THE SCHOOL OF COMPUTING AND INFORMATICS

at

the University of Louisiana at Lafayette

Lafayette, Louisiana

Announces a speaker

Dr. Abram Magner

of

Postdoctoral Research Associate
Coordinated Science Lab
University of Illinois at Urbana-Champaign

will give a presentation entitled

Inference, Compression, and Control in Dynamic Networks

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Abstract

Almost all networks in the real world (such as social, biological, communications, etc.) are dynamic -- nodes and edges are added and removed over time, and time-varying processes (such as epidemics) run on them. In this talk, I will describe some fundamental scientific challenges that intimately involve this time-varying aspect of networks. I will focus in particular on my work with collaborators on two related problems along these lines: (i) node arrival order inference -- for a dynamic graph model, determine the extent to which the order in which nodes arrived can be inferred from the graph structure, and (ii) compression of structures -- for a given graph model, exhibit an efficient algorithm for invertibly mapping network structures to bit strings of minimum expected length. For both problems, I give both fundamental limits and efficient algorithms for achieving those limits. I then describe efforts to apply the methods for the node arrival order inference problem to neuroscientific and proteomic data.

DATE: WEDNESDAY, JANUARY 24, 2018
TIME: 10:00 A.M. - 11:00 A.M.
LOCATION: OLVR, ROOM 112

Biography

I received B.S. degrees in mathematics and computer science in 2011, as well as the M.S. and Ph.D. degrees in computer science from Purdue University (December 2015), where I worked on applications of complex analysis to random structures arising in computer science. I am currently a postdoctoral research associate in the Coordinated Science Lab at the University of Illinois at Urbana-Champaign. My research is in the theory and applications of complex networks, with an emphasis on the statistical/information-theoretic and algorithmic aspects of inference problems on time-varying graphs.

Please post and/or circulate. **January 22, 2018**