

91.451 Robotics II
Spring 2004
Prof. Yanco

Lab 5: Neural Networks

Out: Thursday, 11 March 2004

Due: Tuesday, 30 March 2004 (there will be a new lab going out on Thursday 3/25, but I want you to have time to ask questions when I'm in town if needed, hence the longer due date)

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). Then do Exercises 1 – 4 in “Building Neural Networks using Conx”.

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. 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. 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.