

CALL FOR PAPERS -- IEEE GLOBECOM 2011

Selected Areas in Communications Symposium

Data Storage Track

Track Chair:

Alex Dimakis, University of Southern California, USA
dimakis@usc.edu

Scope and Motivation

Signal processing and coding have been key components of data storage systems in the past (e.g. disk drives, tape recording, DVD players). Codes and signal processing methods in data storage are unique in the sense that they need to be tailor-made to address issues in data storage. In addition, two recent technological developments pose new challenges in coding and signal processing for storage.

1. Cloud storage:

Massive farms of computer servers are an indispensable component of the information age, becoming the next computing platform for the Internet. The problem of storing and processing massive amounts of information over networks is significant and challenging. Recently techniques from coding theory and network coding have been shown to have significant potential for cloud storage over distributed networks.

2. Emerging Memory Technologies:

The emergence of newer memory technologies such as Flash and PCM, have generated significant research interest for the development of communication theory. The signal-processing and information theoretic tools developed for the communication channel bear significant similarities to those that have been applied successfully to data-storage devices. These techniques are now finding applicability for EMT problems such as Flash storage.

The data storage track will present a chance for researchers in this community to present novel results for signal processing and coding for data storage.

Main Topics of Interest

1. Characterization of data storage channels and noise phenomena
2. Information theory for storage systems and distributed storage networks
3. Network coding techniques for distributed storage
4. Design of error correction codes for storage channels and networks
5. Performance evaluation and system reliability of storage networks
6. Signal processing techniques and implementations of Read/write channels.
7. LDPC and Turbo codes for data storage.

8. Coding and Information theoretic techniques for cloud storage security
9. Coding and signal processing for non-volatile memories such as flash media
10. Applications to other emerging memory technologies, such as Phase Change Memory (PCM)

Technical Program Committee

J. R. Cruz, University of Oklahoma, USA
Lara Dolecek, UCLA, USA
Mehmet Fatih Erden, Seagate Technology, USA
Warren Gross, McGill University, Canada
Anxiao (Andrew) Jiang, Texas A&M University, USA
Aleks Kavcic, University of Hawaii, USA
P. Vijay Kumar, IISc, India
Tiffany Jing Li, Lehigh University, USA
Luis Lastras-Montano, IBM T.J. Watson Research Center, USA
George Mathew, LSI Corporation, USA
Sedat Olcer, IBM Zurich, Switzerland
Henry D. Pfister, Texas A&M University, USA
Aditya Ramamoorthy, Iowa State University, USA
Kannan Ramchandran, UC Berkeley, USA
Paul H. Siegel, UCSD, USA
Bane Vasic, University of Arizona, USA
Haitao (Tony) Xia, LSI Corporation, USA