INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
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EE 5024: Machine Learning For Image Processing (Jan-Jun 2020)
Programming Assignment 4

Aim

Train and test a Feedforward Neural Network for MNIST digit classification.

Procedure

- Download mnist_file.zip which contains mnist data as a pickle file and read_mnist.py for loading partial mnist data.

- Run read_mnist.py file which will give 1000 train and 500 test images per each class.

- x_train,y_train gives the image(784 x 1) and corresponding label for training data. Similarly, for test data.

- Write

  1. Neural network model using library functions.
  2. Your own neural network model and train with Back propagation
     - On the training data and report accuracy.
     - Train with Five fold cross validation (4 fold training and 1 fold testing. Repeating this for 5 times changing the test fold each time) and report the average accuracy as train accuracy.

- Test both models with the test data.

- Find the confusion matrix and report the accuracy.