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Data Storage Track

Sponsoring Technical Committee

Data Storage Technical Committee

Co-Chair

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Scope and Motivation

Data storage is at the core of the information technology revolution, from the smartphones in our hands to data centers in the cloud. Hard disk drives, which have long been the pillar of data storage technologies, have recently been joined by flash memories, and new types of non-volatile memory devices are already emerging on the technology horizon. In addition, massive distributed storage networks have arisen to provide ubiquitous access to data. These new and existing systems pose novel problems of storage density, reliability, efficiency and security. Signal processing and coding techniques are the foundation for solving these problems. While storage channel models are fundamentally communication channels, the unique demands of recording and storage create new challenges to maintain the pace of growth.

The goal of this Data Storage Track is to bring together researchers to present novel significant results on emerging data storage applications.

Main Topics of Interest

- Signal processing and detection methods for storage channels
- Signal processing for shingled writing two - dimensional magnetic recording (TDMR) channels
- Error-correcting codes for storage channels and distributed storage networks
- Turbo equalization, low-density parity check and polar codes for data storage channels
- Modulation codes
- Information theory for storage
- Network coding techniques for distributed storage networks
- Channel and noise characterization for magnetic recording, flash memories and emerging memory technologies
- Two-dimensional intersymbol-interference channels
- Circuit design for coding, detection, and read/write channels
- Security for cloud storage and storage devices
- Novel and emerging storage media: optical, holography, PCM, MRAM, RRAM, etc.
- Energy-efficient designs for storage
- Architecture and design of large-scale storage subsystems based on new non-volatile memories

Biography of Co-Chair