

The University of Chicago Computer Science Department

PRESENTS:

“Multi-Agent Systems in Power Distribution Networks – Introduction, Recent Innovations, and Open Challenges”



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Abstract:

Despite being around for more than a century, power distribution networks still present many challenges and opportunities for innovation. These medium-voltage networks pass through your neighborhood, as overhead lines or underground cables, to deliver electric power to your home, business, or factory. Occasionally these network may encounter faults, an electric short caused by an animal, a tree branch falling off during a storm, or a car hitting a pole. Devices installed on the network must then quickly identify and isolate the faulted section to prevent damage to equipment. Other devices must then reroute the flow of power to deliver it to customers that previously received their power through that faulted section. All these devices, through local sensing and communication with their neighbors, essentially form a multi-agent system. We will start the talk by providing a general introduction to power distribution networks. We will continue by describing recent innovations by S&C Electric to increase the reliability of these networks. We will finish by listing the challenges still lying ahead. We believe these challenges can be addressed by recent developments in computer science, specifically in multi-agent systems, optimization, and graph algorithms.

Bio:

Yoav Sharon started his academic education in computer science, and later switched to electrical engineering for his master and Ph.D. He obtained his Ph.D. from the University of Illinois at Urbana- Champaign. Following a postdoctoral position at the Massachusetts Institute of Technology, he returned to Illinois and joined S&C Electric in Chicago. Since then he has been developing mathematical and algorithmic solutions to power system applications. He currently manages the power system control group at S&C.

Monday, November 7, 2016
Ryerson 255, 2:00 pm with refreshments
Host: Andrew A. Chien

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