

LECTURE NOTICE

Department of Electrical and Systems Engineering

Zaborszky Distinguished Lecture Series

The Annual Zaborszky Lecture Series was created in 1990 to honor the founder and first chairman of the Department of Systems Science and Mathematics Professor John Zaborszky. Each year a distinguished scholar is invited to present a series of three lectures in his field of expertise.

Lecture 1

Convex Optimization: Recent Advances and Applications

by

Stephen Boyd

Professor of Electrical Engineering

Samsung Professor in the School of Engineering

Stanford University

(Joint work with Lieven Vandenbergh)

Abstract: For almost 60 years now, mathematical optimization has been applied to electronic design automation, automatic control systems, network design and operation, portfolio optimization, supply chain management, scheduling, and many other application areas. The modern era of mathematical optimization started around 1950 when George Dantzig introduced the simplex method for linear programming, a particular family of optimization problems. Despite the restrictive form of linear programming, it is widely used, precisely because there are very efficient solution methods.

In this talk I will give an overview of convex optimization, which I will argue is a natural generalization of linear programming: First, convex optimization problems can be solved very efficiently, using recently developed methods; and second, they arise in many application areas. Many researchers in mathematical and computational areas use linear programming, but far fewer are aware of recent advances in, or the wide applicability of, convex optimization, in areas such as circuit design, signal processing, statistics, machine learning, communications, control, finance, and other fields. Convex optimization is also emerging as an important tool for hard, non-convex problems, where it can be used to generate lower bounds on the optimal value, and as a heuristic method for generating suboptimal points.

Monday, September 18, 2006

2:30 – 4:00 PM

Lopata Hall, room 101