

A Class of Convergent Parallel Algorithms for SVMs Training

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March 27, 2015

The training of Support Vector Machines (SVMs) may be a very difficult task when dealing with very large datasets. In fact memory requirement and time consumption of SVMs training algorithms grow rapidly with the increase of data size. To overcome these drawbacks a lot of parallel algorithms were implemented, but they lack of convergence properties. In this work we propose a general parallel decomposition scheme for training SVMs and we state its asymptotical global convergence under suitable conditions. We outline how these assumptions can be satisfied in practice and we suggest various specific implementations exploiting the adaptable structure of the algorithmic model. In particular we illustrate the versatility of our general decomposition scheme by specializing it to both sequential and parallel algorithms.