

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
Faculty of Engineering
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Area: Power and Energy Systems

Host: Prof Dipti Srinivasan

Research Seminar

TOPIC	:	Designing real time control and market mechanisms for the future smart grid
SPEAKER	:	Dr Chen Niangjun, Research Scientist, Institute of High Performance Computing
DATE	:	28 August 2019, Wednesday
TIME	:	10am to 11am
VENUE	:	E3-06-01, Engineering Block E3, Faculty of Engineering, NUS

ABSTRACT

The power system is undergoing a massive transformation to meet the challenge from increasing penetration of renewable generation and electric vehicles. As a result, the control of the power system needs to move from the centralized, vertically integrated, human-in-the-loop solution to a decentralized, layered, and automatic solution. The key challenges to develop such a solution involve designing real time control algorithms that deal with uncertainties from renewables and user demands, and also designing good mechanism to incentivize demand response. My research focus on tackling these challenges using tools from optimization, learning theory and algorithmic game theory. In this talk, I will present my research on how to design online scheduling algorithm using predictions, with application to optimizing electric vehicle charging and deferrable load scheduling. In addition, I will also discuss my research on how to design market mechanism for demand response, with applications to emergency demand response and quantifying potential market manipulations by aggregators.

BIOGRAPHY

Niangjun Chen is a research scientist in Institute of High Performance Computing. He received his Ph.D. degree in the Department of Computing and Mathematical Sciences at the California Institute of Technology, where he is a member of the Rigorous Systems Research Group (RSRG) and Netlab. His research interests include online algorithms, optimization, and game theory and their applications to distributed control and mechanism design for power systems, data centers, and electricity markets.

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