FALL 2018

RENSSELAER POLYTECHNIC INSTITUTE

DEPARTMENT OF MATHEMATICAL SCIENCES COLLOQUIUM

"A Block Coordinate Ascent Algorithm for Mean-Variance Optimization"

Abstract:

Risk management in dynamic decision problems is a primary concern in many fields, including financial investment, autonomous driving, and healthcare. The mean-variance function is one of the most widely used objective functions in risk management due to its simplicity and interpretability. Existing algorithms for mean-variance optimization are based on multi-time-scale stochastic approximation, whose learning rate schedules are often hard to tune, and have only asymptotic convergence proof. In this talk, we develop a model-free policy search framework for mean-variance optimization with finite-sample error bound analysis (to local optima). Our starting point is a reformulation of the original mean-variance function with its Legendre-Fenchel dual, from which we propose a stochastic block coordinate ascent policy search algorithm. Both the asymptotic convergence guarantee of the last iteration's solution and the convergence rate of the randomly picked solution are provided.

Bo Liu (Auburn University)

Monday, November 12, 2018

4-5pm

Amos Eaton 214

Host: Yangyang Xu

Refreshments served 3:30-4pm Amos Eaton 4th Floor Lounge