CV Lab2

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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 --ip=0.0.0.0# 1024-65535
```

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
```