CIS6930 Intro to Computational Neuroscience Spring 2004

Home Work Assignment 2: Due Tuesday 03/02/03 before class

1. (100 pts) Code and test a feed forward net of sigmoidal nodes with three input units, multiple hidden units and one output unit that learns the concept of a sphere in 3D space.

   The concept is described as $\langle x, y, x \rangle$ is labeled "+" if $(x-a)^2 + (y-b^2) + (z-c)^2 < r^2$ and is labeled "-" otherwise.

   Generate 100 random samples uniformly distributed from a cell in $\mathbb{R}^3$ to train the network using error backpropagation and 100 randome samples to test it. Repeat the procedure multiple times and with multiple initial weights.