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AI+BD ML Lab. Day 1

PyTorch Tutorial & Linear Regression

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MoNet
Laboratory

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Week Outline

DAY 1	**PyTorch Tutorial & Linear Regression** • Installation • How to handle Tensor • Linear Regression in 3 ways
DAY 2	Basic Flow of Deep Learning & Logistic Regression
DAY 3	Method to make Deep Model & Regularization
DAY 4	Convolution Neural Network (CNN)
DAY 5	PyTorch Practical Tips & TEST

Week Outline

DAY 1	PyTorch Tutorial & Linear Regression
DAY 2	**Basic Flow of Deep Learning & Logistic Regression** • Understanding basic flow of deep learning & code • Logistic regression model with mini-batch SGD • weight initialization • Hyper-parameters tuning to get fast convergence speed
DAY 3	Method to make Deep Model & Regularization
DAY 4	Convolution Neural Network (CNN)
DAY 5	PyTorch Practical Tips & TEST

DAY 1	PyTorch Tutorial & Linear Regression
DAY 2	Basic Flow of Deep Learning & Logistic Regression
DAY 3	Method to make Deep Model & Regularization • Make Multi Layer Perceptron(MLP) with Python Class • Regularization 1 – Batch Normalization • Regularization 2 – Drop out
DAY 4	Convolution Neural Network (CNN)
DAY 5	PyTorch Practical Tips & TEST

Week Outline

DAY 1	PyTorch Tutorial & Linear Regression
DAY 2	Basic Flow of Deep Learning & Logistic Regression
DAY 3	Method to make Deep Model & Regularization
DAY 4	Convolution Neural Network (CNN) • Image Classification with CNN • Exercise. Align Data to Model
DAY 5	PyTorch Practical Tips & TEST

DAY 1	PyTorch Tutorial & Linear Regression
DAY 2	Basic Flow of Deep Learning & Logistic Regression
DAY 3	Method to make Deep Model & Regularization
DAY 4	Convolution Neural Network (CNN)
DAY 5	PyTorch Practical Tips & TEST • Transfer Learning? Early stopping? Cross Validation? • Test·········?

Open Source
for scientific computing
of Python & R

Web application
with Interactive
computing

Deep Learning
Framework
with GPU

Installation

Installation Code :

https://git.io/aibd-install-ubuntu

```
# install anaconda
$ wget https://repo.anaconda.com/archive/Anaconda3-2020.11-Linux-x86_64.sh
$ bash Anaconda3-2020.11-Linux-x86_64.sh

# create virtual environment
$ conda create -n AIBD python=3.8 jupyter notebook numpy sklearn matplotlib
$ conda env list
-----------------------------------------------------
# conda environments:
#
base                     *  /root/anaconda3
AIBD                        /root/anaconda3/envs/AIBD
-----------------------------------------------------

# activate virtual environment
$ conda activate AIBD

# install pytorch
(AIBD) $ conda install pytorch torchvision -c pytorch

# setting kernel
(AIBD) $ conda install notebook ipykernel
(AIBD) $ python -m ipykernel install --user --name AIBD --display-name "AIBD"
```

```
(AIBD) $ jupyter notebook
```

Tutorial Code :

https://git.io/aibd-pytorch-tutorial

Linear Regression Code :

https://git.io/aibd-lr-3