

# Deep Learning Lab #1 (Fall 2021)

## Lab Objective:

In this assignment, you should build a simple neural network (NN) to do classification with three datasets (Mnist, Fashion Mnist, Cifar10).

## Rules:

- (1) This assignment should be done individually. Plagiarism is strictly prohibited.
- (2) You can only use Numpy and other Python standard library. Only PyTorch are allowed in this lab.
- (3) You should add comments throughout your implementation for easy understanding.
- (4) Write a report in the end of the Jupyter Notebook to detail your procedures and discussions.

## Submission:

- (1) Please write your code on Jupyter notebook.
- (2) Pack the .ipynb to .zip, and submit .zip to E3. Please name as "Lab1\_YourStudentID.zip".

**Deadline: 2021/11/01 (Mon.) 23:55**

## Requirements:

- (1) You must use the back-propagation algorithm in this NN and build it from scratch. Only Numpy and other Python standard libraries are allowed.
- (2) AI framework please use PyTorch.
- (3) Plot your comparison between ground truth and the predicted result.
- (4) The number of epochs is not restricted, but your model performance will be evaluated

## Descriptions:

Sample code: <https://github.com/pytorch/examples/blob/master/mnist/main.py>

- (1) Datasets

PyTorch datasets: <https://pytorch.org/vision/stable/datasets.html>

- a. Mnist



b. Fashion Mnist



c. Cifar 10



Output the three Performances separately, you can refer to the previous Lab to change the network width or deepen the network, and draw a graph of Loss during the training process.

**Assignment Evaluation:**

- (1) Code & model performances (60%)
- (2) Report (40%)

**Please contact TA if you have any questions.**