# Seminar Series

Friday April 14th, 2017
9:00 - 10:00AM
UConn, Storrs Campus – ITEB 336
To view live webcast click here

## Data-Driven Optimization under Distributional Uncertainty

Stochastic phenomena are playing an increasingly important role in the analysis and design of modern engineering systems. However, these stochastic phenomena are often difficult to capture using conventional parametric models. In this talk, I will discuss an alternative modeling approach by making use of samples drawn from the unknown probability distribution that governs the stochastic phenomenon of interest. These samples naturally define an uncertainty set of distributions that contains the true probability distribution with prescribed confidence levels. I will show that reasoning against such kind of distributional uncertainty can be formulated as an infinite-dimensional optimization problem. Moreover, for a large class of applications, the corresponding optimization problem can be converted into an equivalent finite-dimensional convex optimization problem whose solution can be computed efficiently. In the end, I will showcase the advantages of modeling with distributional uncertainty using examples from power systems and transportation.

### Shuo Han

Shuo Han is a postdoctoral researcher in the Department of Electrical and Systems Engineering at the University of Pennsylvania. He received his Ph.D. in Electrical Engineering from the California Institute of Technology in 2014. His current research focuses on developing rigorous frameworks for data-driven decision making that enable reliable and efficient operations of networked systems such as power and transportation networks. He was a finalist for the Best Student Paper Award at the 2013 American Control Conference.

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