

COMS5026A

Applied Machine Learning

LAB EXERCISE 2

The second lab assignment is use scikit learn to implement a **neural network** for the **Iris dataset**, which is available on the moodle page.

(1) Construct a neural network consisting of an input layer with 4 nodes, at least one hidden layer (with, say, 20 nodes) and an output layer with 3 nodes.

(You can add more hidden layers if you feel like it, but at least one is needed.)

(2) The Iris dataset must be prepared by

(a) normalising the input values using the max-min normalisation;

(b) creating a one-hot-encoding of the target values.

(3) Split the dataset into training/validation/test sets.

(4) Train the neural network on the prepared Iris dataset.

Use the **sum-of-squares** loss function.

(5) During training, after every epoch, print out the sum-of-squares loss on the training set and the sum-of-squares loss on the validation set.

(6) After training, print out the **accuracy** on the test set.

Required:

You must demonstrate to a tutor that your code works and prints out the required values.

In addition, you must show that you know how to change the neural network structure.

You may demonstrate to any of the tutors at the lab.

This must be done during next week's lab (before 12h00 on May 26).

Lab assignments count towards the final mark for the course.