

# 電腦視覺與深度學習

## (Computer Vision and Deep Learning) Homework 1

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姓名：郭俊志

ENV：

Python 3.7.5

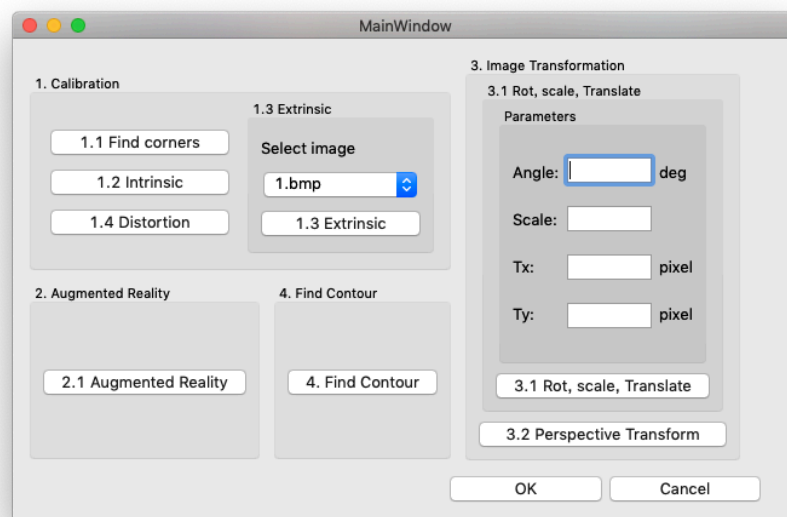
Pytorch 1.3

OpenCV 3.4.2.17

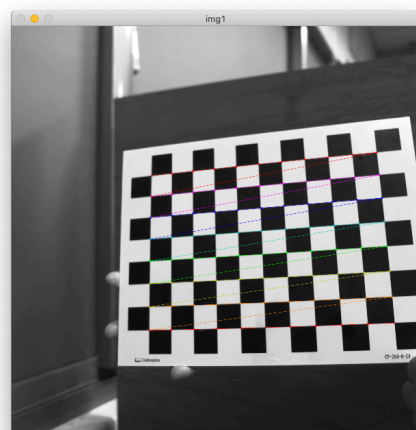
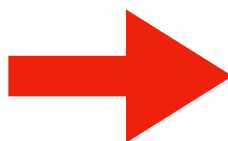
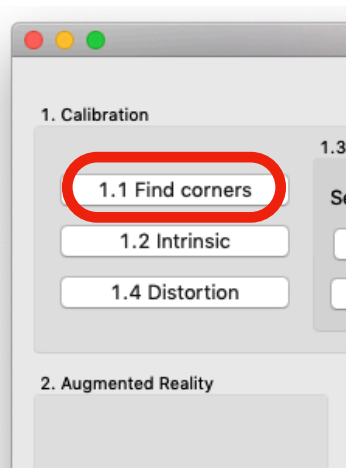
Matplotlib 3.1.1

Pyqt5 5.13.2

### 1. Camera Calibration

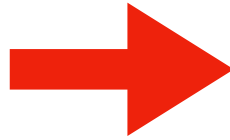
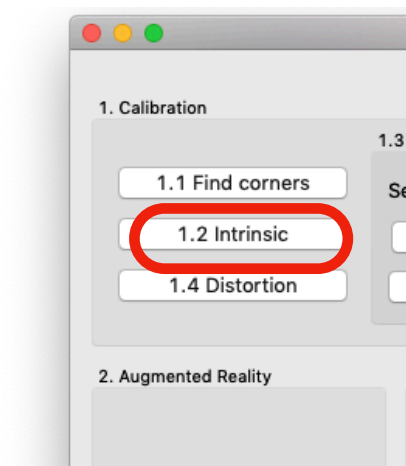


#### 1.1



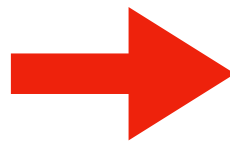
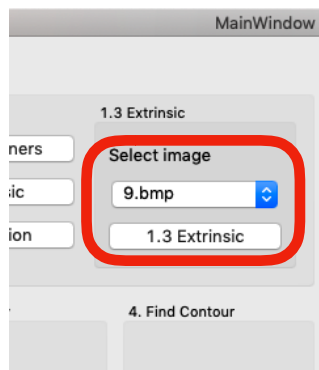
按任意鍵進入下一張，共 1 5 張

## 1.2



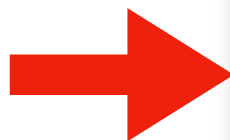
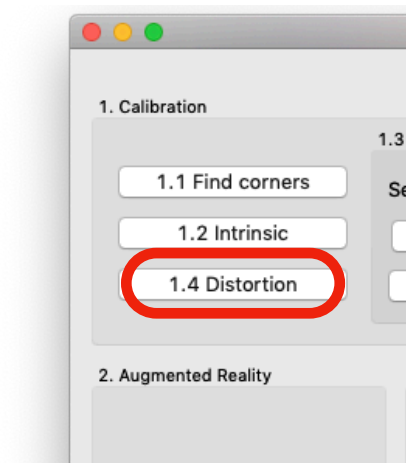
```
python main.py (python3.7)
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/4.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/5.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/6.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/7.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/8.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/9.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/10.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/11.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/12.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/13.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/14.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/15.bmp
Intrinsic matrix:
[[2.22320881e+03 0.00000000e+00 1.02990462e+03]
 [0.00000000e+00 2.22274736e+03 1.03967016e+03]
 [0.00000000e+00 0.00000000e+00 1.00000000e+00]]
```

## 1.3



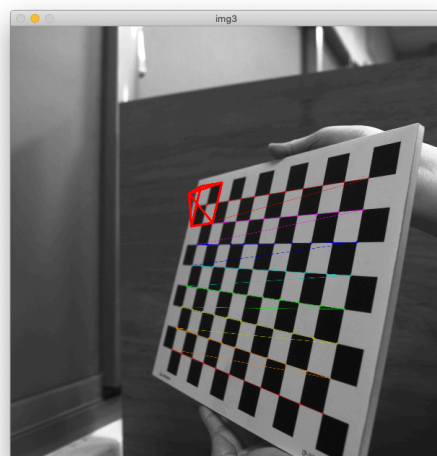
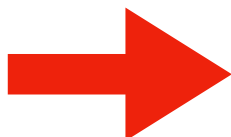
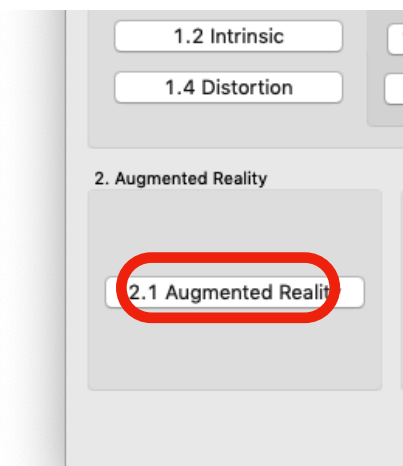
```
python main.py (python3.7)
Extrinsic matrix of img 2 :
[[-0.88752019 -0.14514799 -0.43730993  3.34640105]
 [ 0.07179608 -0.98105873  0.17991412  4.35081152]
 [-0.45514089  0.12828028  0.88113049 22.14900046]]
Extrinsic matrix of img 4 :
[[-0.63235167  0.52948742  0.56548602  1.20431028]
 [ 0.13242349 -0.64533451  0.75233463  3.47179168]
 [ 0.76327936  0.55062369  0.33796178 10.96882447]]
Extrinsic matrix of img 7 :
[[-0.96242258 -0.02977205  0.26991924  2.32427066]
 [ 0.0508569  -0.99614607  0.07146032  2.81831588]
 [ 0.26675147  0.08250228  0.96022759 15.82363374]]
Extrinsic matrix of img 9 :
[[-9.89236009e-01  1.33793071e-01  5.92581882e-02  2.29773174e+00]
 [-1.45236589e-01 -9.47125456e-01 -2.86111348e-01  5.39143617e-01]
 [ 1.78452225e-02 -2.91638105e-01  9.56362255e-01  1.93372571e+01]]
```

## 1.4



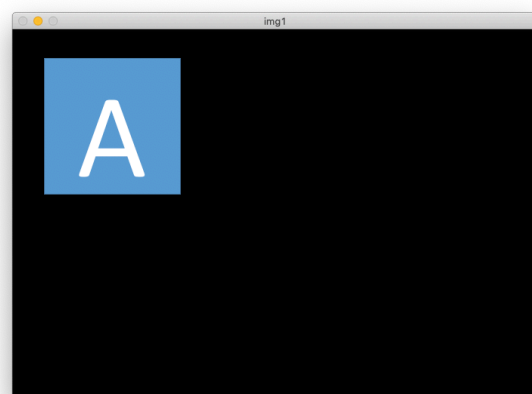
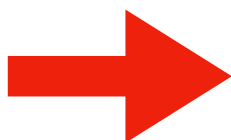
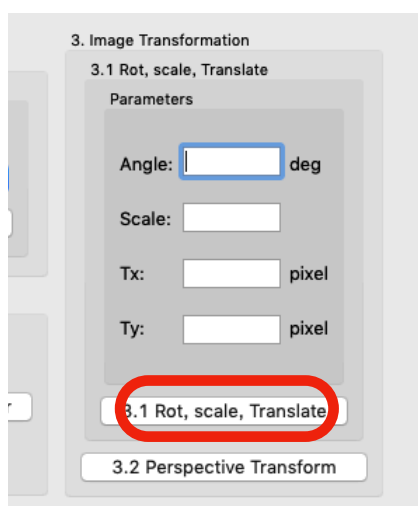
```
python main.py (python3.7)
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/6.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/7.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/8.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/9.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/10.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/11.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/12.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/13.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/14.bmp
/Users/tonygao/Documents/github/ncku_cvdL/hw1/hw1-1/CameraCalibration/15.bmp
Intrinsic matrix:
[[2.22320881e+03 0.00000000e+00 1.02990462e+03]
 [0.00000000e+00 2.22274736e+03 1.03967016e+03]
 [0.00000000e+00 0.00000000e+00 1.00000000e+00]]
Distortion matrix:
[[-0.12799189  0.09777666 -0.00068241  0.00054412 -0.01928599]
```

2



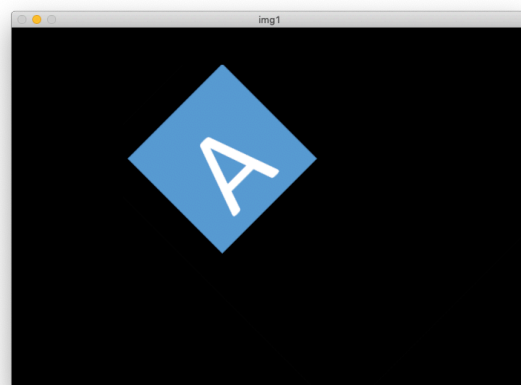
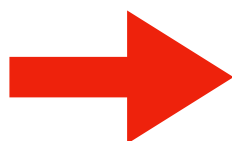
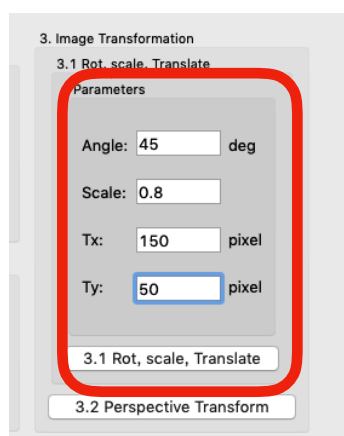
按任意鍵進入下一張，共 10 張

3.1



原始圖，按任意鍵關閉

3.1



按任意鍵關閉

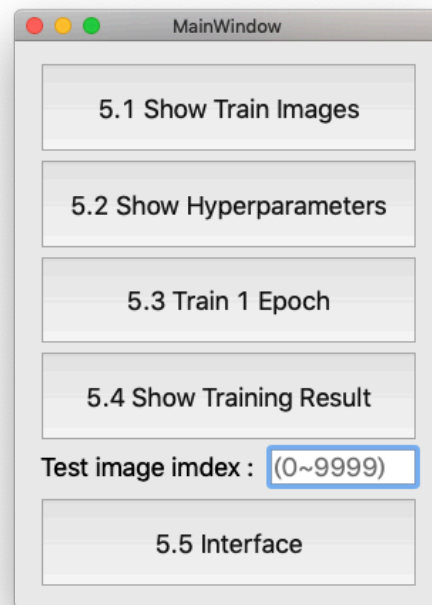
3.2

趕工中

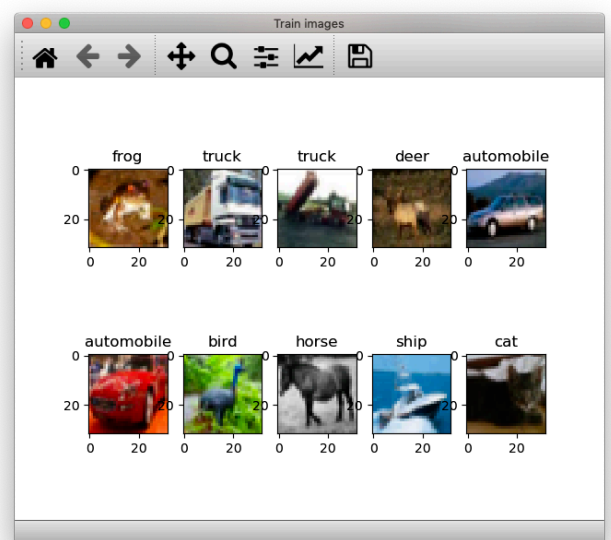
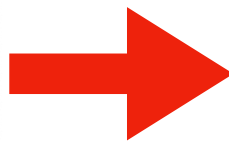
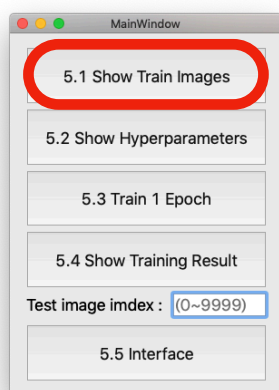
4

趕工中

## 5 Cifar-10 Classifier

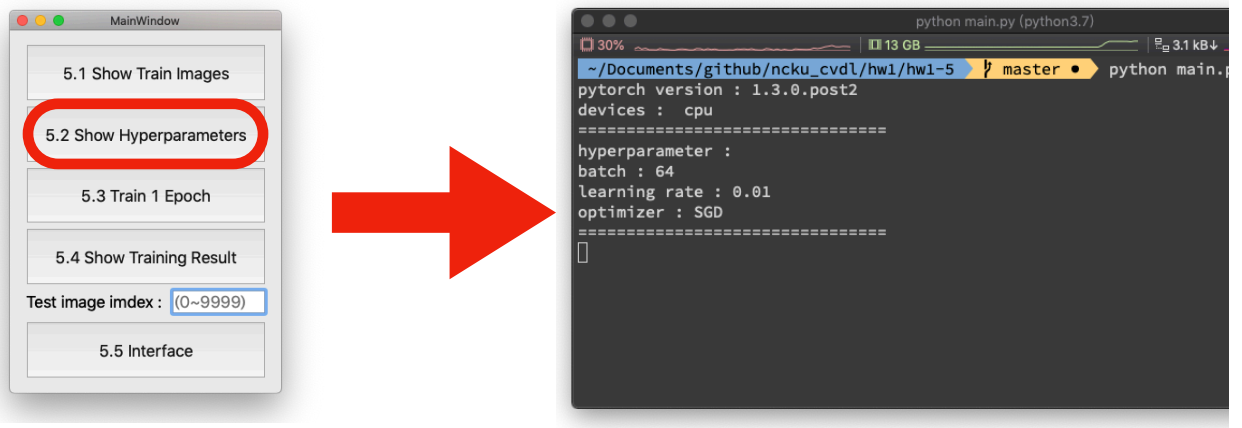


5.1

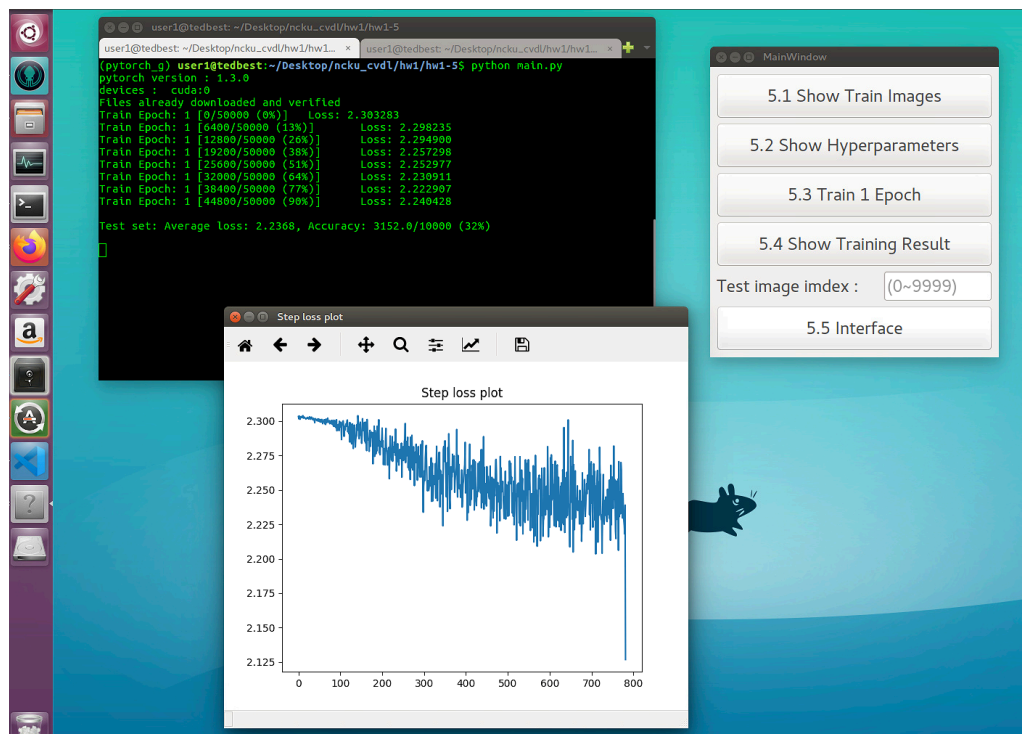


若無預先下載資料，會在後台下載，請稍候

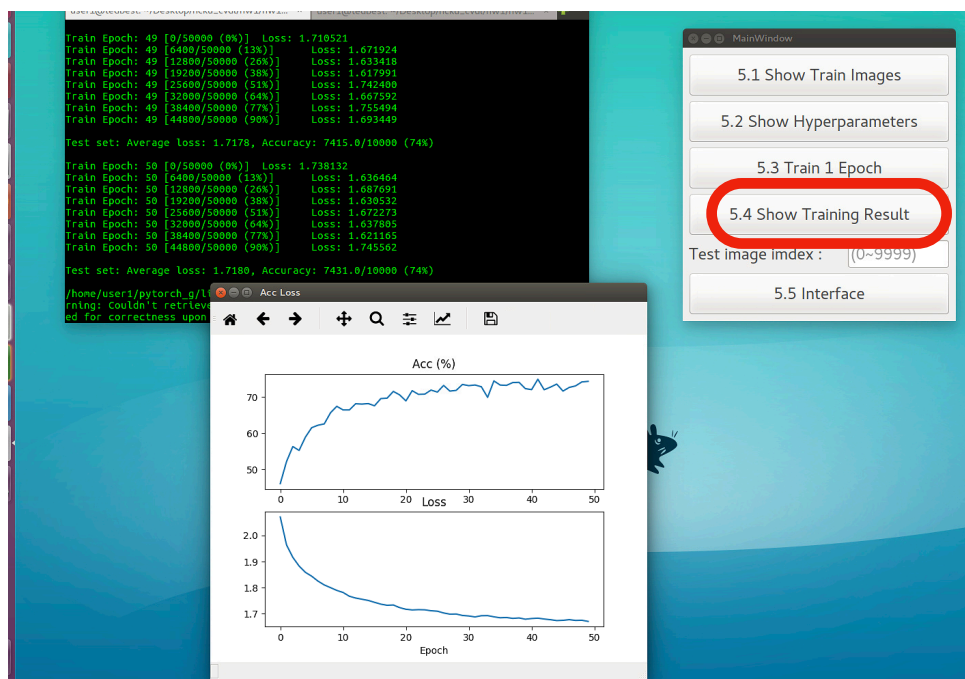
## 5.2



## 5.3



## 5.4



## 5.5

