

Rensselaer

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Lab 5: Support Vector Machines

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Rensselaer Polytechnic Institute



Lab 5



Dataset:
https://rpi.box.com/s/uu52zsneoqks5ei5zl7he3tpn5orcqrk

Support Vector Machine Classification

Using the Banknote Authentication dataset:

- Compute the principal components of the dataset and plot the transformed dataset in the first 2 PC's. Take note of the most important features.
- Train 2 SVM classifiers to predict banknote authenticity ("class" feature). A model trained on the PC transformed dataset (2 PCs) and another trained on the most important features. Try a linear and radial kernel for both models and only keep the better performing model.
    - Use tune.svm to find the optimal gamma value when using non-linear kernels.
- Choose another classification method (kNN, Random Forest, etc.) and train a classifier using the most important features.
- Compare the performance of the 3 models (Recall, Precision, F1).

Upload to LMS:

1. All your code in a *.R or *.MD file

Have a great weekend!