

91.451 Robotics II
Spring 2005, Prof. Yanco

Lab 3: Neural Networks

Out: Thursday, 17 February 2005

Due: Thursday, 24 February 2005

Overview: In this lab, you'll explore neural networks as a way to develop control algorithms for the robot.

Read the sections of the neural network module that are linked from the course web page (Intro, Building Neural Networks using Conx, and Robot Learning using Neural Networks) and complete the exercises.

Run the programs in Robot Learning using Neural Networks in simulation. Then write a program that will (hopefully) learn to follow a wall. Try online learning in simulation. See if the learning improves if the program is left running overnight or longer. If you're feeling brave, save your network and load it on a real robot to see what happens. (Be sure to be close to your robot if you do this.)

Turn in your programs and description of a robot system that uses a neural network (you can search on the web for this). There's nothing to demonstrate for this lab, unless you want to show me your neural network for wall following, either in simulation or on the real robot.