Pattern Recognition and Machine Learning
(Home work 3)

July 26, 2006

- Due on Wednesday, Aug 2, 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 points] Fuzzy c means Algorithm**

   (a) Implement fuzzy c means. Apply the algorithm to find 2 clusters in the satellite image of Kolkata (i.e. use the same data as used in case of prob 2(a) of Homework 2). Use $m = 2$ as the fuzzifier. Show the mixed pixels.

2. **[15 points] PCA**

   (a) Find the two significant components of iris data using PCA. Plot the projected data in two dimension. You can use matlab for finding the eigenvalues and eigenvectors. Use $k-nn$ to classify the projected data, compare the results with $k-nn$ for the whole data. (For classification use a 100+50 training test partition as used before.)