

A machine learning method with extra-gradient step

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Abstract. This paper deals with the minimization of unconstrained objective functions in the form of finite sums. We present an extra-gradient method with line search strategy and algorithm that uses variable sample size and thus makes the process significantly cheaper. The method is non-monotone, and the adaptive step size α_k obtained in the linear search, is a random variable dependent on the sample ξ_k . The inevitable consequence is that the errors do not induce martingales. The algorithm is tested on a couple of examples, including the machine learning problems. [1, 2]

Keywords: finite sum minimization; machine learning; line search extragradient.

References

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