CV Lab1 Notes

TA: 郑浩 (RA in SUSTech CV Lab)

Prerequisites

1. Server IP, username
2. Access to server using terminal

```
ssh username@host -p 10022
```

3. Conda installation

```
# Download Anaconda3 Installer
wget http://mirrors.sustc.us/anaconda/archive/Anaconda3-2020.07-Linux-
x86_64.sh

# Give execution permission
chmod 777 Anaconda3-2020.07-Linux-x86_64.sh

# Install
./Anaconda3-2020.07-Linux-x86_64.sh

# Activate environment variable
source ~/.bashrc
```

4. Conda & pip mirror setting
    - Conda:
        1. `vim ~/.condarc`
        2. press `i` to enter insert mode
        3. copy and paste

```
channels:
  - defaults
show_channel_urls: true
channel_alias: https://mirrors.tuna.tsinghua.edu.cn/anaconda
default_channels:
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/main
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/r
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/pro
  - https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/msys2
custom_channels:
  conda-forge: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
  msys2: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
  bioconda: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
  menpo: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
  pytorch: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
  simpleitk: https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud
```

4. `ESC`, `:`, `wc` to save and exit

- pip:

1. `vim ~/.pip/pip.conf` (if `~/.pip` folder not exist, create it using `mkdir ~/.pip`)
2. press `i` to enter insert mode
3. copy and paste

```
[global]
index-url = https://pypi.tuna.tsinghua.edu.cn/simple
```

4. `ESC`, `:`, `wc` to save and exit

5. Conda environment

```
# Create your conda environemnt with python version 3.8
conda create -n [your env name] python=3.8

# Activate your environment
conda activate [your env name]
```

Jupyter Lab

0. Activate your environment

```
conda activate [your env name]
```

1. Install jupyter and required packages

```
conda install jupyterlab numpy matplotlib

# opencv-python can not be installed by conda
pip install opencv-python
```

2. Run jupyter in **server terminal**

```
jupyter lab --no-browser --port=PORT_NUM # 1024-65535
```

$$PORT\_NUM = 1024 + (SID \mod (65535 - 1024)) = 1024 + (SID \mod 64511)$$

3. Run SSH port forwarding in **local terminal**

```
ssh -N -f -L localhost:8888:localhost:PORT_NUM username@serverIP -p 10022
```

Check the explanation of command here: https://explainshell.com/explain?cmd=ssh+-N+-f+-L+localhost%3A8888%3Alocalhost%3APORT_NUM+username%40serverIP+-p+10022#

4. Access jupyter lab by visit `localhost:8888`
5. Download course materials from github

```
wget https://github.com/zh-plus/SUSTech-CS308/raw/master/Lab1/lab1.ipynb
wget https://github.com/zh-plus/SUSTech-CS308/raw/master/Lab1/lenna.jpg
```