a network-independent problem by the research and academic communities. In turn, the works that addressed the content delivery aspects have typically not included the characteristics of the source content and have primarily studied interactions among lower layers of the protocol stack. However, the processing and delivery of multimedia content are not independent and their interaction has a major impact on the Quality-of-Service (QoS) aspects.

To address this interaction, network-aware multimedia content processing and delivery methods are needed. In contrast to the solutions mentioned earlier, *network-aware* methods make use of the network characteristics in their design, to intelligently take advantage of infrastructure and content characteristics. Network-aware processing aspects include in-network solutions (such as event detection, tracking, data aggregation, spatio-temporal query and summarization in sensor and ad hoc networks; real-time and energy-constrained analysis, tracking, query and classification; distributed coding and transcoding; content security and protection; network coding) and out-of-network solutions (such as network-aware analysis, coding, error resilience; security and protection). Network-aware delivery aspects include solutions with emphasis on a stronger integration among higher layers of the protocol stack including the application layer.

This special issue aims to bring together contributions from researchers and practitioners in the area of network-aware multimedia signal processing and communication. It is slated to appear in a new publication currently in the IEEE approval stages. In the event approval is delayed, the special issue will be published in a timely fashion as scheduled below, as a separate supplementary issue of the IEEE Transactions on Image Processing. Original papers are solicited with focus on in-network and out-of-network processing and communication as summarized in, but not limited to, the following topics:

- Network-aware processing of multimedia content
- Network-aware delivery of multimedia content
- Network-aware multimedia processing over sensor networks
- Network-aware multimedia processing over ad hoc networks
- Network-aware compression, distributed coding, transcoding
- Network aware streaming, P2P streaming, streaming media CDNs
- Network-aware multimedia analysis, query and classification
- Network-aware secure delivery of multimedia over networks
- Network coding for multimedia content
- Network-aware multimedia applications

Prospective authors should follow the submission instructions available at <http://www.ece.byu.edu/jstsp> and should submit their manuscripts according to the following timetable:

Manuscript Submission:	November 1, 2006
First review completed:	February 1, 2007
Revised manuscript due:	March 15, 2007
Second review completed:	May 1, 2007
Notification of acceptance:	May 15, 2007
Final Manuscript Due:	May 31, 2007
Publication:	4th Quarter 2007

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