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Title:

Recursive Aggregation of Estimators
by Mirror Descent Algorithm with Averaging

Abstract

We consider a recursive algorithm to construct an aggregated estimator from a finite number of base decision rules in the classification problem. The estimator approximately minimizes a convex risk functional under the ℓ_1- constraint. It is defined by a stochastic version of the mirror descent algorithm performing a descent of gradient type in the dual space with an additional averaging. The main result is the upper bound for the expected accuracy of the proposed estimator. This bound is of the order $C\sqrt{(\log M)/t}$ with an explicit and small constant factor C, where M is the dimension of the problem, and t stands for the sample size. Similar bound is proved for a more general setting that covers, in particular, the regression model with squared loss.