



# THE UNIVERSITY OF CHICAGO

Department of Statistics

## DISSERTATION PROPOSAL

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Statistical Estimation and Optimization under Resource Constraints

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Jones 304, 5747 S. Ellis Avenue

### ABSTRACT

As problem dimension and data size continue to grow in statistical problems, classical optimization techniques are quickly becoming infeasible owing to constraints in the computing environment. While new optimization techniques are being designed to address this challenge, many of these state-of-the-art algorithms are severely hampered by the conditioning of the underlying problem. In this talk, we introduce and motivate a new class of techniques for performing statistical estimation and optimization under resource constraints, which is unaffected by the conditioning of the problem. We overview theoretical results about our method for the linear regression problem, and we compare our method to other state of the art methods on linear regression, non-parametric regression, and logistic regression problems. We then propose future work for extending the theory and applicability of our method to convex, non-linear and constrained estimation problems. Other ongoing projects are previewed as well.