

LUD Project 1

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LUD lab

Zilong Chen

#1 Introductory Lectures

- #0 python basics
- #1 machine learning basics
- #2 deep learning and pytorch basics
- Project 1: pytorch practice
- #3 NLP basics
- #4 GNN basics
- Project 2: CORA node classification
- #5 NLP advanced
- #6 GNN advanced
- Project 3: BotRGCN Reproduction
- #7 Knowledge Graph
- #8 Computer Vision
- #9 Miscellaneous
- Project 4: Final Project



So far ...

Lec -1: Introduction

- overview
- a glance of LUD and LUD lecs

Lec 0: python basics

- python basic syntax and grammar
- numpy, pandas, matplotlib, ...

Lec 1: machine learning basics

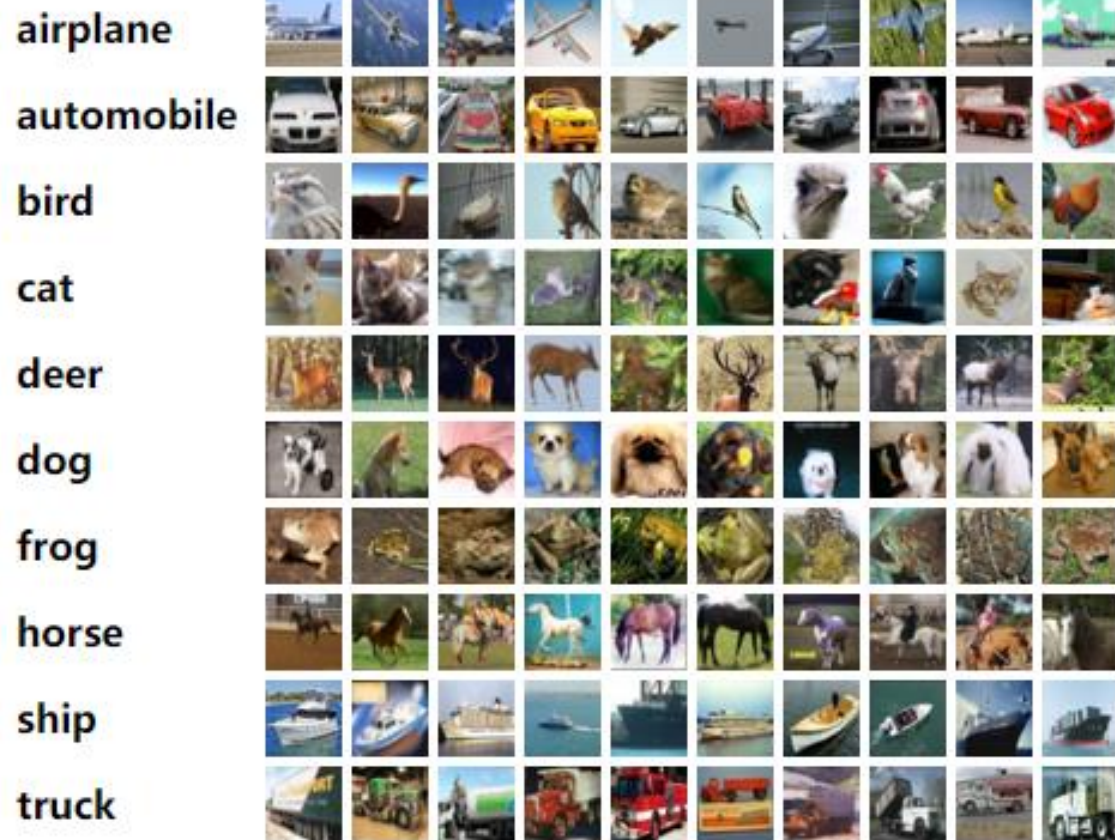
- concepts: tasks, paradigms, train & valid & test, hparams., optimization, metrics, ...
- overfitting, underfitting, capacity, inductive bias

Lec 2: deep learning and PyTorch basics

- DNNs, SGD, for-/back-ward, activation funcs, ...
- pytorch training procedures/components, simple tricks

Project 1: Classification on CIFAR-10

Here are the classes in the dataset, as well as 10 random images from each:



60000 images with
size (3, 28, 28)

train/test=50000/10000

download: `$wget https://www.cs.toronto.edu/~kriz/cifar-10-python.tar.gz`

Tasks

1. build dataset **by yourself ! (Do not use `torchvision.datasets.CIFAR10`)**
2. metrics ++
3. capacity and inductive bias (MLP v.s. Conv2d), overfitting, underfitting
4. different batch_size, lr, optimizer
5. normalizations and dropout
6. logging, save and load (cross device), tensorboard

Report

1. Your results
2. Your discovery
3. ...