THE UNIVERSITY OF
CHICAGO

Department of Statistics

STATISTICS COLLOQUIUM

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Chance-Constrained Linear Matrix Inequalities: Tractable Approximations and Recent Applications

MONDAY, April 1, 2013 at 4:00 PM

133 Eckhart Hall, 5734 S. University Avenue

Refreshments following the seminar in Eckhart 110

ABSTRACT

In this talk, I will present my recent research on chance-constrained optimization, which aims at developing computationally tractable formulations for optimization problems with probabilistic constraints. Such problems arise when the data defining the optimization problem have certain stochastic properties, and one is content with satisfying the constraints for most but not all realizations of the data. In particular, I will focus on chance-constrained linear matrix inequalities and demonstrate how tools from probability theory and functional analysis can be used to develop efficiently computable inner approximations of them. An advantage of the proposed approach is that the resulting approximations can be formulated as semidefinite programs or even second-order cone programs, thus allowing them to be solved easily by off-the-shelf solvers. I will then conclude the talk with some recent applications of chance-constrained optimization in signal processing and wireless communications.
