Machine learning ITI8565

Home assignment 3

Supervised learning.

Starting date 24.04.2018 deadline 10.05.2017 16:05

General requirements:

- No plagiarism in any form. Please cite all the sources you used.
- Prepare your solution in such a way, that after extracting files from the archive into a single folder it may be executed on any computer with MATLAB. Data file (if necessary) for evaluating your solutions will follow the same structure as during the practice: single array where rows correspond to the elements and columns correspond to different dimensions.
- Prepare a short write-up with the analysis of achieved results. Maximum 2 pages 12pt. NB! No title page! Include your name into the file name and state it in the header of the first page.
- Submit your solution by means of gitlab.cs.ttu.ee create a project iti8586_your_name_ha3 and share it with Sven Nõmm. (please allow developer access!)
- During the practices on 10.05 and 17.05 you will have to demonstrate your solution and will be asked few questions. Note it is mandatory to attend practice on 10.05 or 17.05 and demonstrate your solutions.
- If you are unsure about using some third party function contact your teacher.
- NB! Please submit your report as PDF file via ained.ttu.ee

Exercise 1.

Implement Ada Boost algorithm in MATLAB. Implementation of Ada Boost is expected to be your own. But individual weak classifiers may be standard MATLAB functions. In this assignment special attention will be payed to the intermediate results. Please observe special conditions:

a. Design your own datasets to train and validate “Boosted classifier”
b. During the implementation is it necessary to demonstrate evolution of the weights and errors. It is preferable to demonstrate performance of each classifier.
c. Implementation should allow to extract parameters of the weak classifiers.
d. Strictly no symbolic computations for this exercise!
e. Graphical illustrations are mandatory!

Bonus Exercises:

Exercise 2.

Tune the SOM example from explained during the 10^{th} lecture.