

APPLIED MATHEMATICS COLLOQUIUM

Efficient Statistics from Truncated and Dependent Samples

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Abstract: Classical statistical estimation assumes access to uncensored and independent data. We present recent work on efficient statistics from censored and dependent data. Our first result is an efficient algorithm for an open problem, going back to Galton, Pearson, and Fisher, of estimating the parameters of a multivariate normal distribution from truncated samples. Truncation is a strong type of censoring, which occurs when samples falling outside of some subset S of the support of the distribution are not observed, and their count in proportion to the observed samples is also not observed. Our second result is an efficient algorithm for logistic regression in settings where the response variables are dependent. Both methods are based on stochastic gradient descent, and use concentration and anti-concentration of measure.

(Based on joint works with Dikkala, Gouleakis, Panageas, Tzamos, and Zampetakis)

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4:15PM

MIT, Room 2-190

Applied Math Colloquium: <https://math.mit.edu/amc/fall18/>
Math Department: <http://www-math.mit.edu>

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