Title: MS-SVM: Minimally Spanned Support Vector Machine

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Highlights

- We propose an algorithm called Minimally-Spanned Support Vector Machine (MS-SVM) algorithm with a view to reducing the number of Support Vectors compared to SVM.
- This can reduce the classification time of a test data point significantly.
- The MS-SVM algorithm is equally effective with both Linear and Non-Linear SVMs.
- The Minimum Spanning Tree can be computed either in the input space or in the feature space without altering the performance much.
- The MS-SVM algorithm can discriminate between classes with complex orientation.
- Experimental results on several real data sets as well as on a synthetic data set show that MS-SVM can significantly reduce the number of support vectors (sometimes even more than 80%) without sacrificing performance.