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THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Seminar

Flow Detection and Anonymous Networking

by
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Date : 27 April, 2009 (Mon.)
Time : 11:00am – 12:00noon
Venue : Room 833, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong

Abstract

In a wireless network, transmission activities can be easily monitored using simple devices. Given the record of transmissions from a set of nodes, one may be able to assertain whether these nodes are engaged in some networking operations. While the content of a wireless transmissions can be protected by cryptographical techniques, the acts of transmission may reveal crtical information about network operations such as routing and multicasting.

In this talk, we consider two related problems. The first is the problem of flow detection: given observations from a set of traffic sensors, to what extent can the presence of an information flow be detected? We present results on the fundamental limit of detectability. The second probem is anonymous networking: to what extent can we hide an information flow. Here we use information theoretic measures to characterize the tradeoff between anonymity vs. network throughput.

Biography

Lang Tong joined Cornell University in 1998 where he is now the Irwin and Joan Jacobs Professor in Engineering. He received his PhD from the University of Notre Dame and was a Postdoctoral Research Affiliate at the Information Systems Laboratory of Stanford University. His research is in the general area of statistical signal processing, communication systems, and networks.

Lang Tong is a Fellow of IEEE. He received the 2004 Best Paper Award (with Min Dong) from the IEEE Signal Processing Society, the 2004 Leonard G. Abraham Prize Paper Award from the IEEE Communications Society (with Parvathinathan Venkitasubramaniam and Srihari Adireddy), and the 1993 Outstanding Young Author Award from the IEEE Circuits and Systems Society. He is also a coauthor of six student paper awards, including two IEEE Signal Processing Society Young Author Best Paper Awards for papers published in the IEEE Transactions on Signal Processing. He was the recipient of the 1996 Young Investigator Award from the Office of Naval Research.

**** ALL ARE WELCOME ****

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