Center for Computational Mathematics Seminar

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Composite self-concordant minimization

Abstract:
We propose a variable metric framework for minimizing the sum of a self-concordant function and a possibly non-smooth convex function endowed with a computable proximal operator. We theoretically establish the convergence of our framework without relying on the usual Lipschitz gradient assumption on the smooth part. An important highlight of our work is a new set of analytic step-size selection and correction procedures based on the structure of the problem. We describe concrete algorithmic instances of our framework for several interesting large-scale applications, such as graph learning, Poisson regression with total variation regularization, and heteroscedastic LASSO. Here is a link to the document that contains technical parts of the presentation: http://arxiv.org/abs/1308.2867

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