MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Bias reduction and efficiency in estimation of smooth functionals of high-dimensional parameters

Tuesday, October 27, 2020
10:20 AM - 11:10 AM Eastern Daylight Time
Zoom

Abstract

We will discuss a problem of estimation of smooth functionals of high-dimensional parameters of statistical models. The main focus will be on a method of bias reduction based on approximate solutions of integral equations on the parameter space with respect to certain Markov kernels.
In the case of high-dimensional normal models, this approach yields estimators with optimal or nearly optimal mean squared error rates (in particular, asymptotically efficient estimators) for all sufficiently smooth functionals.
It is also the case for more general models such that normal approximation holds when dimension is reasonably high. The proofs of these results rely on a variety of tools including Gaussian concentration, representations of Markov chains as superpositions of smooth random maps, rates of convergence in high-dimensional CLT and information-theoretic lower bounds.

Zoom details can be found at: https://stt.natsci.msu.edu/stt-colloquium-zoom-info/

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