

Electric Power and Power Electronics Institute

INVITED SEMINAR

Friday, December 4th, 2015, 2:00pm – 3:00pm, WEB 236C

COORDINATING HUMANS AND ELECTRIFIED SERVICE SYSTEMS: FROM CONTROL TO INCENTIVE DESIGN

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Abstract

A human-centered service system entails the coordination of humans, machines, and their surrounding environment to create services that deliver value to the end-user. As the majority of such service systems rely on the electric power system for their operation, there emerges the potential to extract considerable efficiencies through their co-optimization and control. The ability to do so effectively will, however, rely on the extent to which the collective action of human participants can be influenced and shaped. In the following lecture, I'll describe and analyze two examples of electrified service systems -- ranging from electric car sharing to residential electricity services -- which reveal several challenges inherent to the design and control of such systems. I'll also describe recent experimental results from a demand response pilot, which strengthen the argument for a more nuanced approach to modelling of human decision making processes in service systems.

Biography

Eilyan Bitar is currently an Assistant Professor in the School of Electrical and Computer Engineering at Cornell University. His research interests lie at the intersection of optimization, control, and economics with applications to power systems. Prior to joining Cornell in the Fall 2012, he was engaged as a Postdoctoral Fellow in the department of Computing + Mathematical Science (CMS) at the California Institute of Technology and at the University of California, Berkeley in Electrical Engineering and Computer Science during the 2011-12 academic year. A native Californian, he received both his Ph.D. (2011) and B.S. (2006) from the University of California, Berkeley. He received the NSF CAREER award in 2014.