UCMERCED UNIVERSITY OF CALIFORNIA School of Natural Sciences

APPLIED MATHEMATICS SEMINAR 291

Two New Bootstrap Methods for High-Dimensional and Large-Scale Data

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Date: **3/16/18**
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Location: **COB 267**

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ABSTRACT

Bootstrap methods are among the most broadly applicable tools for statistical inference and uncertainty quantification. Although these methods have an extensive literature, much remains to be understood about their applicability in modern settings, where observations are high-dimensional, or where the quantity of data outstrips computational resources. In this talk, I will present a couple of newbootstrap methods that are tailored to these settings. First, I will discuss the topic of "spectral statistics" arising from high-dimensional sample covariance matrices, and describe a method for approximating the distributions of such statistics. Second, in the context of large-scale data, I will discuss a more unconventional application of the bootstrap -- dealing with the tradeoff between accuracy and computational cost for randomized numerical linear algebra. This will include joint work from a project with Alexander Aue and Andrew Blandino; https://arxiv.org/abs/1709.08251, and a project with Michael Mahoney, and Shusen Wang; https://arxiv.org/abs/1708.01945.

BIO:

Miles Lopes is Assistant Professor at UC Davis in the statistics department. Previously, he graduated from UC Berkeley in 2015 with an MS in computer science, and a PhD in statistics, advised by Peter Bickel. His main research interests deal with bootstrap methods, and their applications to the analysis of high-dimensional data, as well as to the study of randomized algorithms in the context of large-scale data.