



Uncovering the Underlying Dynamics of Real World Temporal Network Data Using Generative Network Automata

Jeffrey Schmidt

Systems Science, Binghamton University

Wednesday November 19th, 2014

8:30-9:30am

**Biotechnology Building BI 2221 (ITC
Conference Room)**



There has been a shift in Network Science from analyzing static networks to networks whose structure and states change over time. This shift is in response to the rapid increase in the availability and size of temporal network data. Tools are needed to facilitate research in this area. In order to address this we are working on a tool to automatically uncover the dynamics of real world data. This tool combines previous work on Generative Network Automata (GNA) with a powerful data structure for identifying subgraph isomorphisms, the G-Trie. By utilizing the G-Trie, we identify "motif transitions" that represent the dynamics of the input data. These motif transitions can be used to generate a new network for comparison and can act as a "recipe" that describes the behavior of the network dynamics. This talk will focus on the progress made, the challenges we face, and future directions of this research.

Jeffrey Schmidt is a PhD student in the Systems Science program at Binghamton University. His research interests include complex adaptive networks, evolutionary computation, neural networks, agent-based modeling, artificial intelligence and economic modeling.

For more information, contact Hiroki Sayama (sayama@binghamton.edu)

<http://coco.binghamton.edu/>