Assignment 1

Please email your report to me by 11 Oct 2020. Email: ekzmao@ntu.edu.sg
The report should include a brief introduction, methods, experiment results, and discussions.

Question:

Given a two-class pattern classification problem, train an RBF neural network using the training data, and then predict class labels of the testing data.

The training data consists of 330 samples. The data is in the file data_train, and the label is in the file label_train. The testing data is in data_test (21 samples).

(1) Assuming that the RBF neural network has 16 neurons in the hidden layer, find centre vectors for the 16 neurons using SOM neural network.

(2) Assuming that the RBF neural network has only 1 neuron in the output layer. Determine the weights from the hidden layer to output layer using the linear least square estimation (or linear SVM).

(3) Calculate the classification accuracy of the training data.

(4) Predict the labels for testing data