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Accelerated Mini-Batch Stochastic Dual Coordinate Ascent

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(Submitted on 12 May 2013)

Stochastic dual coordinate ascent (SDCA) is an effective technique for solving regularized loss minimization problems in machine learning. This paper considers an extension of SDCA under the mini-batch setting that is often used in practice. Our main contribution is to introduce an accelerated mini-batch version of SDCA and prove a fast convergence rate for this method. We discuss an implementation of our method over a parallel computing system, and compare the results to both the vanilla stochastic dual coordinate ascent and to the accelerated deterministic gradient descent method of \cite {nesterov2007gradient}.

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