

Assignment 4**Regression problems****Aims:**

To develop a system that learns alone nonlinear models by supervising learning.

Task:

Specify, design and deploy an application in python that solve your assigned regression problem with **a different method than one used in Assignment 3.**

Points:

- 100 points for full implementation or 50 points if a tool is used.

Time:

Deadline is at the end of the sixth laboratory.

Hints:

Available tools that implements learning methods:

1. Weka <http://www.cs.waikato.ac.nz/ml/weka/>
2. Matlab <http://www.mathworks.com/products/neural-network/>
3. OpenCV
http://docs.opencv.org/modules/ml/doc/neural_networks.html
4. Scikit - learn <http://scikit-learn.org/stable/>
5. GPLAB <http://gplab.sourceforge.net/>
6. ECJ <http://cs.gmu.edu/~eclab/projects/ecj/>

Problems:

1. Build a system that approximate the quality of a concrete mixture based on the used ingredients.
The training data will be taken from:

<http://archive.ics.uci.edu/ml/datasets/Concrete+Slump+Test>.

2. Build a system that approximate the UPDRS index for the Parkinson's disease based on patients' data (sex, age, vocal signs)

The training data will be taken from:

<http://archive.ics.uci.edu/ml/datasets/Parkinsons+Telemonitoring>.

3. Build a system that approximate the relative position on an axis of some patients' tomographic images (id, structure's bone histogram, regions filled with air histogram).

The training data will be taken from:

<http://archive.ics.uci.edu/ml/datasets/Relative+location+of+CT+slices+on+a+xial+axis>.