ENEE 434 Homework 3
Due Tu 03/09/04

#1. 25 points (method comparisons)

Make a three by three table with rows and columns indexed by 1=>>newp, 2=>>newff, 3=>>newrb. (=>> meaning equivalent to)

In the i,i position insert the purpose of the ith neural network and in the i,j position for i not equal to j, enter the advantage of the ith neural network over the jth one.

#2. 75 points (disease determination)

Consider that normalized data comprises x=size and y=shape of a lesion. When this data lies within the ellipse quadrant

$$x^2 + 0.5 * y^2 = 1, \; x > 0, y > 0$$

it is automatic that a disease can be cured while when outside the ellipse quadrant

$$x^2 + 0.5 * y^2 = 2, \; x > 0, y > 0$$

it is automatic that the disease can not be cured.

When neither case occurs a doctor must step in and attempt a cure.

a) Set up a feedforward neural network with outputs indicating which of the three cases corresponds to given data (x,y). Record important items for grading.
b) Assign 20 data points of each class for training and train the network on these.
c) Assign 10 new data points of each class differing from the exemplars, as verification data, and determine how good these get classified.
d) Give an x,y plot of the situations.