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Improved complexities for stochastic conditional gradient methods under interpolation-like conditions. (English)

Summary: We analyze stochastic conditional gradient methods for constrained optimization problems arising in over-parametrized machine learning. We show that one could leverage the interpolation-like conditions satisfied by such models to obtain improved oracle complexities. Specifically, when the objective function is convex, we show that the conditional gradient method requires $O(\epsilon^{-2})$ calls to the stochastic gradient oracle to find an $\epsilon$-optimal solution. Furthermore, by including a gradient sliding step, we show that the number of calls reduces to $O(\epsilon^{-1.5})$.

MSC:
90-XX Operations research, mathematical programming

Keywords:
stochastic conditional gradient; oracle complexity; overparametrization; zeroth-order optimization

Full Text: DOI

References:

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