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Speaker: Dr. Lang Tong
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Topic: Energy Scaling Laws for Distributed Inference in
Random Fusion Networks



Abstract

We examine the cost of data fusion in a random network for statistical inference. In particular, we are interested in scalable fusion policies that achieve optimal inference at the fusion center and have a constant average cost per sensor as the size of the network increases.

We note that schemes based on multihop routing are in general not scalable. For statistical inference involving random dependency graphs, the key to scalable data fusion are in-network processing that exploits structures of statistical correlations.

Joint work with A. Anandkumar, J. Yukich, and A. Swami.

Biography

Lang Tong is the Irwin and Joan Jacobs Professor in Engineering at Cornell University Ithaca, New York.

He received his B.E. degree from Tsinghua University, Beijing and Ph.D. degree in electrical engineering from the University of Notre Dame, Notre Dame, Indiana.

He was a Postdoctoral Research Affiliate at the Information Systems Laboratory, Stanford University in 1991.

Lang Tong is a Fellow of IEEE. He received the 1993 Outstanding Young Author Award from the IEEE Circuits and Systems Society, the 2004 best paper award (with Min Dong) from IEEE Signal Processing Society, and the 2004 Leonard G. Abraham Prize Paper Award from the IEEE Communications Society (with Parvathinathan Venkitasubramaniam and Srihari Adireddy).

He is also a coauthor of five student paper awards. He also received the Young Investigator Award from the Office of Naval Research.

Lang Tong's research is in the general area of statistical signal processing, wireless communications and networking, and information theory. He has served as an Associate Editor for the IEEE Transactions on Signal Processing, the IEEE Transactions on Information Theory, and IEEE Signal Processing Letters.