

Artificial Intelligence (CS571)

Assignment-6: Introduction to Neural Network

(Read all the instructions carefully & adhere to them.)

Date: 16-09-2019

Deadline: 20-09-2019

A. Neural Network

1. Implement a multilayer perceptron to simulate XOR. Train using back-propagation (BP) algorithm and observe the I/O behaviour of hidden neurons.
2. Go through the attached IRIS and MNIST datasets and design feedforward networks and show the evaluation in terms of precision, recall, f-score and accuracy.

For the aforementioned networks, show the effect of BP on the learning rate (LR) and the step size.

(Hint: Plot loss vs. LR, loss vs. step size, etc.)

Note: Do not use any DL libraries (such as Theano, Keras, TF, PyTorch, etc).

Data Set:

IRIS: <https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.data> (Divide the data into train and validation sets having 80% of each class in train and rest for the test).

MNIST: <http://yann.lecun.com/exdb/mnist/>

Instructions:

- Please submit your assignment here: <https://bit.ly/2kOYzJh>
- The submission file should be as follows: **Group-NUMBER Assignment-NUMBER.zip**