

CMSC5743 Lab 01

Introduction to PyTorch

1 Intro to PyTorch

1.1 PyTorch

Outline

- Install **miniconda3** for python package
- Install Pytorch Deep Learning Framework by **conda** or **pip**
- Learn tutorial about deep learning with PyTorch A 60 min blitz:
 - What is PyTorch?
 - What is Autograd?
 - How to use PyTorch to construct neural networks?
 - How to train a classifier by PyTorch?
- Learn PyTorch by example
 - What is **torch.nn** really?
- Visualizing Models, Data and Training with TensorBoard

2 Sample Code:

- Go to the `./Lab01-code/pytorch_basics/`
- Run `python main.py` in your terminal
 - Read Table of Contents to learn the basic operations in PyTorch
- Go to the `./Lab01-code/linear_regression/`
- Run `python main.py` in your terminal
 - Learn how to use PyTorch to build a linear regression model

Q1 Build and train a logistic regression model from scratch

- Dataset: MNIST
- Network: Logistic Regression Model
 - Num_Layers: 1 (one fully connected layer)
- Test your model and get the accuracy on test dataset

Q2 Build and train a MLP(Multi-Layer Perceptron) model from scratch

- Dataset: MNIST
- Network: MLP
 - Hidden_Size: 500
 - Num_Layers: 3 (one input layer + two fully connected layer)
- Test your model and get the accuracy on test dataset

Useful Materials:

- [Installing PyTorch](#)
- [MNIST Dataset](#)
- [Deep Learning with PyTorch](#)
- [Learning PyTorch with Examples](#)
- [Useful Tools for Building Neural Network](#)

Tips: You should learn the code style from the sample code to build your project.