Homework: Feedforward Neural Nets

Our goal is to construct and train a feedforward neural network from scratch. You may use either Matlab/Octave or Python.

For the data, we'll classify the iris data. There is a file on the class website with the iris data:

- There are 150 sample data points total (50 in each class, they are in order).
- Each data point consists of four measurements from an iris.
- Each "output" is a vector in $\mathbb{R}^3$ (one hot encoding; each target is a column of the identity matrix).
- Be sure to check dimensions- For the backprop algorithm to work, it assumes the matrices are "dimension $\times$ number of points"..

Here is the information about the neural network:

1. For the data: Save 30% of the data for testing (randomized).
2. The net should be $4 - 10 - 3$ in size.
3. We're going to use (full) gradient descent with $\alpha = 0.01$ and 200 passes through the data (epochs).
4. Take the transfer (or activation) function as the logsig function.
5. Compute the error at each epoch (not the classification error, but the error between the targets and output in $\mathbb{R}^3$). Plot the error at the end.