学 术 报 告

ISEE

ACADEMIC LECTURE

Topic: **Quadratic Gaussian Multiterminal Source Coding**

Time: 2011年10月19日（周三）上午10:30-11:30
Venue: 信电大楼-215学术厅
Speaker: Prof. Zixiang Xiong, IEEE Fellow
(Texas A&M University, USA)

Biography

Zixiang Xiong (S'91-M'96-SM'02-F'07) received the Ph.D. degree in electrical engineering from UIUC in 1996. From 1995 to 1997, he was with Princeton University, first as a visiting student, then as a Research Associate. From 1997 to 1999, he was with the University of Hawaii. Since 1999, he has been with the Department of Electrical and Computer Engineering, Texas A&M University, College Station, where he is currently a Professor. He spent summers 1998 and 1999 with Microsoft Research, Redmond, WA, and his sabbatical leave with Stanford University, Stanford, CA, during spring 2010. His research interests are network information theory, code designs and applications, networked multimedia, and biomedical engineering.

Dr. Xiong received a National Science Foundation Career Award in 1999, an Army Research Office Young Investigator Award in 2000, and an Office of Naval Research Young Investigator Award in 2001. He also received the 2006 IEEE Signal Processing Magazine Best Paper Award. He served as an Associate Editor for the IEEE CSVT from 1999 to 2005, the IEEE TRANS. ON IMAGE PROCESSING from 2002 to 2005, the IEEE TSP from 2002 to 2006, and the IEEE Trans. SMC-B from 2005 to 2009. He is currently an Associate Editor for the IEEE TCOM. He was the Publications Chair of ICASSP 2007, the Technical Program Committee Co-Chair of ITW 2007, and the Tutorial Chair of ISIT 2010.

Abstract

Driven by a host of emerging applications, distributed source coding has assumed renewed interest in the past decade. Although the Slepian-Wolf theorem has been known for 38 years and progresses have been made recently on the rate region of quadratic Gaussian two-terminal source coding, finding the sum-rate bound of quadratic Gaussian multiterminal (MT) source coding with more than two terminals is still an open problem. In this talk, I'll briefly go over existing results on distributed source coding problems before describing the following set of new results we obtained recently.
1) The generalized Gaussian CEO problem: New cases with tight rate region,
2) A new class of quadratic Gaussian MT problems with tight sum-rate,
3) The supremum sum-rate loss of quadratic Gaussian MT source coding,
4) A new sufficient condition for sum-rate tightness of quadratic Gaussian MT source coding.
5) Distributed source coding of linear functions: Partial sum-rate tightness and gap to optimal sum-rate.