



Symposium on Selected Area in Communications

Data Storage Track

Sponsor: Data Storage Technical Committee (DSTC)

Co-Chair

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Scope and Motivation

Data storage, communication and computing have always been the three pillars supporting today's cyber-infrastructure. The exponential growth of video applications and the recent surge in cloud computing have further opened up tremendous challenges as well as opportunities for data storage. Recent emergence of new data storage technologies, such as non-volatile memories (NVM) and heat-assisted magnetic recording (HAMR) demand innovative signal processing and coding solutions. On the system level, massive distributed storage networks, data centers and cloud storage systems are currently adopting advanced error correction coding techniques for higher storage efficiency.

The data storage track will present an opportunity for researchers in this community to present novel approaches for signal processing and coding for data storage, both for traditional hard disk drives (HDD) and optical drives, and for emerging recording technologies (flash memory, phase change memory) and data storage systems.

Topics of interest include, but are not limited to

- **Technologies for hard disk drives and optical drives**
 - Error-correcting codes (LDPC codes, trellis coding and turbo codes, etc) and energy efficient decoders, coding bounds, density, and channel capacity.
 - Detection methods, including sequence detection, partial response and decision feedback.

- Modulation, run-length limited codes, equalization and filtering, including nonlinear techniques.
- Write precompensation and write equalization.
- Circuit designs for read/write channel electronics and coding / detection algorithms.
- Timing and gain recovery.
- **Data storage systems**
 - Data compression for digital storage, including audio and video.
 - Fault tolerance and coding techniques for disk arrays and data centers.
 - Signal processing and coding methods for object based storage systems.
 - Data security for storage systems.
 - Measurement, testing, performance optimization, and cost-performance trade-off.
- **Emerging recording technologies**
 - Signal processing and coding for emerging memory technologies, such as NAND, PRAM, MRAM, STT-MRAM, RRAM and memristor based memories.
 - Channel characterization, including modeling of noise and nonlinearity, for new recording medias (NAND flash, phase change memory, ...).

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Submission Deadline

March 15, 2012

Please follow guideline on Globecom 2012 website <http://www.ieee-globecom.org/2012/index.html>