A STRAIGHTFORWARD SVM APPROACH FOR CLASSIFICATION WITH CONSTRAINTS (WedPmOR11)

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Abstract :

This paper deals with constrained binary classification problems. First, new theoretical decision rules of two such problems are designed in a Bayesian framework. They are shown to be functions of the likelihood ratio and thresholds. Optimal performances of such classifiers can be obtained by varying only these thresholds. In order to implement such rules with sampled data, we tried to apply the same principle using SVMs. We show that varying only the intercept of the optimal SVM may lead to poor performances except for minimum error. Especially for first type error classification problems, an approach to learn SVM parameters (the slope and the intercept) that always improves the performance corresponding to the given constraint, is proposed and experimental results are discussed.

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