Stanford University
Department of Statistics

DEPARTMENTAL SEMINAR

4:15pm, Tuesday, September 28, 2010
Sequoia Hall Room 200

Cookies served at 3:45pm, 1st Floor Lounge.

Speaker: Stephen Boyd
Information Systems Laboratory,
Department of Electrical Engineering,
Stanford University

Title: Distributed Optimization and Statistical Learning via the Alternating Direction Method of Multipliers

Abstract:

Many problems of recent interest in statistics and machine learning can be posed in the framework of convex optimization. Due to the explosion in size and complexity of modern datasets, it is increasingly important to be able to solve problems with a very large number of features, training examples, or both. Decentralized collection or storage of these datasets as well as accompanying distributed solution methods are either necessary or at least highly desirable. We argue that the alternating direction method of multipliers is well-suited for these problems. The method was developed in the 1970s, with roots in the 1950s, and is closely related to other algorithms such as dual decomposition, the method of multipliers, Douglas–Rachford splitting, Spingarn’s method of partial inverses, and proximal methods. After briefly surveying the algorithm’s theory and history, we focus on applications to distributed model fitting problems.

This work is joint with Neal Parikh, Eric Chu, and Borja Peleato.