Homework 5

2-AIN-150, Winter 2018

Deadline: 26.1+.2018, 23:59, moodle.uniba.sk/fmfi

Before you start solving the homework, please read the general instruction at the end of the document. Submitted solutions should be your own. Do not copy and do not tried to find solution in literature or over the internet.

Nonlinear SVM

Read carefully what you should submit.

Consider SVM with kernel $K(\vec{x}, \vec{y}) = e^{\gamma \|\vec{x} - \vec{y}\|_2^2}$ and data with two input attributes.

Generate at least three simple datasets (which differ in number of samples, ammount of noise or decision boundary) and visualize effect of hyperparameters C and γ on trained prediction function of SVM. You should not use the dataset from given template. (Visualization is generating reasonably good set of pictures, which demostrate effect of parameters).

Pictures, description of your datasets and short commentary should be submitted via moodle, ideally in PDF form. Výsledné obrázky, popis vašich datasetov a stručný komentár odovzdajte na mail, ideálne vo formáte PDF.

Python instructions   There is a file `template.py`, which shows generation of the dataset (doing XOR), usage of SVM and visualization of the result. You need to have scikit-learn and matplotlib installed. You can also use stuff from tutorial about SVM.