Theory and Practice of Deep Learning

Practice Session 2- Deep learning with PyTorch

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Practice Session 2- Deep learning with PyTorch

- **Date & Time**
  - CI01: Week 4 Friday (Feb 18) 11:45 am
  - CI02: Week 5 Wednesday (Feb 25) 8:30 am

- **Location is Zoom!**
  - Recording will be provided for your future practice as well.
  - The Zoom link: https://sutd-edu-sg.zoom.us/j/96995261881?pwd=TGJpcUdFSHdHQUhhcU5OWUhrL1BYdz09

- **Duration:** ~60 minutes

Outline

- Recap -- Practice Session 1
- Basic Concepts
- Activation functions
- Loss functions
- Optimization
- Train Pipeline
- Weights initialization
- Logistic regression example
- Regularization
- Convolution
- Convolutional Neural Network Example
- Save and load the model

Recap – Practice Session 1

- Gradients Computation: **Autograd**
- Prediction: Manually
- Loss Computation: Manually
- Parameter updates: Manually

- Dataset
  - Pre-loaded datasets
  - Your Own data

Practice Session 2

- Gradients Computation: Autograd
- Prediction: **PyTorch Model**
- Loss Computation: **PyTorch Loss**
- Parameter updates: **PyTorch Optimizer**

- Examples
  - Logistic regression
  - Convolutional Neural Network

Preparation

- Step 0: Read the introduction slide
- Step 1: Go to Edimension and download the code file
- Step 2: Open the file in your own google drive

Let’s start the practice part

Summary

- Activation functions
  - Sigmoid, tanh, ReLU, ELU
- Loss functions
  - MSE, Cross Entropy loss
- Optimization
  - SGD
  - Adam
- Train Pipeline
- Weights initialization
- Regularization
  - Dropout
- Convolution and Convolutional Neural Network

Thank you! ☺

Acknowledgment

- University of Washington CSE446
- PyTorch Official Tutorials
- PyTorch Beginner Tutorials