Regularisation and Support Vector Machines -Experiments Generalisation Theory

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Machine Learning 2007-1

Uribe, Alonso, Galeano Regularisation and SVM

Outline



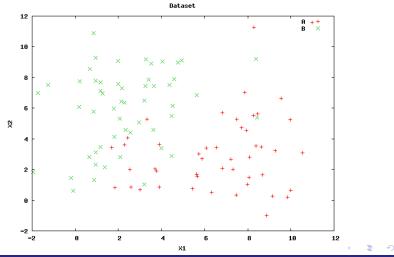
- 2 Dataset
- 3 Training Set
- 4 Generalization Error vs Classifier Complexity
- 5 Classifier Obtained for Several Values of the C Parameter

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Introduction

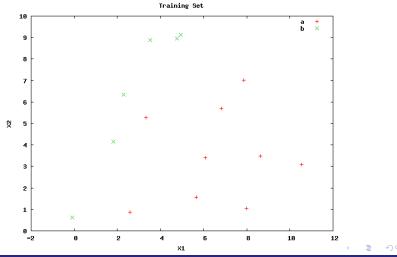
- From generalisation theory, a SVM with larger margin (lower complexity) is considered to generalize better.
- Experiments were performed on a two dimensional dataset in order to check generalization ability of different SVM trained and tested with the same data but different values for the complexity parameter C
- Dataset consisted of 100 points, 15 used for training and 84 for testing

Dataset



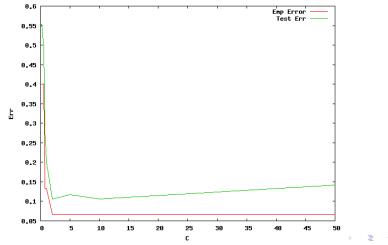
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Training Set



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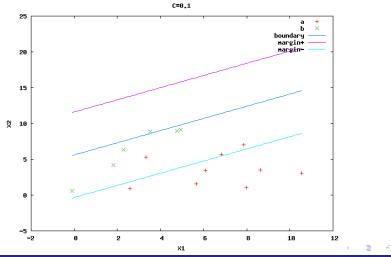
Training Error Vs Testing Error



Empirical Vs Test Error

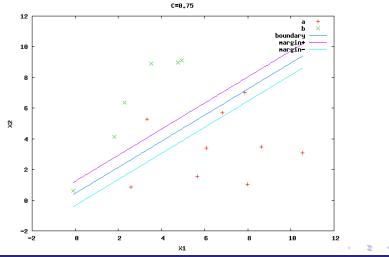
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Classifier obtained for C=0.1



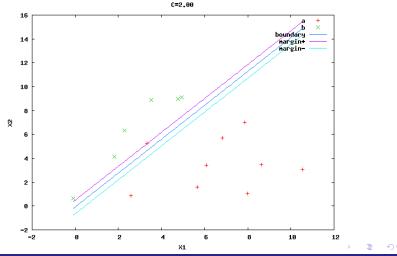
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Classifier obtained for C=0.75



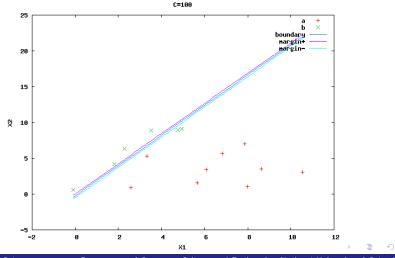
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Classifier obtained for C=2



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Classifier obtained for C=100



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