Cardiovascular risk computed via Deep Learning (DL) on thoracic CT scans (Med3DResNet)- Evaluation tutorial in Windows

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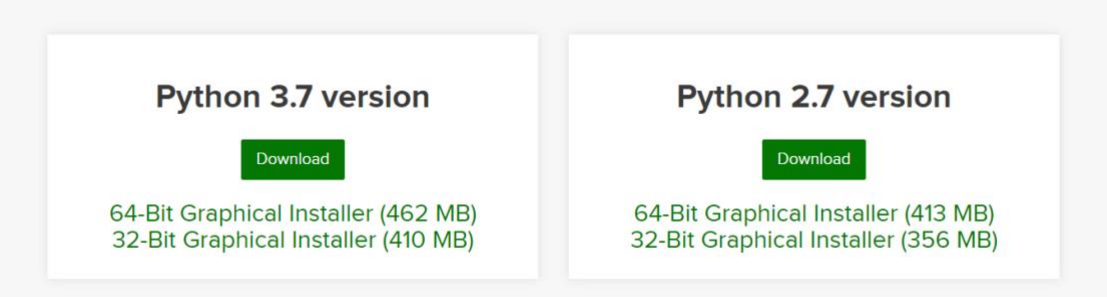
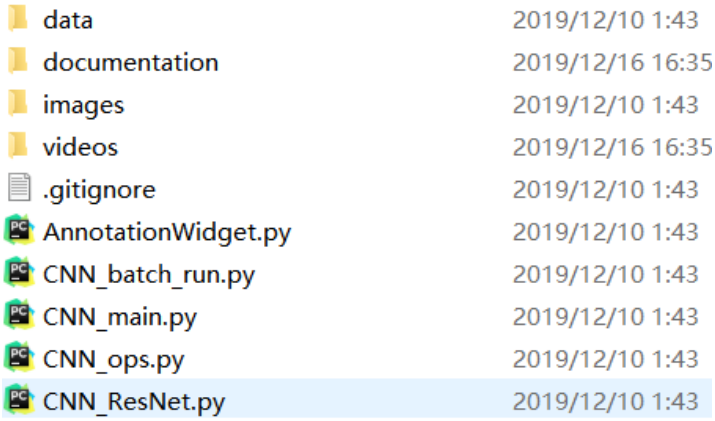
First of All

- Install Anaconda3 (python3.7) https://www.anaconda.com/distribution/.



- Create a new folder under a path of your choice and name it `Project`. (e.g. `E:\Project`).
- `cd` into the `Project` directory. Clone/Download our github repository https://drive.google.com/file/d/1CmRXBzu2vuJOLgYvSWH-gTF79YiRhW-h/view?usp=sharing to the Project folder.
- Extract it's contents inside the `Project` folder.

- You should now have a single folder named `ACVProject-master` under your `Project` folder, which contains code and another files as such:



Create a new Conda virtual environment (Optional)

- Open a new Anaconda/Command Prompt window
- `cd` into the `ACVProject-master` directory.
- Type the following command:

```
conda create -n Med3D pip python=3.6
```

- The above will create a new virtual environment with name `Med3D`
- Now lets activate the newly created virtual environment by running the following in the Anaconda Promt window:

```
Activate Med3D
```

- Once you have activated your virtual environment, the name of the environment should be displayed within brackets at the beggining of your cmd path specifier, e.g:

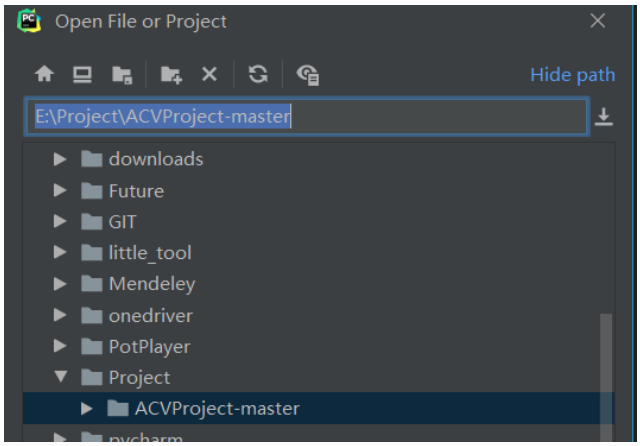
- Type the following command:

```
pip install -r requirements_win.txt
pip install keras
```

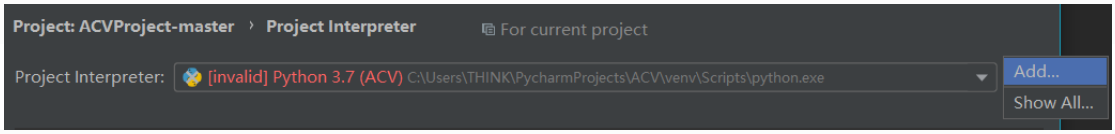
- Install Pycharm

  https://www.jetbrains.com/pycharm/download/#section=windows

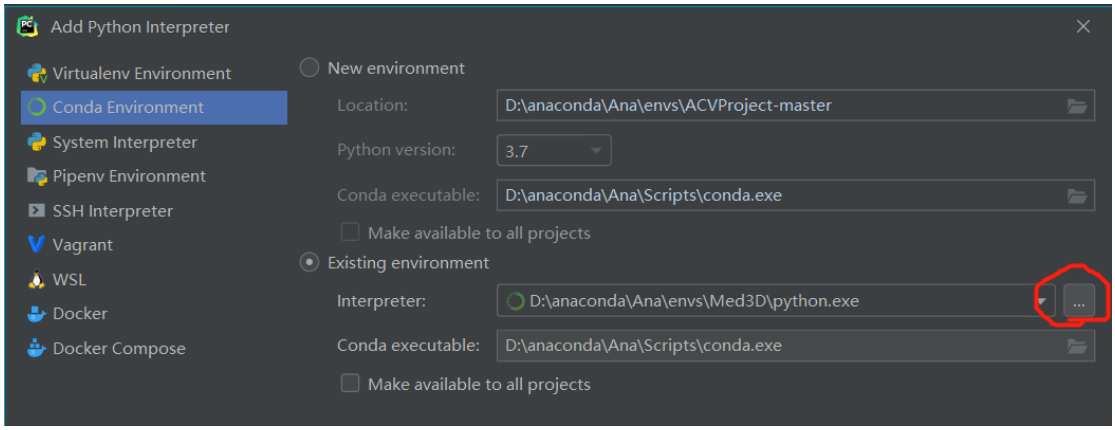
- Click File=>Open choose ACVProject-master directory.



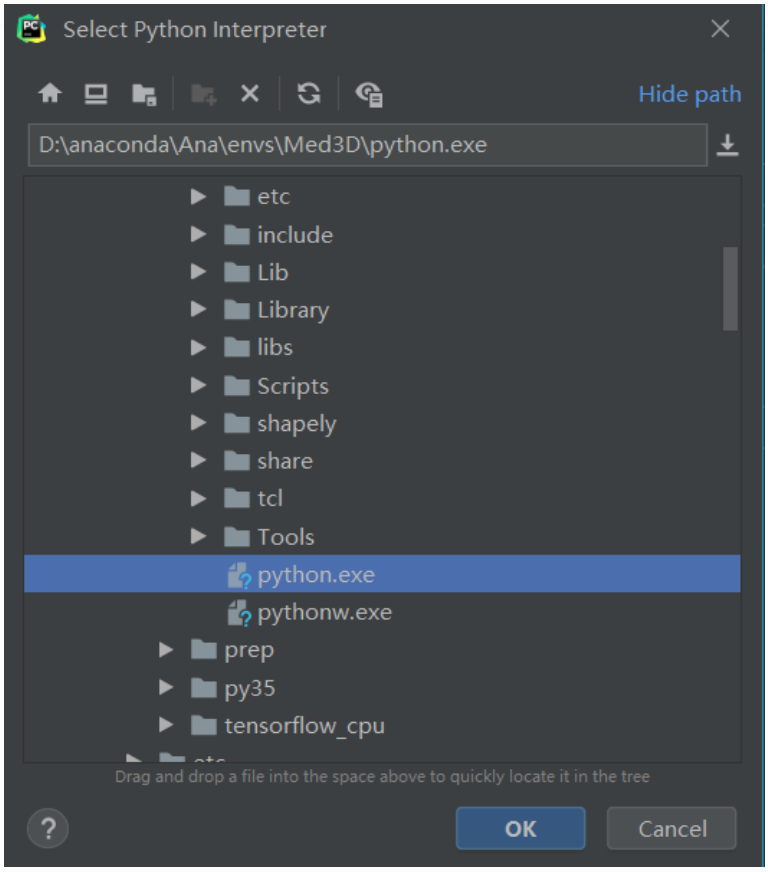
- Click File=>settings=>Project:ACVProject-master=>Project interpreter=>add



- Click Conda Environment=>Exsting environment=>…

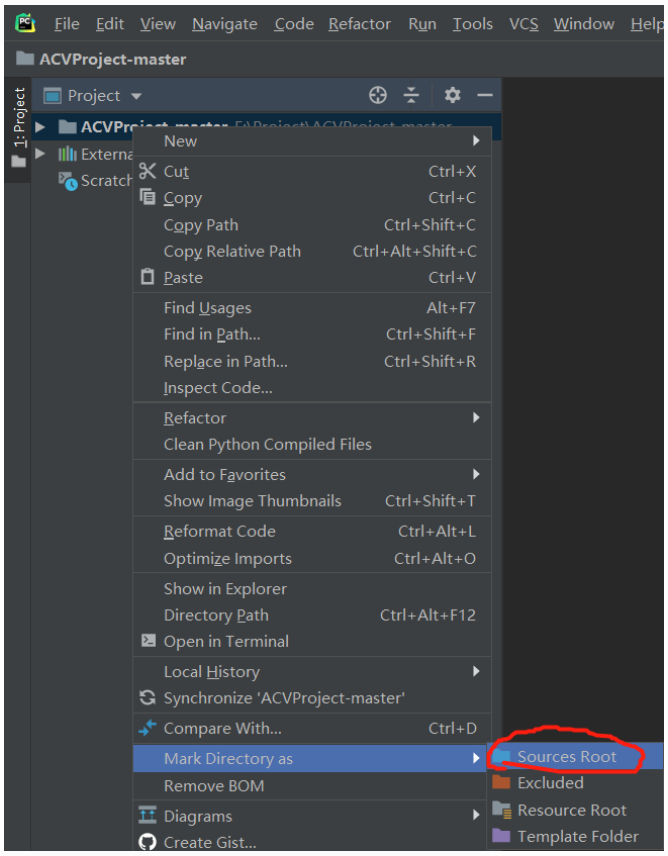


- Choose path to where you install anaconda\envs\Med3D\python.exe

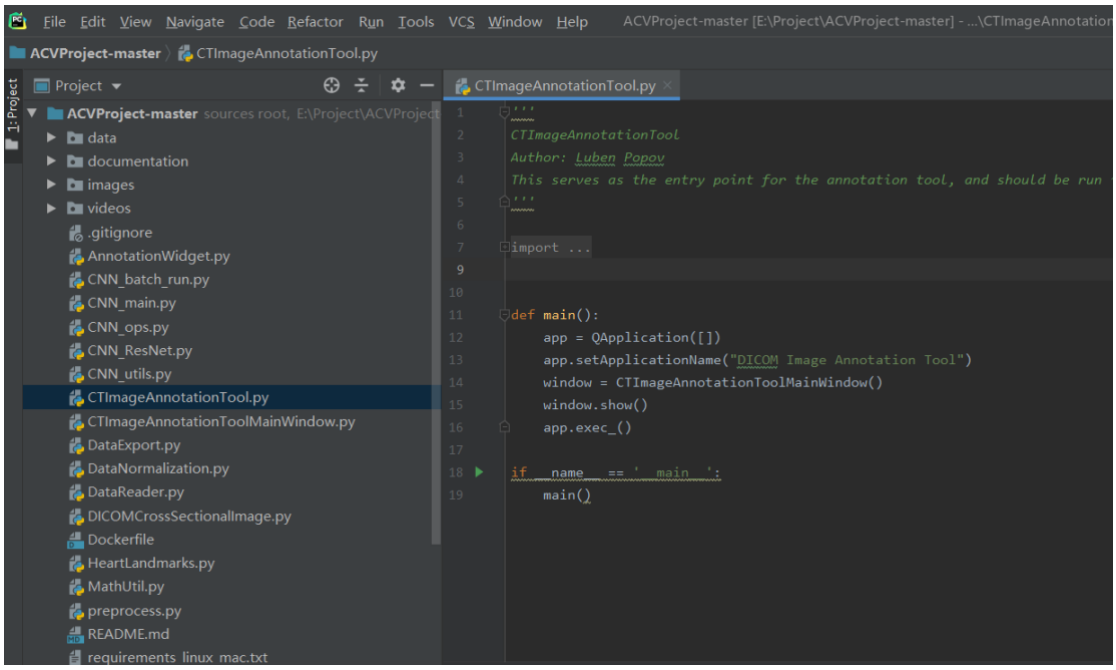


- Click OK=>OK

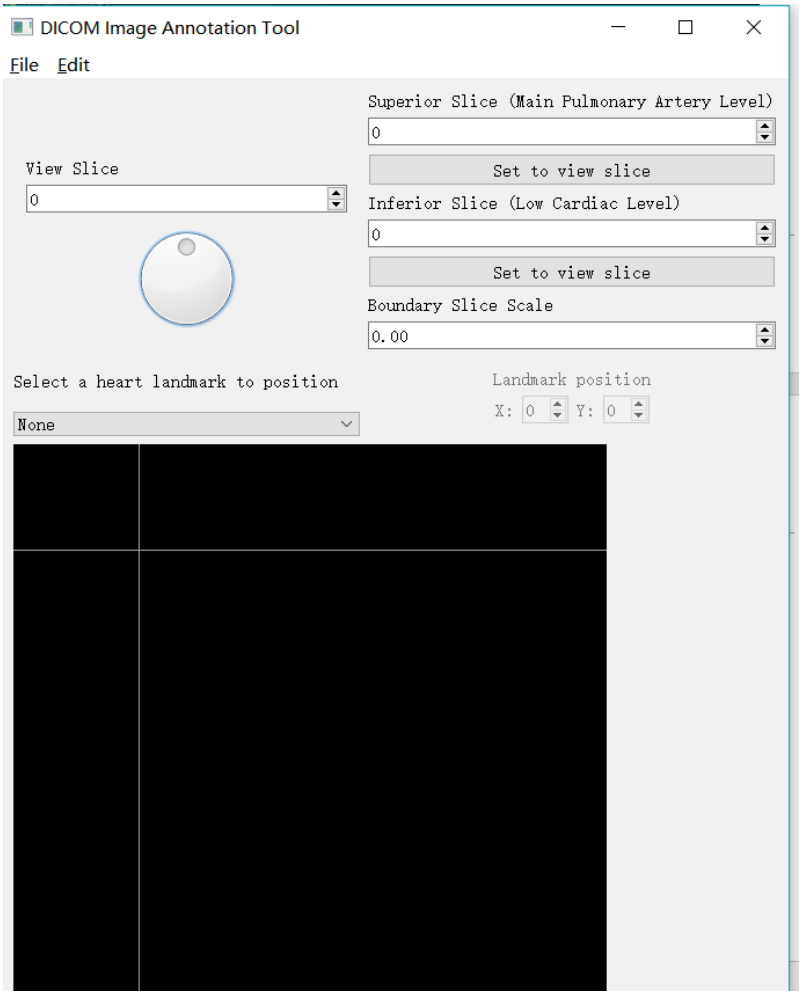
- Right click ACVProject folder and set it as source folder.



- Now Open `CTImageAnnotationTool.py` and run this script with Alt+Shift+F10



- Now you should open this annotation tool like below:



- For annotation tool using please check `E:\Project\ACVProject-master\documentation\CTImageAnnotationToolManual.pdf`

- Download dataset with this google drive link to the `E:\Project`: https://uofh-my.sharepoint.com/:f:/g/personal/taburt_cougarnet_uh_edu/EiZNY6eYAINBkJFTpeIjkzYBrS9p03lG64a_DcJW3GPZGw

- Extract it's contents inside the `E:\Project` folder.

- You should now have folder as following:

```
E:
├─ACVProject-master
└─ACV_project_Team1_F19
```

- For dataset and CNN framework description please check `E:\Project\ACVProject-master\documentation\Med3DResNetManual.pdf`

- Open a new *Anaconda/Command Prompt* window
- `cd` into the `ACVProject-master` directory.
- *Add two line code in the* `CNN_utils.py`

```
Import csv
Import numpy as np
```

- Change the `CNN_utils.py` *108 line code from*

```
MIN_HU, MAX_HU = update_hu_range(test_image_temp, MIN_HU, MAX_HU)
```

- To

```
MIN_HU, MAX_HU = Visualization.update_hu_range(test_image_temp, MIN_HU,
MAX_HU)
```

- Type the following command:

```
python CNN_main.py --phase train --dataset ACV --res_n 18 --work_path
E:/Project/ACV_project_Team1_F19/ --train_test_ratio 70_30 --batch_size 40 -
-lr 0.1 --data_type projection --n_axial_channels=4 --epoch 25
```