Spring 2019

Class of '27 Lecture

Prof. Katya Scheinberg

Lehigh University

Class of '27 Lecture 2

"Convergence Analysis of Stochastic Optimization Methods via Martingales"

Abstract: We will present a very general framework for unconstrained stochastic optimization which encompasses standard frameworks such as line search and trust region using random models. In particular this framework retains the desirable practical features such step acceptance criterion, trust region adjustment and ability to utilize of second order models. The framework is based on bounding the expected stopping time of a stochastic process, which satisfies certain assumptions. Then the convergence rates are derived for each method by ensuring that the stochastic processes generated by the method satisfies these assumptions. The methods include a version of a stochastic trust-region method and a stochastic line-search methods and provide strong convergence analysis under weaker conditions than alternative approaches in the literature.

Date: Tuesday, March 12, 2019

Time: 4:00pm—5:00pm

Place: DCC 330

Refreshments: 4th Floor Amos Eaton @ 3:30pm

Host: Yangyang Xu