

A Distributed Algorithm for Fitting Generalized Additive Models

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Generalized additive models are an effective regression tool, popular in the statistics literature, that provide an automatic extension of traditional linear models to nonlinear systems. We present a distributed algorithm for fitting generalized additive models, based on the alternating direction method of multipliers (ADMM). In our algorithm the component functions of the model are fit independently, in parallel; a simple iteration yields convergence to the optimal generalized additive model. We illustrate the method on different classes of problems such as generalized additive, logistic, and piecewise constant models, with various types of regularization, including those that promote smoothness and sparsity.