Pattern Recognition and Machine Learning
(Home work 4)

August 2, 2006

- Due on Wednesday, Aug 9, before 4 p.m.
- Late submissions will not be accepted.
- Submit hard copy of the results, plots and your workings
- Submit a printed copy of the codes also.
- You may save time if you use MATLAB for the computations and plots.
- Please do not hesitate to contact me if you do not understand the problems.

1. **[15 + 25 points] Radial Basis Function Networks**

   (a) Derive the update equation of the weights from the hidden to output layer of a radial basis function network considering the mean and spread of the hidden nodes fixed.

   (b) Implement a radial basis function network. Use the k-means algorithm to fix the centers of the hidden nodes. Apply the method discussed in class to find the spreads. Train the network with the first 100 points of trgIris.dat and test it on the remaining 50 points. Report the training and test error using 5 and 10 hidden nodes.