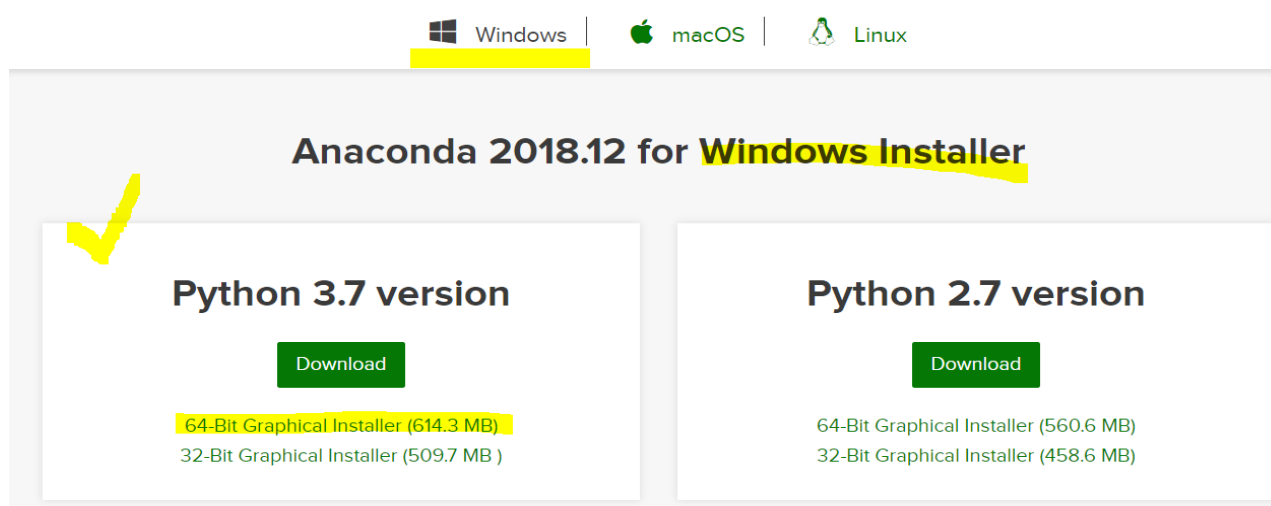


AI DL 讀書會

手把手安裝環境

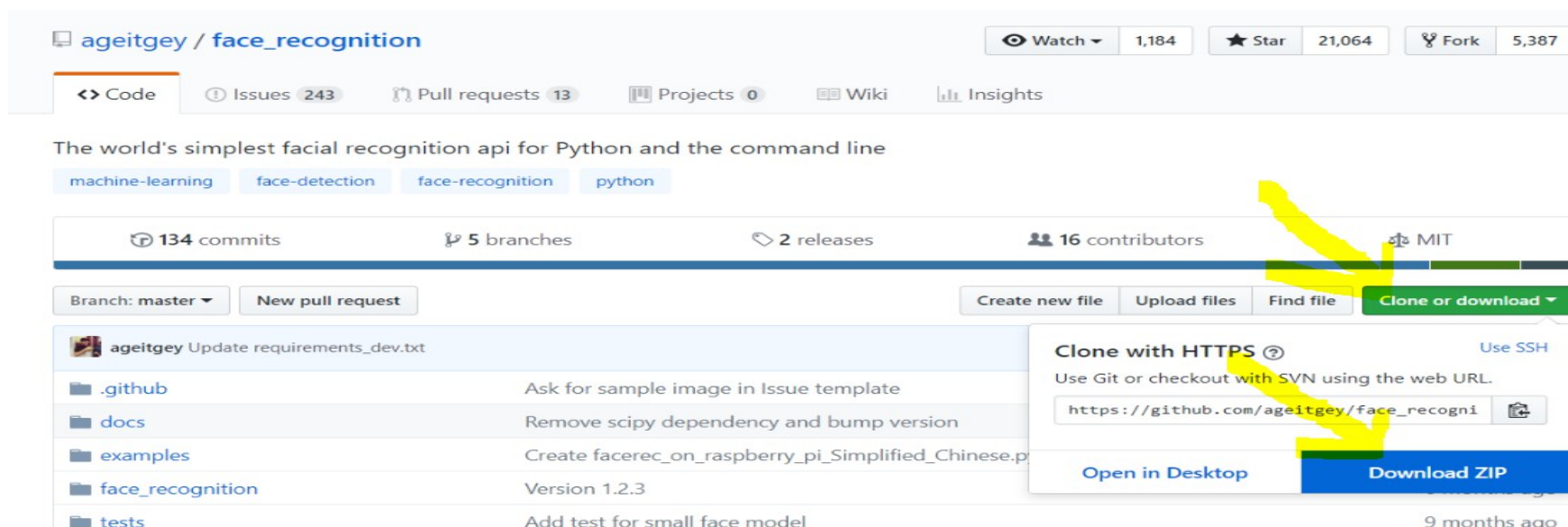
安裝 anaconda

- 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)



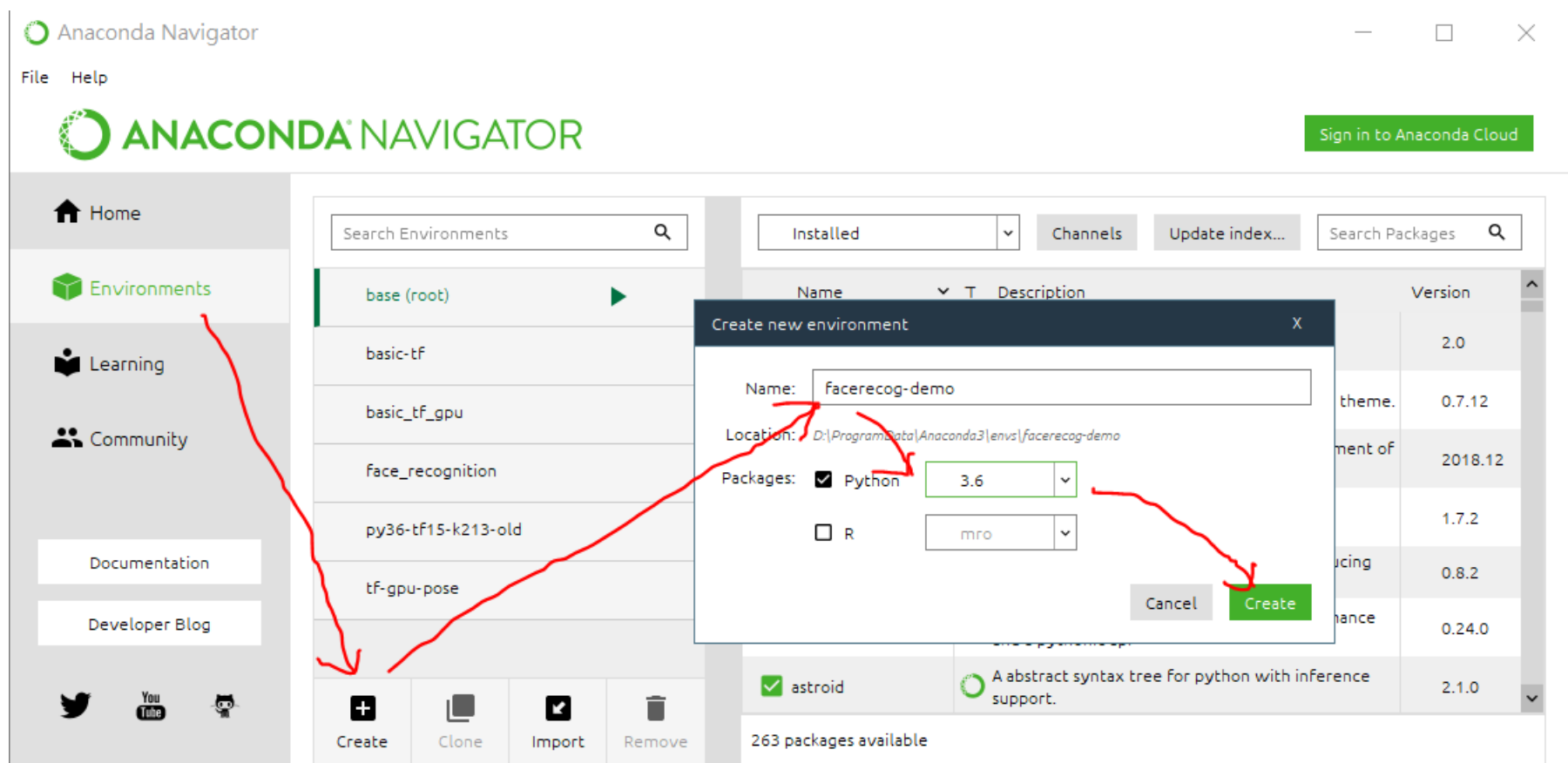
anaconda 建立虛擬環境

- 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



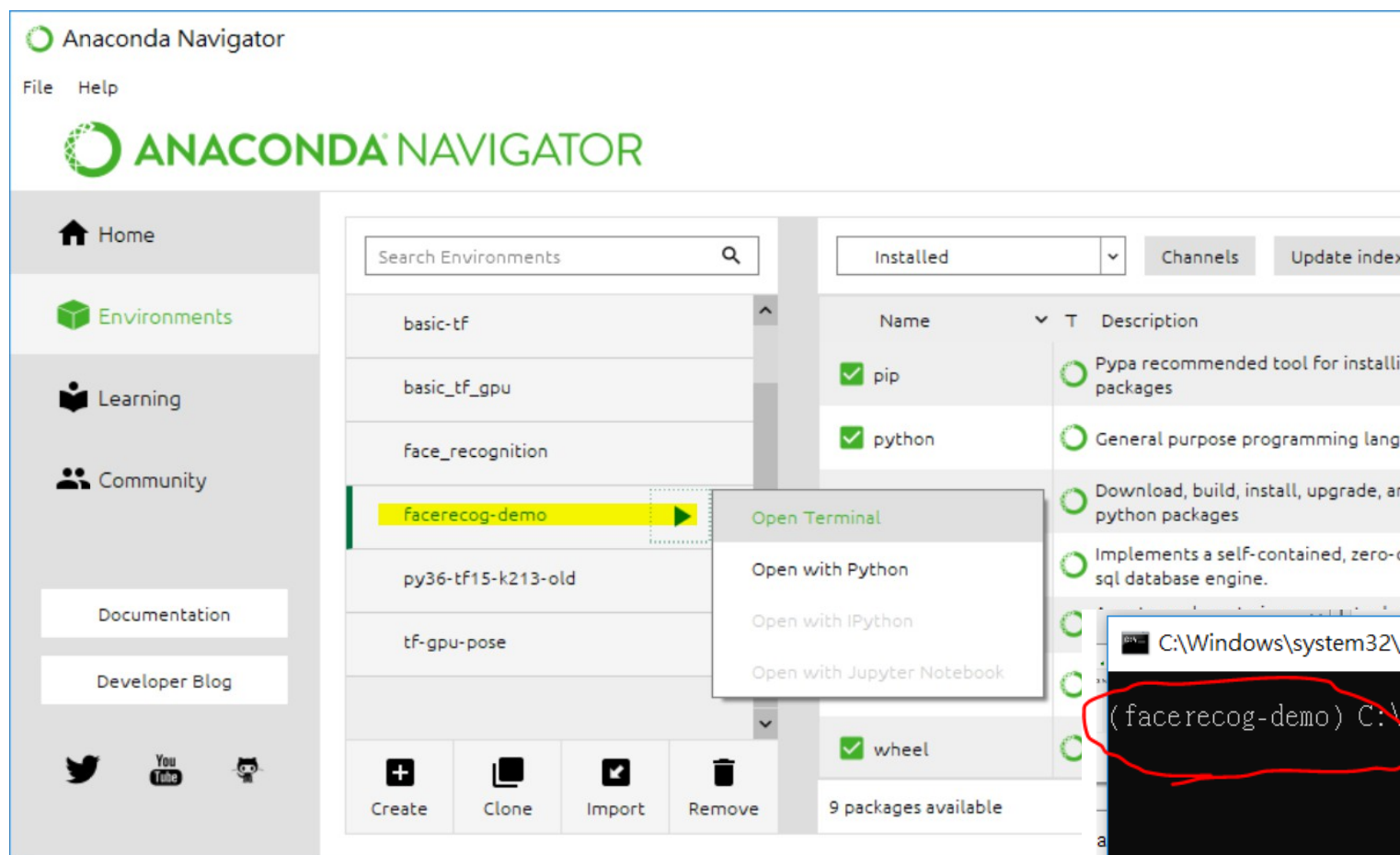
建立臉部辨識模組環境

- 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)



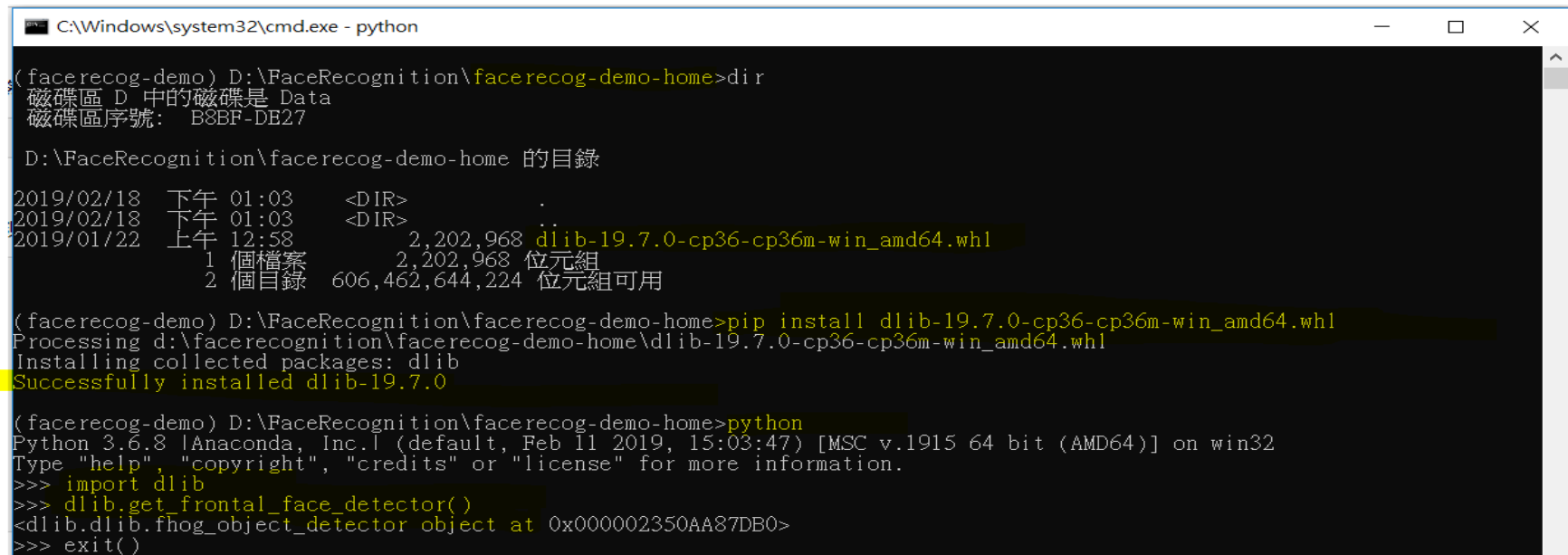
建立臉部辨識模組環境

- 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

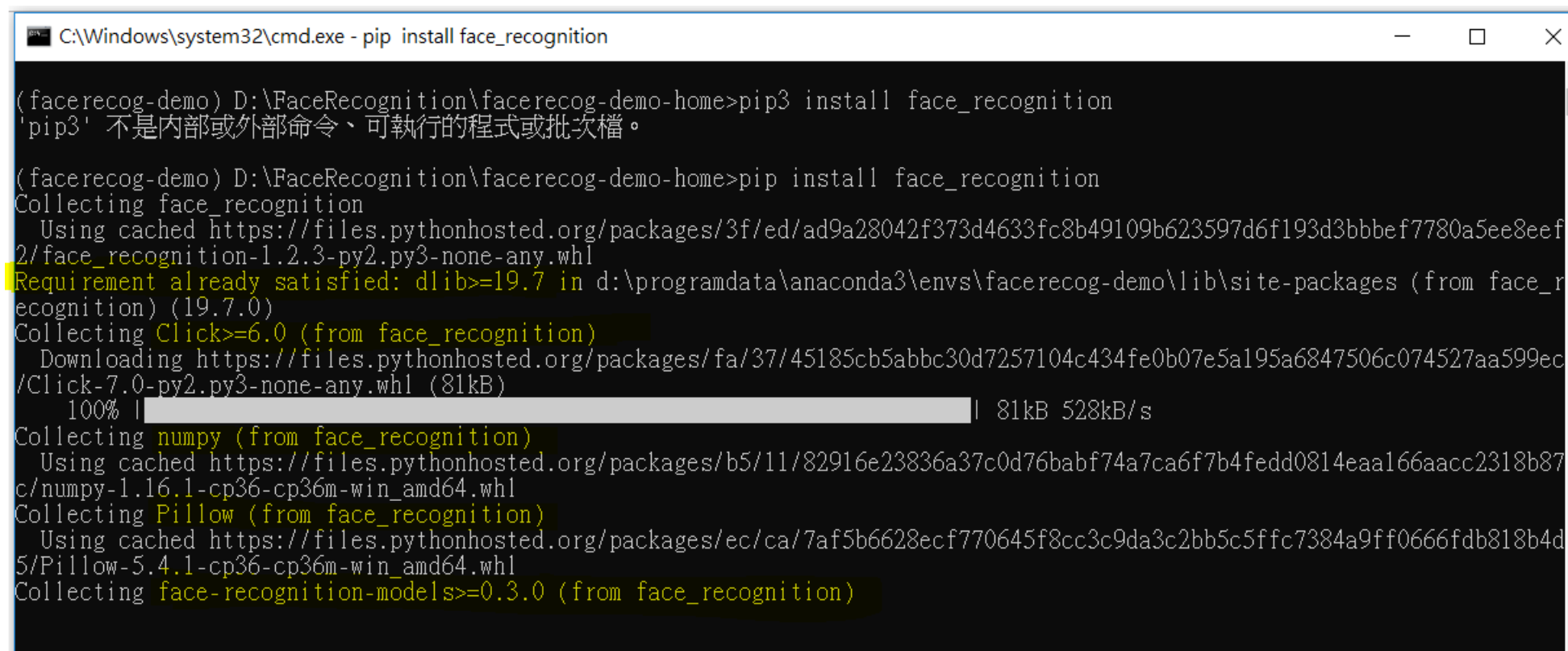
D:\FaceRecognition\facerecog-demo-home 的目錄
2019/02/18 下午 01:03 <DIR> .
2019/02/18 下午 01:03 <DIR> ..
2019/01/22 上午 12:58 2,202,968 dlib-19.7.0-cp36-cp36m-win_amd64.whl
1 個檔案 2,202,968 位元組
2 個目錄 606,462,644,224 位元組可用

(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)

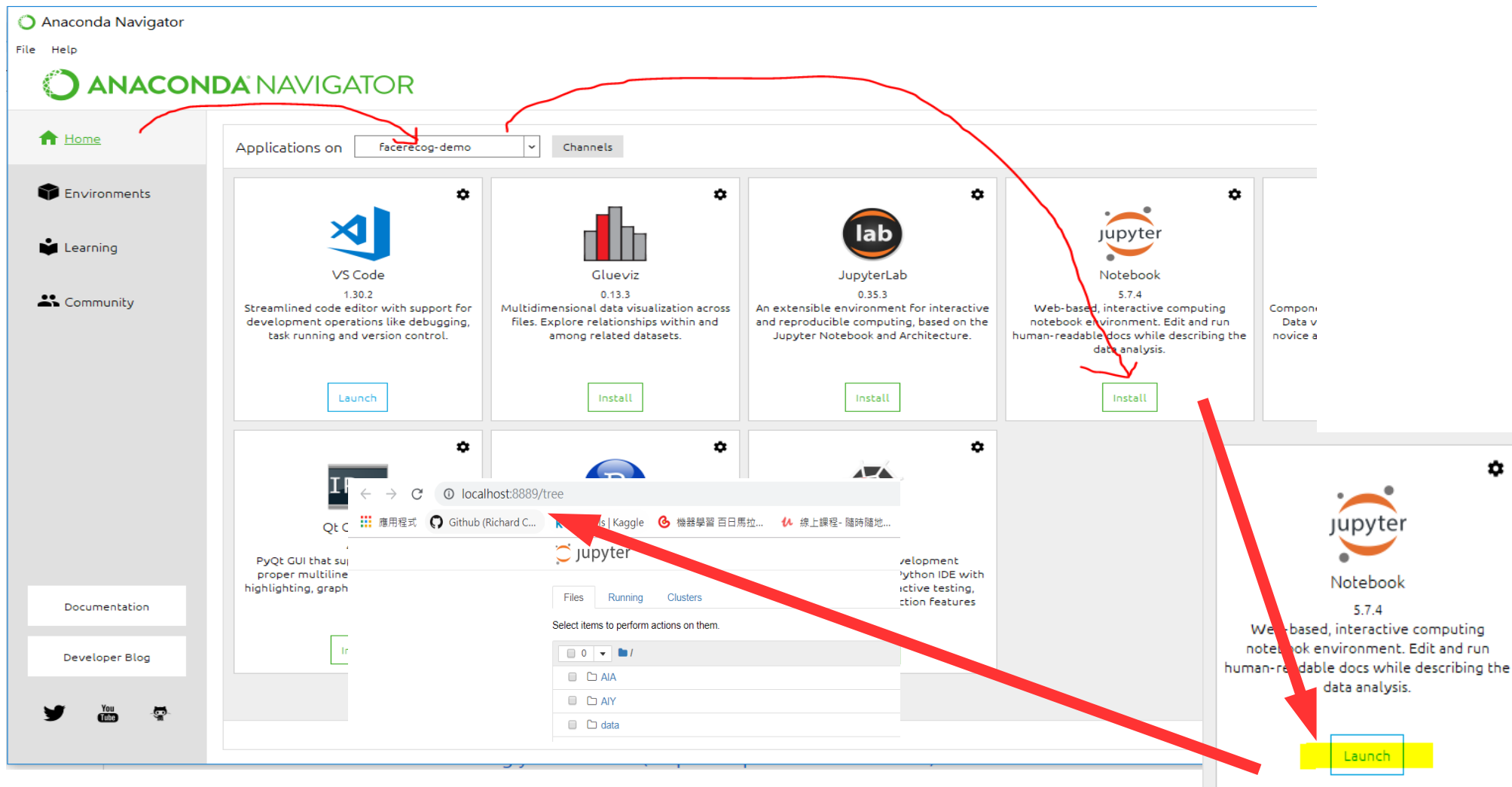
```
C:\Windows\system32\cmd.exe - conda install numpy

(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

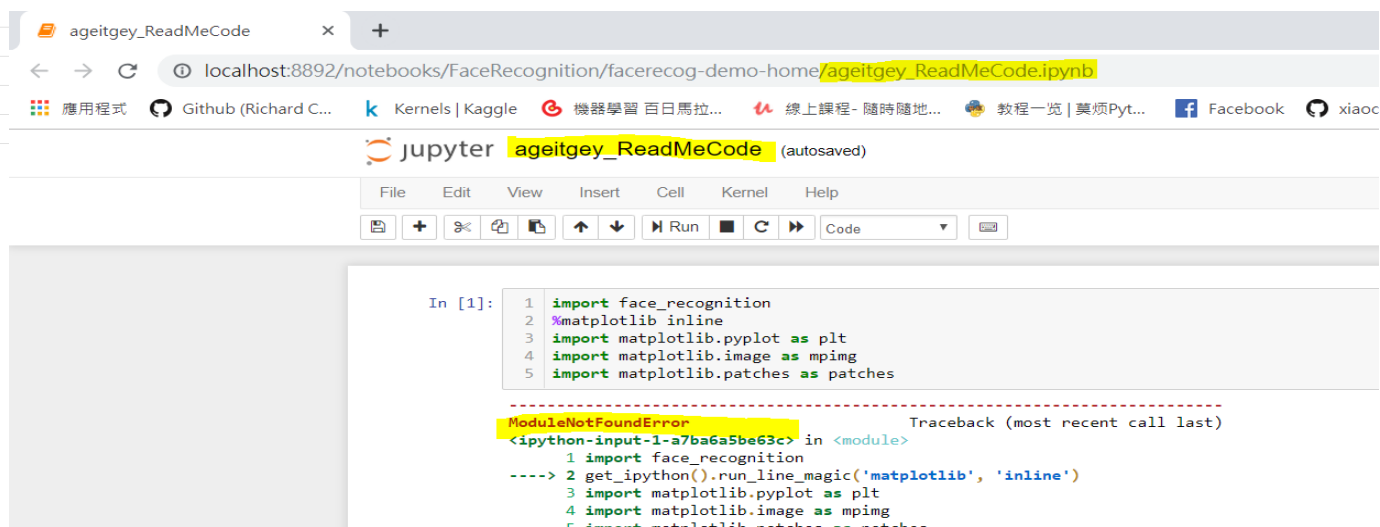
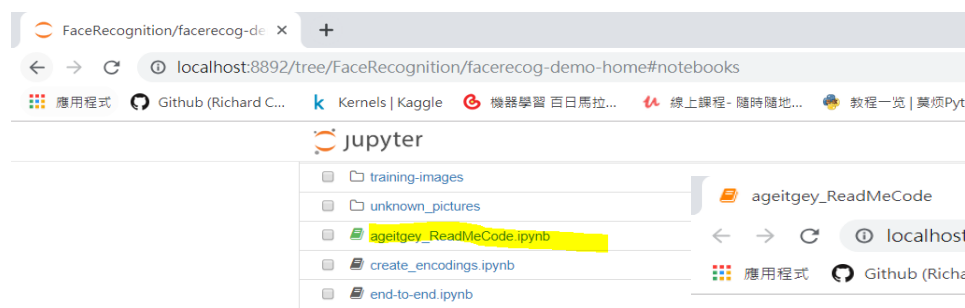


新增程式，補齊套件

- 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

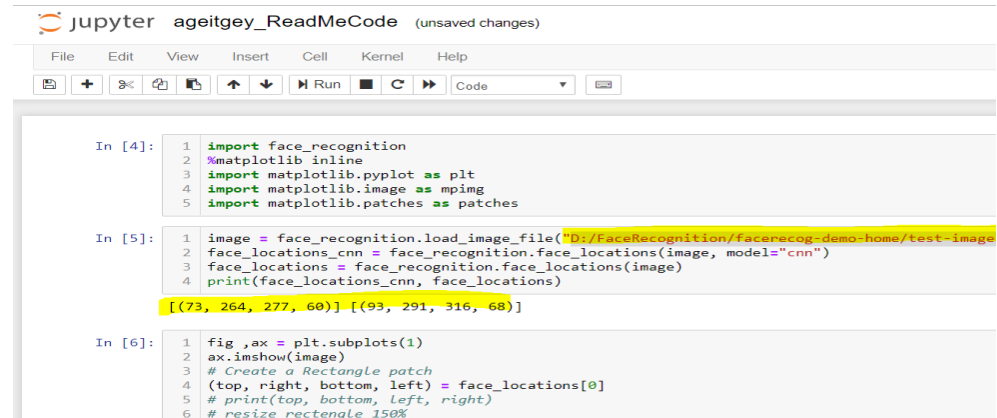
- 執行 ageitgey_ReadMeCode.ipynb

```
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)



The screenshot shows a Jupyter Notebook titled 'ageitgey_ReadMeCode' with unsaved changes. The interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Help) and a toolbar with icons for file operations, running, and saving. The code is organized into three input cells:

- In [4]:** Imports the 'face_recognition' module and uses '%matplotlib inline' to display plots. It also imports 'pyplot' as 'plt', 'image' as 'mpimg', and 'patches' as 'patches' from 'matplotlib'.
- In [5]:** Loads an image file from 'D:/FaceRecognition/facerecog-demo-home/test-image'. It uses 'face_recognition.face_locations' to find faces in the image, specifying the 'cnn' model. The output shows two face locations: [(73, 264, 277, 60)] and [(93, 291, 316, 68)].
- In [6]:** Creates a subplot and displays the image. It then creates a rectangle patch around the first face location and resizes the rectangle to 150% of its original size.

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