Math 278C: Optimization and Data Science Seminar

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Convergence Proof of Full Approximation Scheme for Nonlinear Problems

Abstract:
Full Approximation Scheme (FAS) is a widely used multigrid method for nonlinear problems. In this talk, we shall provide a new framework to analyze FAS for convex optimization problems and improve the original method. We view FAS as an inexact version of nonlinear multigrid methods based on space decomposition and subspace correction. The local problem in each subspace can be simplified to be linear and one gradient decent iteration is enough to ensure a linear convergence.

This is a joint work with Steve Wise (University of Tennessee) and Xiaozhe Hu (Tufts University).

Host: Jiawang Nie

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