



THE UNIVERSITY OF
CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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An Empirical Study of A Fully Online Approach for Statistical
Inference Based on SGD

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ABSTRACT

The Stochastic Gradient Descent (SGD) algorithm has been widely used both in industry and academia as an iterative method for optimizing an objective function in Machine Learning. Although SGD is popular for its well known advantages in computational efficiency, memory usage, and adeptness to online streaming data, its results suffer from uncertainty. In this paper, we empirically study a fully online approach to conduct stochastic inference on parameter estimations derived from SGD. We first review the theoretical backgrounds and algorithm settings. Then perform a simulation study to evaluate the online approach. Finally we apply the algorithm to a real-world dataset to investigate the convergence of the estimator and to construct the coordinate-wise confidence intervals.