

HW #4

1. Bishop 7.8

2. Derive (7.88)

3. Download the Sonar Dataset (#4) and the Ionosphere Dataset (#8) from the link on the 568 website.

(a) Use ν -SVM to carry out $K=2$ classification on both datasets
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(p. 334 in Bishop)

Vary ν and plot classification accuracy (percentage of misclassified datapoints) for both classes vs. ν . Describe your approach and compare classification accuracy with the results reported on the Dataset website (both "top" and "baseline").

(b) Carry out $K=2$ classification using RVMs. Report classification accuracy and compare to the ν -SVM result.

Hint: use the link on the 568 website to download RVM software in Matlab.

Please describe your work in sufficient detail.

Note: if training the RVM takes too long, subsample the datasets randomly (to keep the ratio of datapoints in both classes).