9 Sept 2019

Attendance: 10%, Continuous evaluation: 70%, Viva-20%

Assignment No. 3

i. Download and install tensorflow from https://www.tensorflow.org/install/install_sources or using command sudo pip install tensorflow alternatively the Keras library can be used.

ii. Download MNIST dataset (contains class labels for digits 0-9). using the command:

```
import tensorflow as tf
data = tf.contrib.learn.datasets.mnist.load_mnist()
```

or

```
from keras.datasets import mnist
(x_train, y_train), (x_test, y_test) = mnist.load_data()
```

iii. Use Multi Layer Fully Connected Neural Network to develop the model and predict the accuracy for test set. (Reduce the training size by 1/10 if computation resources are limited).

iv. Now run the network by changing the hyper-parameters:

Hidden Layers	Activation Function	Hidden Neurons	Dropout
1	Sigmoid	[64]	0.8`
2	Tanh	[256]	0.5
3	Relu	[128]	0.2

Try all the possible combinations.

v. Plot the graph for loss vs epoch and accuracy(train, test set) vs epoch for all the above cases.

vi. Create five image(size 28*28) containing a digit of your won handwriting and test whether your trained classifier is able to predict it or not.

Submit a report with results.