

COMS 4030A

Adaptive Computation and Machine Learning

LAB EXERCISE 3

(1) Code up the backpropagation algorithm for a neural network with an input layer, a single hidden layer and an output layer, with sigmoid activation function at the hidden layer and output layer. The loss function is the sum-of-squares loss.

The pseudocode is in Lecture3 Notes.

This exercise builds on the lab 2 exercise where you should have coded up the feedforward step in a neural network with the same structure.

(2) Train your neural network on a small dataset such as the Iris DataSet from the UCI Machine Learning Repository. (Use a one-hot encoding for the target.)

You should randomize the order of inputs when training and calculate the error on the dataset after every epoch.

(These labs will contribute towards your coding assignment which will be due at the end of the term - details coming soon.)