

Assignment-7

Total: 10 marks

1. Implementation of PCA and MLP

- a) Train MLP with Pavia University hyperspectral image datasets. Take all 103 number of features and optimize the model. Here, optimization means the identification of the optimal learning rate and hidden neuron.
- b) Now reduced the feature dimension from 103 to some optimal number using PCA. The new dimension is less than the actual feature dimension. Finally, train MLP with the same optimal parameters (as implemented in (a)). The input for MLP will be the reduced feature dimension.
- c) Report a graph by varying the number of feature dimensions (103:20:23) against accuracy.

2. Classify IRIS dataset using RBF. For the identification of initial cluster center use *k-means* algorithm. Report the individual class wise accuracy, average accuracy and overall accuracy using 5-Fold cross validation technique.

[**Note:** The Pavia University dataset is available in the attachment.]