Assignment-7

CE793: Machine Learning for Engineers

Due date 11/16/2020 (Monday)

Total points: 100 points

Instructions:

1) All assignments should be submitted to get a passing grade
2) Teamwork is encouraged.
3) Late submission will result in a 20% penalty.
4) Use Matlab or any other programming language for this assignment
5) Please do not ask me to debug your codes. I will be more than happy to take you through the algorithms once again if needed

1) Use K-means clustering algorithm to cluster the data in clust_data.xlsx into (a) two clusters, (b) three clusters, (c) four clusters, and (d) five clusters. Deliverables: 1) show the plots of clusters with centroids. Please provide the list of centroids (25 points), 2) choose (5,5), and (8,8) as the initial choice for centroids for 2 clusters and plot the resultant clusters (15 points).

2) Using the data from clust_data_RBFNN.xlsx, use an RBFNN to classify the data into two classes. Hint: use two hidden layer neurons, the centroids can be obtained from the K-means clustering with 2 clusters, the spread parameters can be the within-cluster variance. Deliverable: draw the decision surface when the variance in cluster-1 is 2.6 and the variance in the cluster is 7.86 (60 points).