



Data Storage Technical Committee



# IEEE Data Storage Technical Committee Update

Haitao (Tony) Xia

Chair, IEEE Data Storage Technical Committee 2013-2014

# IEEE DSTC



## ▪ **Goals and activities:**

- Technical group under IEEE Communications Society to promote data storage related technologies and their applications
- Scope covers signal processing and coding for magnetic and non-volatile storage systems, cloud storage/computing, mobile storage and big data
- Bridge between storage industry and universities to engage research collaboration
- Sponsor and co-sponsor conferences, workshop, etc.

## ▪ **Join us:**

- Website: <http://committees.comsoc.org/spfs/>
- Contact us through Prof. Brian M. Kurkoski ([kurkoski@jaist.ac.jp](mailto:kurkoski@jaist.ac.jp))

# IEEE DSTC



## ▪ **2015-2016 Technical Committee Officers (newly elected):**

- Chair: Prof. Bane Vasic, University of Arizona, USA
- Vice Chair of Industry: Dr. Xinde Hu, SanDisk, USA
- Vice Chair of Academic: Dr. Kui Cai, Data Storage Institute, Singapore
- Secretary: Prof. Brian M. Kurkoski, Japan Advanced Institute of Science and Technology (JAIST), Japan
- Treasurer: Dr. Qi Qi, Avago Technologies, USA

## ▪ **2013-2014 Technical Committee Officers:**

- Chair: Dr. Haitao (Tony) Xia, LSI Corporation, USA
- Vice Chair of Industry: Dr. Xinde Hu, SanDisk, USA
- Vice Chair of Academic: Prof. Sedat Olcer, Istanbul Bilgi University
- Secretary: Prof. Brian M. Kurkoski, Japan Advanced Institute of Science and Technology (JAIST), Japan
- Treasurer: Dr. Kui Cai, Data Storage Institute, Singapore

# IEEE DSTC



## ▪ Conference support from DSTC:

- ICC 2014, Sydney, Australia
  - Chair: Prof. Brian Kurkoski, JAIST
- Globecom 2014, Austin, Texas, USA
  - Chair: Prof. Lara Dolecek, UCLA
- ICNC 2014, Honolulu, Hawaii, USA
  - Co-Chairs: Haitao (Tony) Xia, LSI Corporation, Prof. Yiran Chen, University of Pittsburg
- ICC 2015, London, UK
  - Chair: Xinde Hu, SanDisk, USA
- Globecom 2015, San Diego, USA
  - Chair: Haitao (Tony) Xia, Avago Technologies
- ICC 2016
  - Chair: Edward Au, Marvell
- Globecom 2016
  - Chair: Sedat Olcer, Bilgi University, Turkey

# ICC2014 - Sydney

- *Brian Kurkoski, Track Chair*
- *15 papers were submitted and reviewed*
  - *8 papers on “Coded Distributed Storage”*
    - *2 had a security component*
  - *7 papers on “traditional” coding*
    - *5 flash/PCM oriented*
    - *2 on 2D magnetic recording*
- TPC meeting Thursday 12 December
- Acceptance Notification sent by EDAS: 12 January 2014
- **Thank you to the TPC Members (~3 papers/member). Reviews 93% complete.**

- Kui Cai, Data Storage Institute, Singapore
- Lara Dolecek, UCLA, USA
- Shayan Garani, Indian Institute of Science, Bangalore
- Jeongseok Ha, KAIST, Korea
- Kohsuke Harada, Toshiba, Japan
- Xinde Hu, SanDisk Corporation, USA
- Hiroshi Kamabe, Gifu University, Japan
- Peter Mueller, IBM Zurich

Frederique Oggier, Nanyang Technological University,  
Lluís Pamies-Juarez, HGST  
Ricardo Raheli, University of Parma, Italy  
Pornchai Supnithi, King Mongkut's Institute of  
Technology Ladkrabang, Thailand  
Haitao Xia, LSI Corporation, USA  
Eitan Yaakobi, Caltech, USA  
Xinmiao Zhang, SanDisk Corporation, USA

- **Advice: Increase number of coded distributed storage experts**

# Globecom2014 - Austin

- *Lara Dolecek, Track Chair*
  - *14 papers submitted, 6 accepted. Each paper received 3+ reviews (many 4+) and TPC committee did an excellent job in providing timely reviews.*
  - **TPC member:**
    - Lara Dolecek, UCLA, USA
    - Benjamin Belzer, Washington State Univ.
    - J. Cruz, Univ. of Oklahoma
    - Faith Erden, Seagate Technology
    - Shayan Garani Srinivasa, Indian Institute of Science
    - Idan Goldenberg, SanDisk
    - Kiran Gunnam, Vilion Memory
    - Anxiao (Andrew) Jiang, Texas A&M Univ.
    - Mustafa Kaynak, Micron Technology
    - Brian Kurkoski, JAIST
    - Luis Lastras-Montano, IBM
    - Tiffany Jing Li, Lehigh Univ.
    - Jaekyun Moon, KAIST
    - Ravi Motwani, Intel
- Moshe Schwartz, Ben-Gurion Univ.  
Ying Tai, SanDisk  
Bane Vasic, Univ. of Arizona  
Haitao (Tony) Xia, LSI  
Eitan Yaakobi, Technion

# ICC2015 - London

- *Xinde Hu, Symposium Chair*
  - *91 papers submitted, 63 of them are about cloud computing, 14 papers on non-volatile memory and 4 papers on magnetic recording, 8 papers on general ECC*
  - **TPC member:**
    - Lara Dolecek, UCLA, USA
    - Benjamin Belzer, Washington State Univ.
    - J. Cruz, Univ. of Oklahoma
    - Faith Erden, Seagate Technology
    - Shayan Garani Srinivasa, Indian Institute of Science
    - Idan Goldenberg, SanDisk
    - Kiran Gunnam, Vilion Memory
    - Anxiao (Andrew) Jiang, Texas A&M Univ.
    - Mustafa Kaynak, Micron Technology
    - Brian Kurkoski, JAIST
    - Luis Lastras-Montano, IBM
    - Tiffany Jing Li, Lehigh Univ.
    - Jaekyun Moon, KAIST
    - Ravi Motwani, Intel
- Moshe Schwartz, Ben-Gurion Univ.  
Ying Tai, SanDisk  
Bane Vasic, Univ. of Arizona  
Haitao (Tony) Xia, LSI  
Eitan Yaakobi, Technion

# ICNC2015 - Anaheim, California

- *Kui Cai, Symposium Chair for Signal Processing on Data Storage*
- *Work in progress*
- **TPC member:**
  - Lara Dolecek, UCLA, USA
  - Benjamin Belzer, Washington State Univ.
  - J. Cruz, Univ. of Oklahoma
  - Faith Erden, Seagate Technology
  - Shayan Garani Srinivasa, Indian Institute of Science
  - Idan Goldenberg, SanDisk
  - Kiran Gunnam, Vilion Memory
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# JSAC Special Issue on Data Storage

- *IEEE Journal on Selected Areas on Communications*  
**Special Issue on Communication Methodologies for the Next-Generation Storage Systems**
- GUEST EDITORS: Lara Dolecek (lead), Mario Blaum, Jehoshua Bruck, Anxiao (Andrew) Jiang, Kannan Ramchandaran, Bane Vasic
- Initial paper submission: May 1, 2013 (extended to May 15)  
First/second reviews: Sept. 1/Nov. 1, 2013  
Final manuscripts due: Dec. 15, 2013  
Publication: Second Quarter 2014
- “terrific turn out” About 50 submitted papers
- Anticipate around 35% acceptance rate.
- Scope of submitted papers: coding for non-volatile memories, detection and estimation, new storage channels, distributed network storage, general combinatorial problems related to the new storage/memory channels, others.
- Report by Lara Dolecek

# Best Paper Award

- Best Paper Award and Best Student Paper Award given each year
- Edward Au is organizing the best paper award committee for 2013
- Nominations received:
  - 2 nominations for 2011 Best Student Paper Award
    - “Joint Decoding of LDPC Codes and Finite-State Channels via Linear-Programming”, J-SAC 2011
    - “Optimal Exact-Regenerating Codes for Distributed Storage at the MSR and MBR Points via a Product-Matrix Construction”, IEEE Trans Information Theory, 2011
  - 2 nominations for 2012 Best Student Paper Award
    - “Minimum Distance Analysis of a Certain Class of 2-D ISI Channels” IEEE Trans Information Theory, 2012
    - “Locally Repairable Codes”, ISIT 2012
  - 1 nomination for 2011 Best Paper Award.
- Proposal:
  - merge the 2011 and 2012 Best Student Paper Awards.
  - no Best Paper Award
  - decision to be announced at the end of November 2013

# IEEE DSTC



## ▪ **Membership Promotion support from DSTC:**

- 2014 Distinguish Lecturer Nomination
  - Prof. Bane Vasic, University of Arizona
- 2014 IEEE Fellow Nomination (co-nomination)
  - Prof. Krishna Narayanan, Texas A&M University
- 2014 IEEE Senior Member Nomination
  - Prof. Lara Dolecek, UCLA

# Secretary's Report – Publicity

## DSTC Web Site

- <http://committees.comsoc.org/dstc/> Redesigned in June 2013

## Mailing list

- [dstc@ieee.org](mailto:dstc@ieee.org)
- 190 email address as of December 2014 (182 in June 2014)
- Not all are unique. Not all have names/affiliations
- Current work is finding real names for the addresses
- **Subscribe** Instructions at: <http://committees.comsoc.org/dstc/>
- **Make a posting** Email your posting to [dstc@ieee.org](mailto:dstc@ieee.org)
  - Topics: CFPs (data storage only!), internships at companies, etc.

## LinkedIn Group

- “IEEE ComSoc Data Storage”
- 35 members
- Postings mirror the mailing list

# DSTC Web Site

<http://committees.comsoc.org/dstc/>

## DSTC

**Data Storage Technical Committee**  
IEEE Communications Society



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Officers

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Activities

The **Data Storage Technical Committee** is a **technical committee** of the **IEEE Communications Society**.

## Charter

The Data Storage Technical Committee (DSTC) promotes advances in state-of-the-art communications, signal processing and coding technologies to enhance data storage systems, in order to achieve high storage densities, fast access, and low error rates. This is accomplished by activities such as sponsoring technical sessions at major conferences, organizing workshops and tutorials, and organizing special issues of IEEE journals and magazines.

## Join Us

The DSTC is open to all with an interest in communication

### NEWS

- **ICC 2014** in Sydney, Australia June 10-14. Data storage sessions will be Thursday, June 12.

# Mailing List: Migration to IEEE Listserv

- DSTC Mailing list is maintained by the secretary
  - low-volume announcements: ICC/Globecom CFPs, DSTC meetings, etc.
  - mailing list is de-facto member list (about 180 members)
- Current DATASTORAGE list from secretary's university mail server
- **Want to migrate to IEEE listserv**
  - More stable when officers change
  - Consistent for members
  - Official IEEE address
  - Listserv is fairly powerful:
    - subscribe by web or "subscribe dstc [yyy@xxx.com](mailto:yyy@xxx.com)"
- **Current status**
  - Obtained the listserv account [dstc@ieee.org](mailto:dstc@ieee.org)
  - Testing
- **To do**
  - Move current member list from old server to listserv
  - Add moderators: Executive committee, ICC/GC Track chairs