ASSIGNMENT 7

Due April 28, 2009 (before start of class)

Consider the Kohonen neural network (SOM) with five input units and two cluster units. The initial weight vectors for the cluster units are chosen so that the weight matrix is given by

$$\mathbf{W} = \begin{bmatrix} 1.0 & 0.2 \\ 0.8 & 0.4 \\ 0.6 & 0.6 \\ 0.4 & 0.8 \\ 0.2 & 1.0 \end{bmatrix}$$

Use the square of the Euclidean distance as the measure of closeness to find the winning cluster unit for the input pattern

$$\mathbf{W} = \begin{bmatrix} 0.5 & 1.0 & 0.5 & 0.0 & 0.0 \end{bmatrix}.$$

Using a learning rate $\alpha = 0.2$ and find the new weights for the winning unit. Only consider this single step in the algorithm.