

# Computer vision final project

## Pupil tracking

### Environment

Python 3.8.10

efficientnet\_pytorch==0.7.1

numpy==1.22.4

opencv\_contrib\_python==4.5.5.64

Pillow==9.1.1

torch==1.11.0

torchvision==0.12.0

torchaudio==0.11.0

torchvision==0.12.0

### Training steps

1. Segmentation model training

`python3 ./train_seg.py --data_root {dataset file path}`

```
# cvfinal @ MediaGti in ~/final_project/handin [18:09:02] C:130
$ python3 ./train_seg.py --data_root '/home/cvfinal/final_project/dataset/public'
Numbers of images in trainset: 15982
Numbers of images in validset: 1775
Train Epoch: 1 [0/15982 (0%)] Loss: 100.227249
```

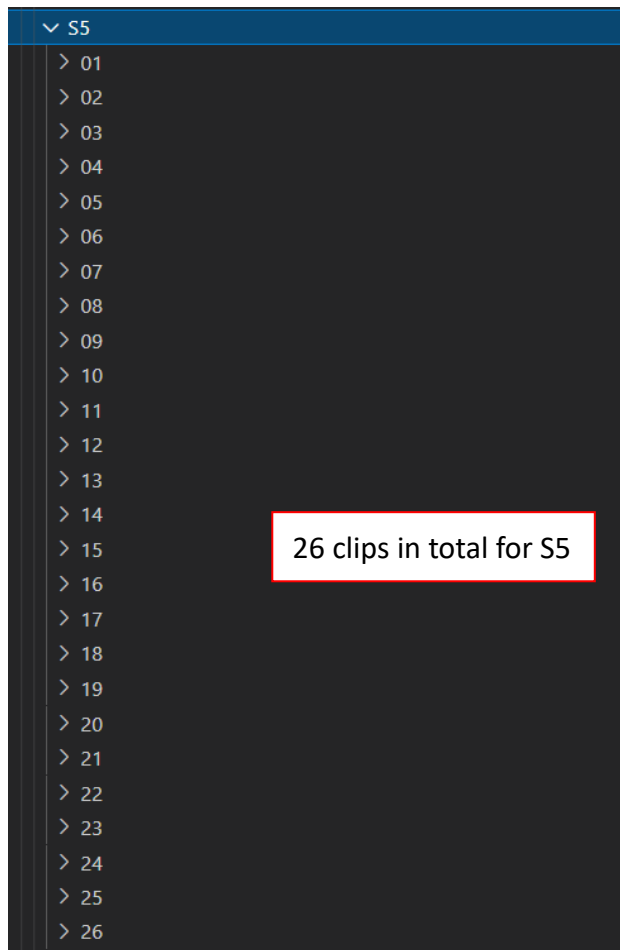
2. Confidence model training

`python3 ./train_conf.py --data_root {dataset file path}`

```
# cvfinal @ MediaGti in ~/final_project/handin [18:06:20]
$ python3 ./train_conf.py --data_root '/home/cvfinal/final_project/dataset/public'
Numbers of images in trainset: 17484
Numbers of images in validset: 1942
Loaded pretrained weights for efficientnet-b1
Train Epoch: 1 [0/17484 (0%)] Loss: 0.694526
Train Epoch: 1 [2400/17484 (14%)] Loss: 0.429849
```

## Testing steps

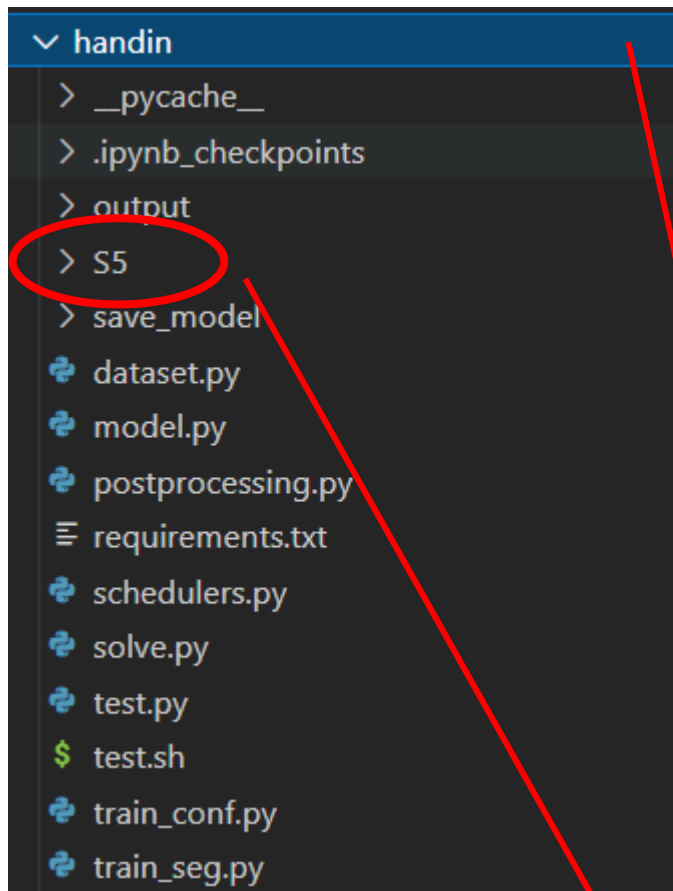
1. Prepare your testing dataset in this format



2. Environment installation  
pip3 install -r requirement.txt

3. Run the script file

bash test.sh



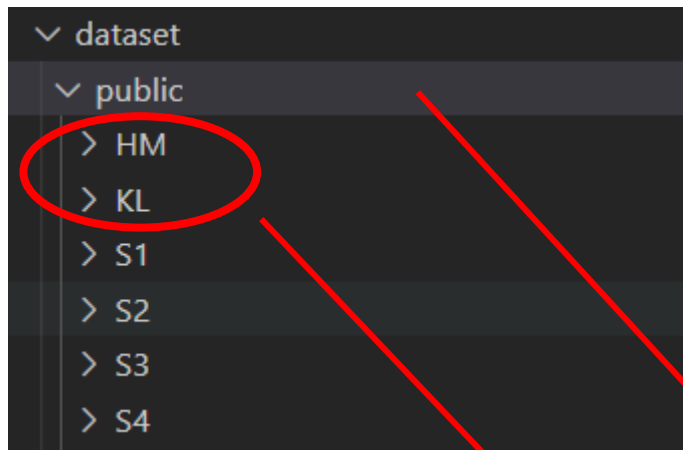
```
$ bash test.sh
Please input the input file path: /home/cvfinal/final_project/handin
Please input the name of the sequence: S5
Please input the number of clips in the sequence: 26

filepath = /home/cvfinal/final_project/handin/S5

total 26 clips
```

26 clips in total for S5

- For challenge dataset  
Challenge dataset should be named as **HM** and **KL**



```
$ bash test.sh
Please input the input file path: /home/cvfinal/final_project/dataset/public
Please input the name of the sequence: HM
Please input the number of clips in the sequence: 123

filepath = /home/cvfinal/final_project/dataset/public/HM
total 123 clips
```

Clips number could  
be arbitrary

#### 4. Result

Result will be stored under the folder named **output**

