STATISTICS SEMINAR
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Thursday, November 5, 2015
Dickens Hall, Room 207, 4:00-5:00 pm
Refreshments: Dickens 108, 3:30-4:00 pm
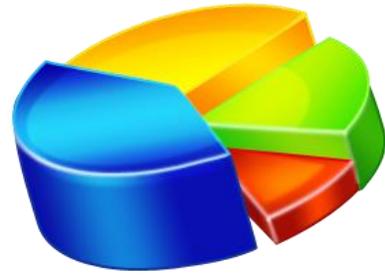
Machine Learning Methods for Data Science

Recent work on new graphical models of probability, artificial neural networks, variational inference algorithms, and Markov Chain Monte Carlo methods have led to some important advances in machine learning, particularly with applications to data science and analytics of big data (terascale to petascale computing). In this talk, I will first discuss what these advances are and why they pose a relevant opportunity for researches in statistical machine leanring. Next, I will present three applications from our current research. The first deals with Dirichlet process models for text analytics and dynamic tracking of topics and events; the second, with education research data using student demographics and assessment data; and the third, with computer vision-based information extraction and capture. I will then survey some key issues of using pattern analysis, data preparation, and preliminary results with machine learning in these application areas. Finally, I will conclude with a discussion of current and future work on event detection, causal inference in a cybersecurity application, and deep learning of autoencoders and visual analogies.