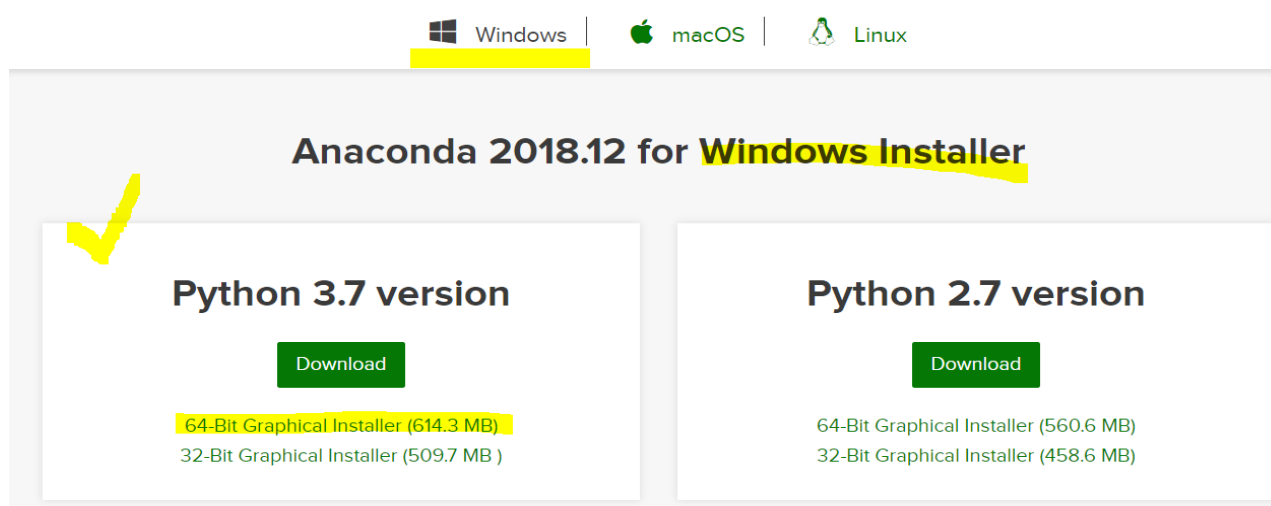


AI DL 讀書會

手把手安裝環境

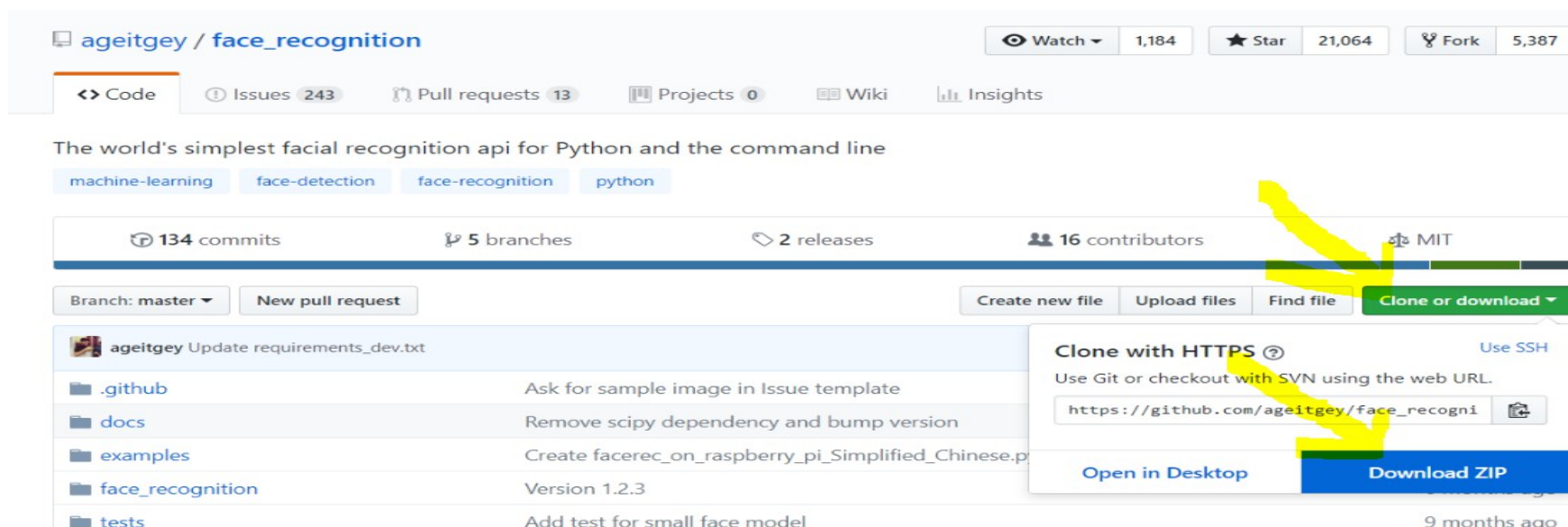
安裝 anaconda

- 請先下載安裝程式
 - <https://www.anaconda.com/distribution/>
 - 請安裝在 C:\anaconda3\ or D:\anaconda3\ (容易找)



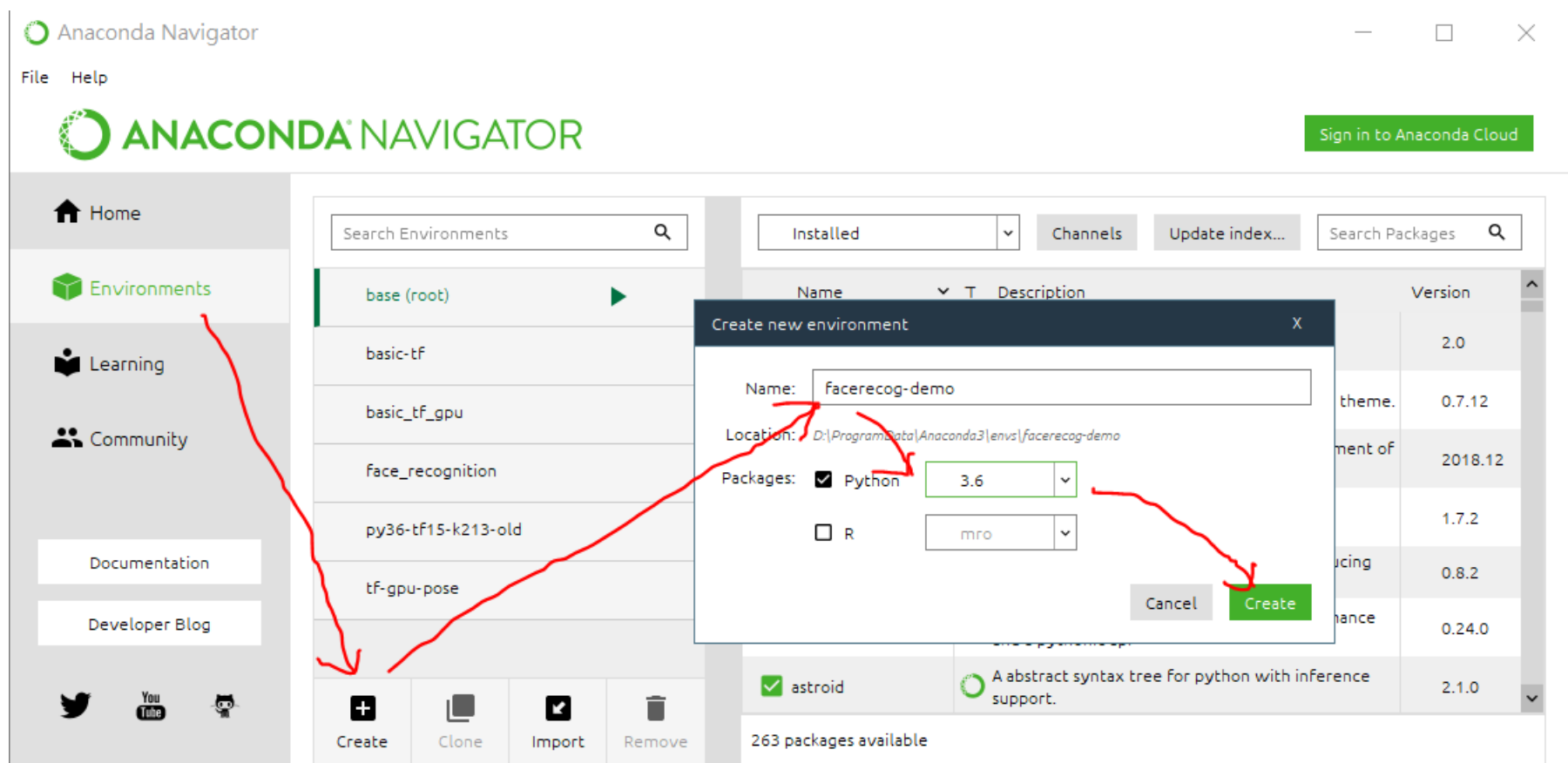
anaconda 建立虛擬環境

- 用conda建立及管理python虛擬環境
 - 照著網頁內容嘗試建立（測試的）虛擬環境
- 建立臉部辨識模組環境（下載先放著）
 - https://github.com/ageitgey/face_recognition



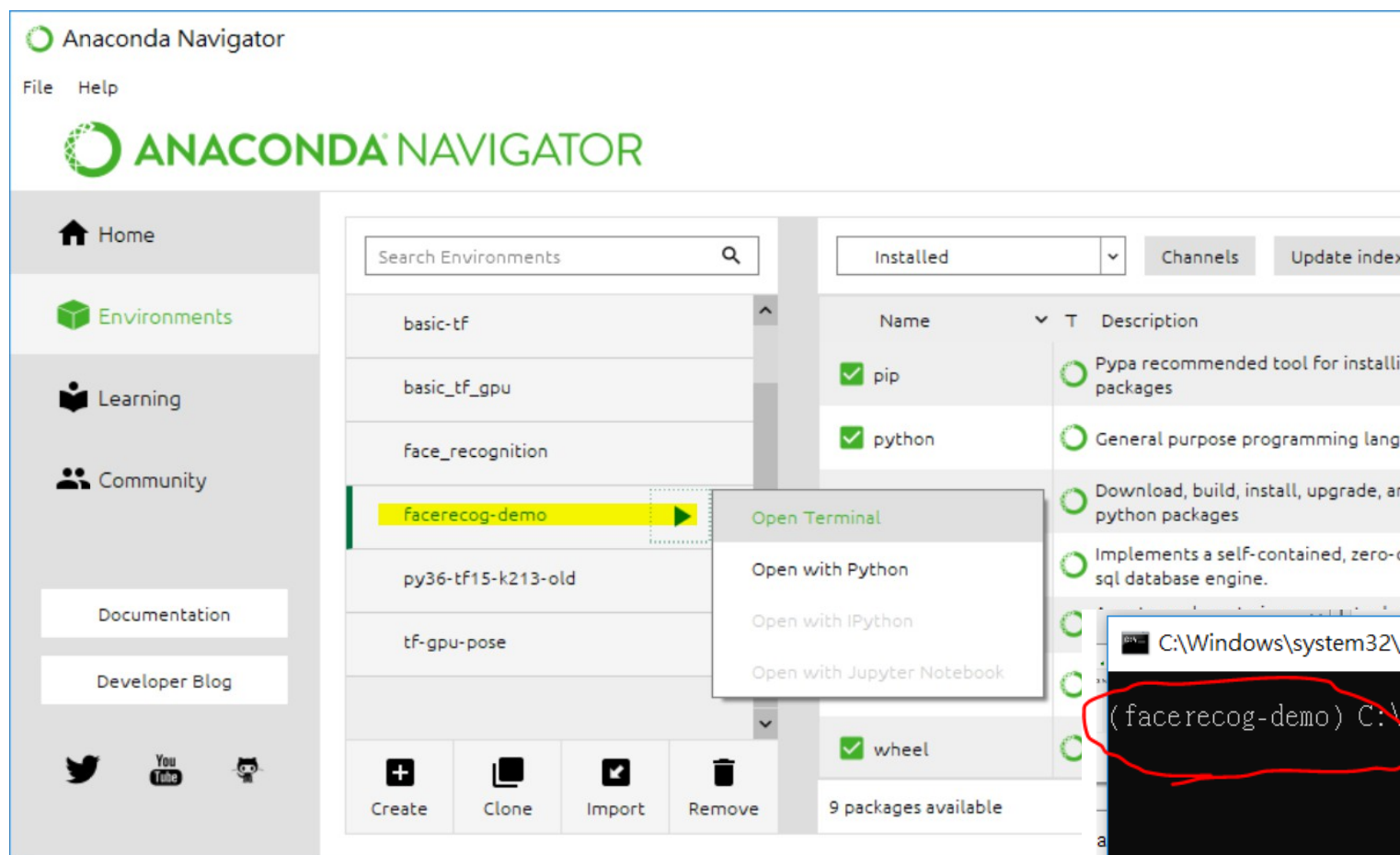
建立臉部辨識模組環境

- Anaconda 建立環境 -name facerecog-demo
- 確定環境已建立 (...\envs\facerecog-demo)
(例如 D:\ProgramData\Anaconda3\envs\facerecog-demo)



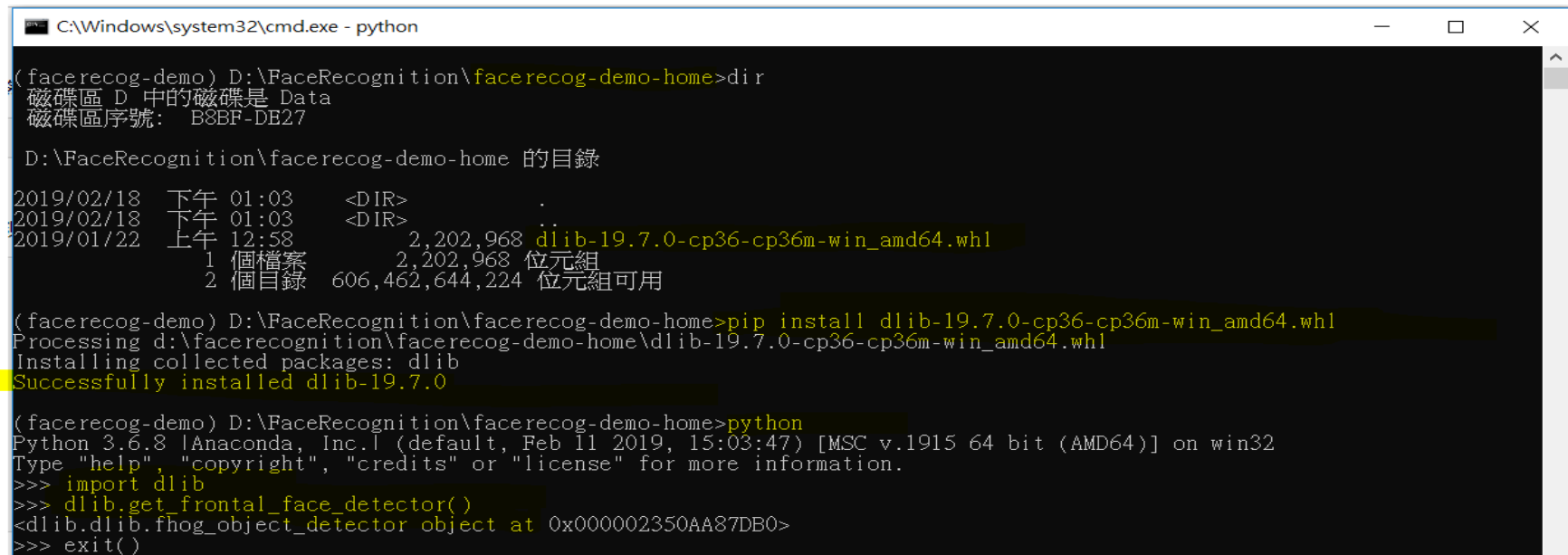
建立臉部辨識模組環境

- Anaconda 切換到 facerecog-demo 環境
- 執行 open Terminal ，確定執行環境正確



建立臉部辨識模組環境

- 建一個資料夾 facerecog-demo-home (要放開發程式)
- Requirements
 - Python 3.3+ or Python 2.7 (我們已選 python 3.6)
 - Dlib
 - <https://www.cnblogs.com/AdaminXie/p/9032224.html>
 - 直接跳到 2.2 Dlib 的安裝



```
C:\Windows\system32\cmd.exe - python
(facerecog-demo) D:\FaceRecognition\facerecog-demo-home>dir
磁碟區 D 中的磁碟是 Data
磁碟區序號: B8BF-DE27

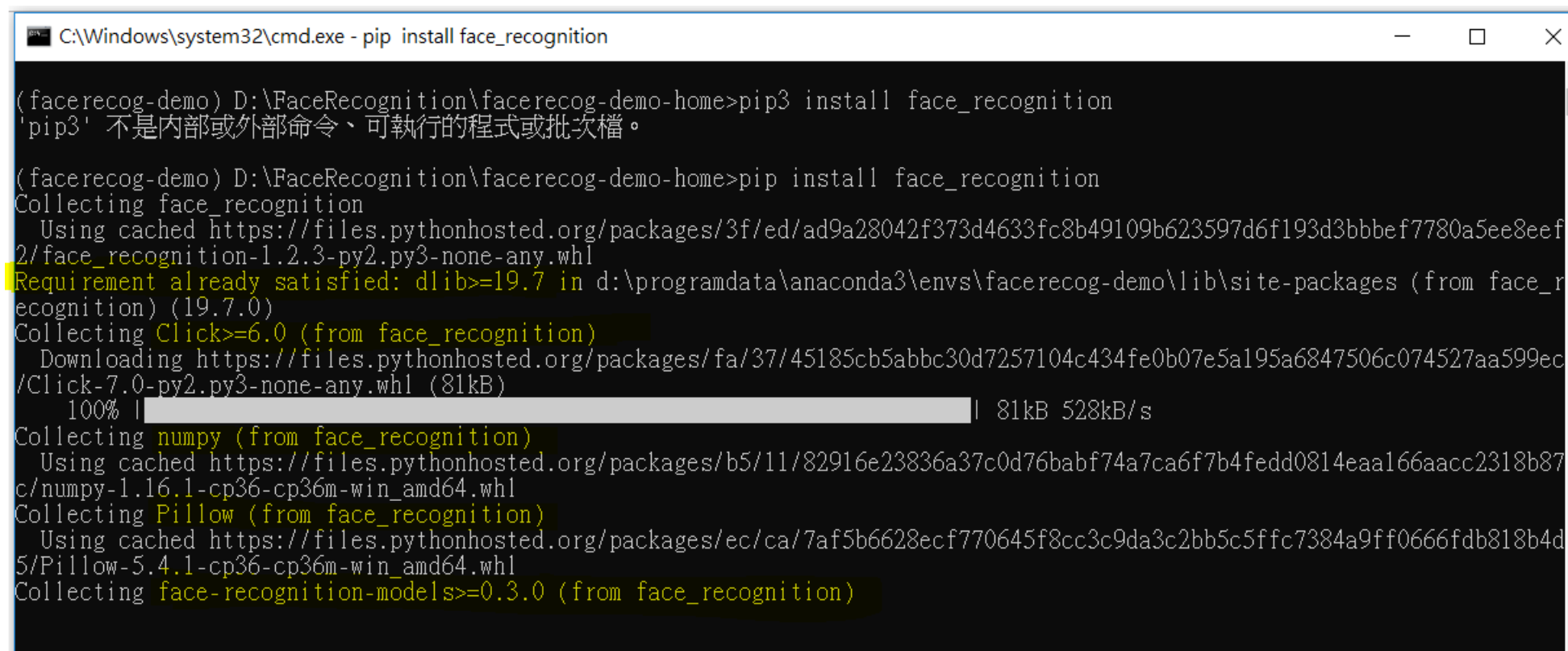
D:\FaceRecognition\facerecog-demo-home 的目錄
2019/02/18 下午 01:03 <DIR> .
2019/02/18 下午 01:03 <DIR> ..
2019/01/22 上午 12:58 2,202,968 dlib-19.7.0-cp36-cp36m-win_amd64.whl
1 個檔案 2,202,968 位元組
2 個目錄 606,462,644,224 位元組可用

(facerecog-demo) D:\FaceRecognition\facerecog-demo-home>pip install dlib-19.7.0-cp36-cp36m-win_amd64.whl
Processing d:\facerecognition\facerecog-demo-home\dlib-19.7.0-cp36-cp36m-win_amd64.whl
Installing collected packages: dlib
Successfully installed dlib-19.7.0

(facerecog-demo) D:\FaceRecognition\facerecog-demo-home>python
Python 3.6.8 [Anaconda, Inc.] (default, Feb 11 2019, 15:03:47) [MSC v.1915 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import dlib
>>> dlib.get_frontal_face_detector()
<dlib.dlib.fhog_object_detector object at 0x000002350AA87DB0>
>>> exit()
```

建立臉部辨識模組環境

- Pip install face_recognition (注意不是 pip3)



```
C:\Windows\system32\cmd.exe - pip install face_recognition

(facerecog-demo) D:\FaceRecognition\facerecog-demo-home>pip3 install face_recognition
'pip3' 不是内部或外部命令、可執行的程式或批次檔。

(facerecog-demo) D:\FaceRecognition\facerecog-demo-home>pip install face_recognition
Collecting face_recognition
  Using cached https://files.pythonhosted.org/packages/3f/ed/ad9a28042f373d4633fc8b49109b623597d6f193d3bbbef7780a5ee8eef2/face_recognition-1.2.3-py2.py3-none-any.whl
Requirement already satisfied: dlib>=19.7 in d:\programdata\anaconda3\envs\facerecog-demo\lib\site-packages (from face_recognition) (19.7.0)
Collecting Click>=6.0 (from face_recognition)
  Downloading https://files.pythonhosted.org/packages/fa/37/45185cb5abbc30d7257104c434fe0b07e5a195a6847506c074527aa599ec/Click-7.0-py2.py3-none-any.whl (81kB)
    100% |#####| 81kB 528kB/s
Collecting numpy (from face_recognition)
  Using cached https://files.pythonhosted.org/packages/b5/11/82916e23836a37c0d76babf74a7ca6f7b4fedd0814eaa166aacc2318b87c/numpy-1.16.1-cp36-cp36m-win_amd64.whl
Collecting Pillow (from face_recognition)
  Using cached https://files.pythonhosted.org/packages/ec/ca/7af5b6628ecf770645f8cc3c9da3c2bb5c5ffc7384a9ff0666fdb818b4d5/Pillow-5.4.1-cp36-cp36m-win_amd64.whl
Collecting face-recognition-models>=0.3.0 (from face_recognition)
```

Numpy issue (版本問題)

C:\Windows\system32\cmd.exe - python

```
(facerecog-demo) D:\FaceRecognition\facerecog-demo-home>python
Python 3.6.8 |Anaconda, Inc.| (default, Feb 11 2019, 15:03:47) [MSC v.1915 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>> import face_recognition
```

```
Traceback (most recent call last):
```

```
File "D:\ProgramData\Anaconda3\envs\facerecog-demo\lib
```

```
from . import multiarray
```

```
File "D:\ProgramData\Anaconda3\envs\facerecog-demo\lib
```

```
from . import overrides
```

```
File "D:\ProgramData\Anaconda3\envs\facerecog-demo\lib
```

```
from numpy.core.multiarray_umath import *
```

```
ImportError: DLL load failed: 找不到指定的模組。
```

```
During handling of the above exception, another exception
```

C:\Windows\system32\cmd.exe - python

```
raise ImportError(msg)
```

```
ImportError:
```

```
IMPORTANT: PLEASE READ THIS FOR ADVICE ON HOW TO SOLVE THIS ISSUE!
```

```
Importing the multiarray numpy extension module failed. Most
```

```
likely you are trying to import a failed build of numpy.
```

```
Here is how to proceed:
```

```
- If you're working with a numpy git repository, try `git clean -xdf`  
(removes all files not under version control) and rebuild numpy.
```

```
- If you are simply trying to use the numpy version that you have installed:  
your installation is broken - please reinstall numpy.
```

C:\Windows\system32\cmd.exe - conda install numpy

```
(facerecog-demo) D:\FaceRecognition\facerecog-demo-home>conda install numpy
```

```
Collecting package metadata: done
```

```
Solving environment: done
```

```
==> WARNING: A newer version of conda exists. <==
```

```
current version: 4.6.2
```

```
latest version:
```

C:\Windows\system32\cmd.exe - conda install numpy - python

```
(facerecog-demo) D:\FaceRecognition\facerecog-demo-home>python
```

```
Python 3.6.8 |Anaconda, Inc.| (default, Feb 11 2019, 15:03:47) [MSC v.1915 64 bit (AMD64)] on win32
```

```
Type "help", "copyright", "credits" or "license" for more information.
```

```
>>> import face_recognition
```

```
>>>
```


建立臉部辨識模組環境

- 將下載的 github 檔案解壓縮到 facerecog-demo 下
- 試一下 `face_detection ./examples`
- (注意，這些解壓縮檔案其實用不到，剛剛流程中已經安裝了需要的模組了，但就放著吧，之後要研究用的)

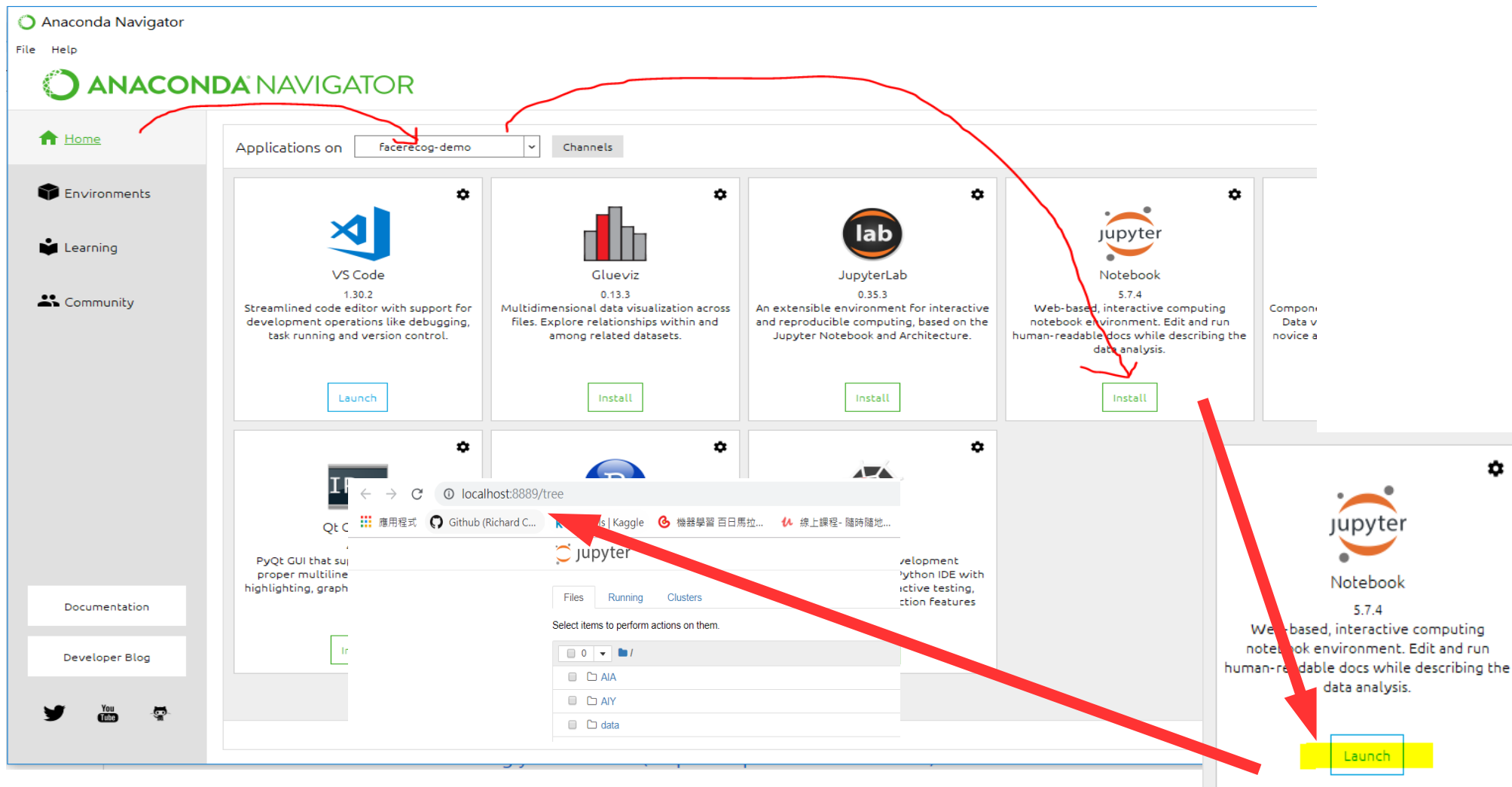
```
C:\Windows\system32\cmd.exe - conda install numpy

(facerecog-demo) D:\FaceRecognition\facerecog-demo-home>face_detection ./examples
./examples\alex-lacamoire.png,134,353,313,174
./examples\bidon.jpg,233,749,542,439
./examples\lin-manuel-miranda.png,164,577,474,267
./examples\obama-1080p.jpg,136,1140,394,882
./examples\obama-240p.jpg,29,261,101,189
./examples\obama-480p.jpg,65,507,189,383
./examples\obama-720p.jpg,94,751,273,572
./examples\obama.jpg,136,624,394,366
./examples\obama2.jpg,302,474,611,164
./examples\obama_small.jpg,65,215,169,112
./examples\two_people.jpg,62,394,211,244
./examples\two_people.jpg,95,941,244,792

(facerecog-demo) D:\FaceRecognition\facerecog-demo-home>
```

在這個環境下 安裝 jupyter

- 修改起始路徑 <https://www.zhihu.com/question/31600197>
- 完成後執行

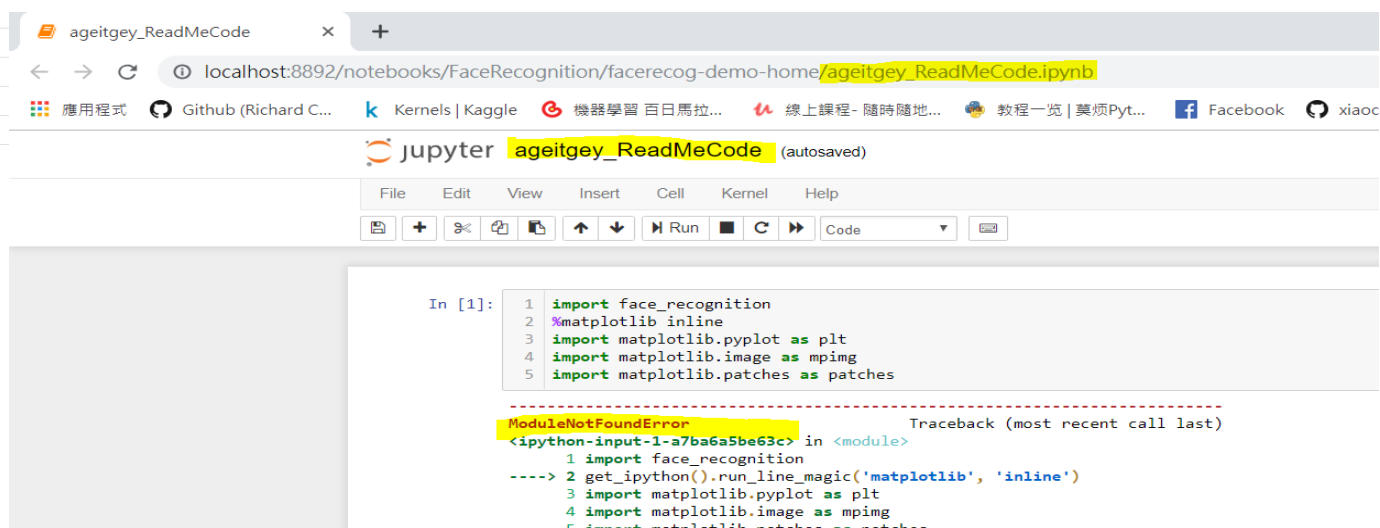
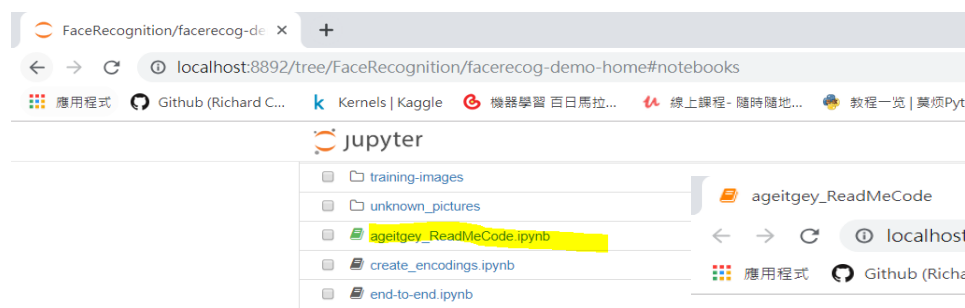


新增程式，補齊套件

- 下載 Richard 的 code

<https://github.com/richardchiujang/facerecognition>

- 解壓縮放到 facerecog-demo-home 路徑下
相同檔名跳過、忽略皆可
- 執行 ageitgey_ReadMeCode.ipynb



補齊套件

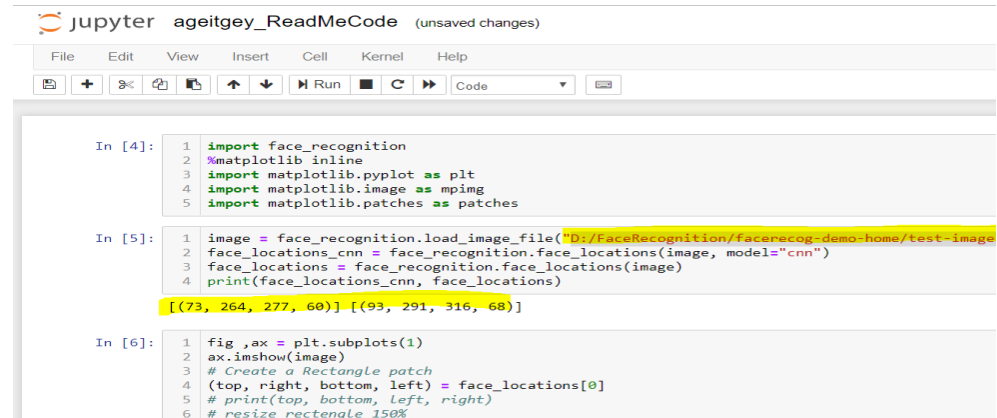
- 執行 ageitgey_ReadMeCode.ipynb

```
D:\ProgramData\Anaconda3\envs\facerecog-demo\lib\site-packages\IPython\core\pylabt
ct)
274     """
275
--> 276     import matplotlib
277
278     if gui and gui != 'auto':
ModuleNotFoundError: No module named 'matplotlib'
```

- 錯誤代表找不到 matplotlib 套件，我們還沒裝。

回終端機繼續安裝

- conda install matplotlib
- 完成後再次執行
- (可能！要改檔案路徑)



```
jupyter ageitgey_ReadMeCode (unsaved changes)
File Edit View Insert Cell Kernel Help
+ -> Run Code

In [4]: 1 import face_recognition
        2 %matplotlib inline
        3 import matplotlib.pyplot as plt
        4 import matplotlib.image as mpimg
        5 import matplotlib.patches as patches

In [5]: 1 image = face_recognition.load_image_file("D:/FaceRecognition/facerecog-demo-home/test-image.jpg")
        2 face_locations_cnn = face_recognition.face_locations(image, model="cnn")
        3 face_locations = face_recognition.face_locations(image)
        4 print(face_locations_cnn, face_locations)
        [(73, 264, 277, 60)] [(93, 291, 316, 68)]

In [6]: 1 fig,ax = plt.subplots(1)
        2 ax.imshow(image)
        3 # Create a Rectangle patch
        4 (top, right, bottom, left) = face_locations[0]
        5 # print(top, bottom, left, right)
        6 # resize rectangle 150%
```

附註

- `conda install xxx(package_name)`
`pip install xxx(package_name)`
- 在 anaconda 環境中，為了減少版本衝突，在 `conda install` 正常運作的狀況下，建議都使用 `conda install`。也就是說某些時候 `conda install` 不管用時，再去試試 `pip install` 比較不會出槌
- 像是 `dlib` 用 `conda install` 就搞不定，為了簡化問題，直接下載 `dlib-xxx.whl` 來安裝

附註 2

- OPENCV 裝法
 - `pip install opencv-python`
- `ModuleNotFoundError: No module named 'sklearn'`
 - `conda install -c anaconda scikit-learn`
- `ModuleNotFoundError: No module named 'pandas'`
 - `conda install pandas`

作業

- 請執行並研究其他的 richard code
 - 有學習請記下來分享
 - 有問題請記下來提問
- 如果順利，請做到每一隻程式 (ipynb) 都可以執行，
並建立自己的資料與訓練結果
- 請研讀 Face Recognition 人脸识别
- 請研讀 用深度学习识别人脸

附贈

- 機器學習 百日馬拉松
業界專家陪你升級打怪 講義 (更新至 D48 集)

The screenshot shows the GitHub interface for the repository 'richardchiujang / ML100-Days'. At the top, there are buttons for 'Watch' (0), 'Star' (0), and 'Fork' (0). Below these are tabs for 'Code', 'Issues' (0), 'Pull requests' (0), 'Projects' (0), 'Wiki', 'Insights', and 'Settings'. The 'Code' tab is selected, showing the file structure. The current view is 'Branch: master' and the path is 'ML100-Days / materials /'. At the top right of the file list, there are buttons for 'Create new file', 'Upload files', 'Find file', and 'History'. The file list shows a commit by 'richardchiujang' with the message 'add materials' and a commit hash '84be250' from 'a day ago'. Below this, there are five files listed:

File Name	Path	Commit Time
..		
D001-010_attachment.txt	course materials	22 days ago
D001_資料介紹與評估指標.pdf	course materials	22 days ago
D002_EDA-1讀取資料 EDA Data summary.pdf	course materials	22 days ago
D003_3-1如何新建一個 dataframe 3-2 如何讀取其他資料.pdf	course materials	22 days ago
D004_EDA 欄位的資料類型介紹及處理.pdf	course materials	22 days ago