THE UNIVERSITY OF CHICAGO

Department of Statistics

SCIENTIFIC AND STATISTICAL COMPUTING SEMINAR

ANUP RAO
School of Computer Science
Georgia Institute of Technology

Agnostic Estimation of Mean and Covariance

THURSDAY, April 28, 2016 at 4:30 PM
133 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

In this talk, we consider the problem of estimating the mean and covariance of a distribution from iid samples in $\R^n$, in the presence of an η fraction of malicious noise; this is in contrast to much recent work where the noise itself is assumed to be from a distribution of known type. We will give polynomial-time algorithms to compute estimates for the mean, covariance and operator norm of the covariance matrix, and show that the dimensional dependence of the error is optimal up to a $O(\sqrt{\log n})$ factor. This gives polynomial-time solutions to some of the questions studied in robust statistics. As one of the applications, this immediately enables one to do agnostic SVD.

This is a joint work with Kevin Lai and Santosh Vempala.

Organizers:
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