**ECE 8890/CS 8770 Competitive Networks Homework**

**Do all of your own work**

This homework is for your own understanding. It will not be graded. Since the equations are quite simple, you can write a program to implement the SOFM and NG or you can just do all the calculations by hand.

Consider the following set of unlabeled data



1. Consider a 3 neuron linear SOFM. Let  ; ; . Run SOFM (note, you don’t have many choices for the neighborhood function). Display the final weight vectors (prototypes) with the connections in the data.

2. Repeat problem 1 for your NG algorithm. Here you display the weight vectors (prototypes) with the data and the graph connections separately. What is different?

3. If you are ambitious, experiment with, say a 4 x 4 SOFM (16 neurons – overkill) and with more NG neurons.

4. If you are more ambitious, try other larger, but still smallish 2 and 3 dimensional data.