

PA196: Pattern Recognition

Exercises: Linear discriminants - part I

Dr. Vlad Popovici

popovici@iba.muni.cz

Institute of Biostatistics and Analyses
Masaryk University, Brno

1. Perceptron

- 1 simple implementation of perceptron with discussion
- 2 discussion on the `sklearn.linear_model.Perceptron`

To do:

- generate a binary classification problem (see source code)
- check the help for the `Perceptron` class
- use `fit` method to build a model
- use the `predict` method to predict the labels of a data set
- shuffle (`numpy.shuffle()`) the data and repeat the training: is there any difference?
- randomly partition (have a look at `random.choice()`) partition your data into a *training set* and a *validation set*
- train a new model and test it on the validation set

2. Fisher Discriminant

- FDA is LDA for 2 classes
- check `sklearn.lda.LDA` class
- go through the code http://scikit-learn.org/stable/_downloads/plot_lda_qda.py
- repeat the training/testing steps from perceptron, with the FDA classifier