

Spring
2019

Class of '27 Lecture

Prof. Katya Scheinberg *Lehigh University*

Class of '27 Lecture 1

“Gradient Decent Without Gradients”

Abstract: The core of continuous optimization lies in using information from first and second order derivatives to produce steps that improve objective function value. Classical methods such as gradient decent and Newton method rely on this information. The recently popular method in machine learning - Stochastic Gradient Decent - does not require the gradient itself, but still requires its unbiased estimate. However, in many applications either derivatives or their unbiased estimates are not available. We will thus discuss a variety of methods which construct useful gradient approximations, both deterministic and stochastic, from only function values. We will compare them in terms of computational cost and their accuracy. We will also present several motivating examples from Machine Learning, Reinforcement Learning and other modern applications.

Date: Monday, March 11, 2019

Time: 4:00pm—5:00pm

Place: Amos Eaton 214

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

Reception immediately following lecture,

4th Floor Amos Eaton @ 5:15pm

Host: Yangyang Xu