

如何使用PyInstaller打包Python代碼為執行檔

[pyinstaller](#) [python](#) [anaconda](#)



[a26833765](#) 2020-03-23 15:48:37 · 2075 瀏覽

上週五好不容易用Python內建的Tkinter將操作介面拉好且測試OK，沒想到在打包成執行檔(.exe)這邊花了一個上午，所以紀錄一下自己的碰壁流程。

工作環境:

-Windows 10, Windows Server 2019

-Anaconda 2020.02

-Python 3.6.10

問題描述:

- 如何用PyInstaller打包Python代碼為執行檔(.exe)
- 打包過程碰上的問題以及如何排除

1. 先安裝PyInstaller:

```
pip install pyinstaller
```

2. 打開Anaconda Prompt (anaconda3)，並且將當前位置切至.py檔存放路徑:

```
cd C:\Users\*\Documents\GUI-20200323
```

3. 輸入打包代碼，我要打包的是main.py。一般的教程都只到這邊就停了，但後面才蛋疼:

```
pyinstaller main.py
```

4. 問題:RecursionError: maximum recursion depth exceeded

```
File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\ast.py", 1
ine 253, in visit
    return visitor(node)
File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\ast.py", 1
ine 263, in generic_visit
    self.visit(value)
File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\ast.py", 1
ine 253, in visit
    return visitor(node)
File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\ast.py", 1
ine 263, in generic_visit
    self.visit(value)
File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\ast.py", 1
ine 253, in visit
    return visitor(node)
File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\ast.py", 1
ine 263, in generic_visit
    self.visit(value)
File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\ast.py", 1
ine 253, in visit
    return visitor(node)
File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\ast.py", 1
ine 257, in generic_visit
    for field, value in iter_fields(node):
RecursionError: maximum recursion depth exceeded
```

突然蹦出這些有的沒的，解決方法很簡單，看一下.py檔存放路徑是不是出現了main.spec
這個由PyInstaller自動產生的配置文件，用筆記本打開後新增下面兩行代碼後儲存離開，
然後保險起見將build和dist兩個資料夾刪除：

原因在於超過遞迴限制，我也看不懂這什麼意思。[\[8\]](#)

```
# -*- mode: python ; coding: utf-8 -*-
import sys #我是新增的
sys.setrecursionlimit(9000000) #我是新增的，這邊數字越大越好
block_cipher = None

a = Analysis(['main.py'],
             pathex=['C:\\Users\\*\\Documents\\GUI-20200323'],
             binaries=[],
             datas=[],
             hiddenimports=[],
             hookspath=[],
             runtime_hooks=[],
             excludes=[],
             win_no_prefer_redirects=False,
             win_private_assemblies=False,
             cipher=block_cipher,
             noarchive=False)
```

5. 執行配置文件main.spec進行打包

解決上個問題後我們輸入下列代碼來重新製作執行檔，這次我們是要執行自訂的配置檔案.spec，PyInstaller會遵循.spec指定規範進行打包：

```
pyinstaller main.spec
```

6-1. 閃退問題以及如何查詢原因(pkg_resources.py2_warn)

等了一會兒後終於跑完了：

```
113390 INFO: checking EXE
113390 INFO: Building EXE because EXE-00.toc is non existent
113391 INFO: Building EXE from EXE-00.toc
113391 INFO: Appending archive to EXE C:\Users\*\Documents\GUI-20200323\build\main\main.exe
113486 INFO: Building EXE from EXE-00.toc completed successfully.
113501 INFO: checking COLLECT
113502 INFO: Building COLLECT because COLLECT-00.toc is non existent
113502 INFO: Building COLLECT COLLECT-00.toc
184733 INFO: Building COLLECT COLLECT-00.toc completed successfully.
```

我們來看看main.exe是不是可以正常地打開吧，main.exe的位置在：

```
C:\Users\*\Documents\GUI-20200323\dist\main\main.exe
```

但是等等，為什麼會閃退!!!原來打包成功並不等於.exe可以順利執行呀。既然這樣那我們改用終端機來開啟.exe，這樣就能知道程是閃退的原因了[1]:

```
(keras4) C:\Users\*\Documents\GUI-20200323>cd C:\Users\*\Documents\GUI-20200323
\dist\main #切換路徑到main.exe的位置
(keras4) C:\Users\*\Documents\GUI-20200323\dist\main>main.exe #執行
Traceback (most recent call last):
  File "site-packages\PyInstaller\loader\rthooks\pyi_rth_pkgres.py", line 13, i
n <module>
    File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\site-packa
ges\PyInstaller\loader\pyimod03_importers.py", line 623, in exec_module
        exec(bytecode, module.__dict__)
    File "site-packages\pkg_resources\__init__.py", line 86, in <module>
ModuleNotFoundError: No module named 'pkg_resources.py2_warn' # 這個是問題來源
[15208] Failed to execute script pyi_rth_pkgres
(keras4) C:\Users\*\Documents\GUI-20200323\dist\main>
```

原來是因為PyInstaller再打包過程中漏掉pkg_resources.py2_warn導致產生的.exe無法順利執行。這時我們再次開啟配置文件.spec，手動添加pkg_resources.py2_warn吧，記得再次執行main.spec前要先刪掉build、dist兩個資料夾[2][3][4]:

```
# -*- mode: python ; coding: utf-8 -*-
import sys
sys.setrecursionlimit(9000000)
block_cipher = None

a = Analysis(['main.py'],
             pathex=['C:\\Users\\*\\Documents\\GUI-20200323'],
             binaries=[],
             datas=[],
             hiddenimports=['pkg_resources.py2_warn'], #我是新增的
             hookspath=[],
             runtime_hooks=[],
             excludes=[],
             win_no_prefer_redirects=False,
             win_private_assemblies=False,
             cipher=block_cipher,
             noarchive=False)
```

```
pyinstaller main.spec
```

6-2. 閃退問題以及如何查詢原因 (sklearn.utils._cython_blas)

現在我們再次執行.exe，結果又閃退了...，沒關係我們用上面講的方法，透過終端機來執行.exe檔就能知道問題了：

```
(keras4) C:\Users\*\Documents\GUI-20200323>cd C:\Users\*\Documents\GUI-20200323
\dist\main #切換路徑到main.exe的位置
(keras4) C:\Users\*\Documents\GUI-20200323\dist\main>main.exe # 執行
Traceback (most recent call last):
  File "main.py", line 3, in <module>
    File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\site-packa
ges\PyInstaller\loader\pyimod03_importers.py", line 623, in exec_module
    exec(bytecode, module.__dict__)
  File "mylib.py", line 10, in <module>
    File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\site-packa
ges\PyInstaller\loader\pyimod03_importers.py", line 623, in exec_module
    exec(bytecode, module.__dict__)
  File "site-packages\sklearn\linear_model\__init__.py", line 12, in <module>
    File "c:\users\*\appdata\local\continuum\anaconda3\envs\keras4\lib\site-packa
ges\PyInstaller\loader\pyimod03_importers.py", line 623, in exec_module
    exec(bytecode, module.__dict__)
  File "site-packages\sklearn\linear_model\_least_angle.py", line 22, in <modul
e>
    File "sklearn\utils\arrayfuncs.pyx", line 1, in init sklearn.utils.arrayfuncs
ModuleNotFoundError: No module named 'sklearn.utils._cython_blas'# 這個是問題來
源
[11656] Failed to execute script main

(keras4) C:\Users\*\Documents\GUI-20200323\dist\main>
```

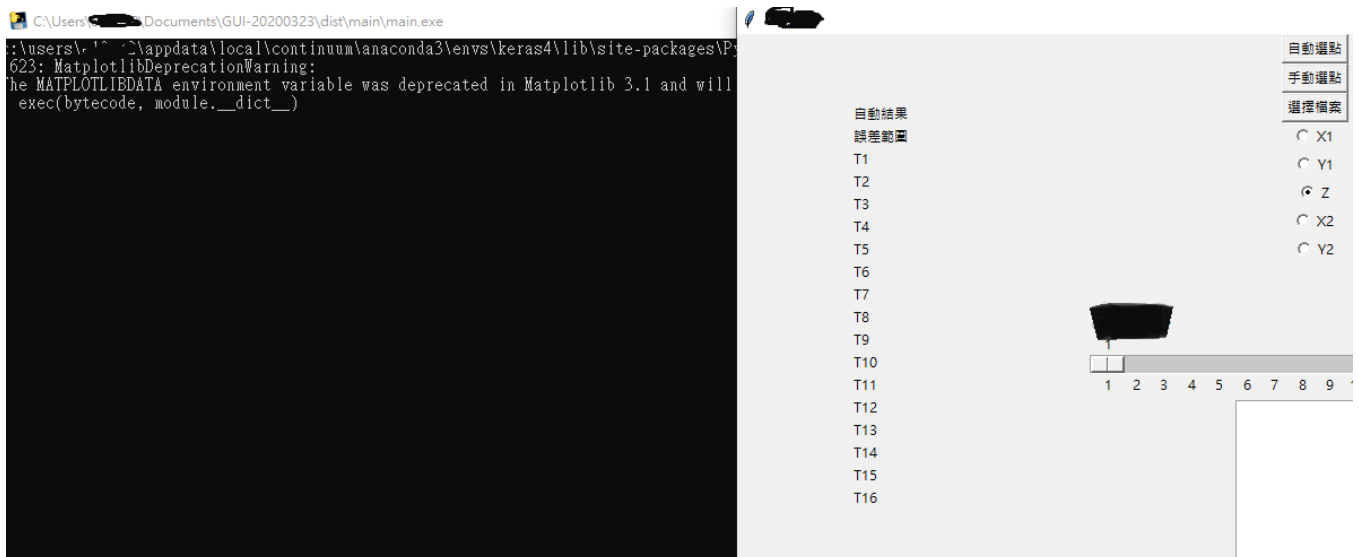
這次是打包過程中漏掉sklearn.utils._cython_blas，PyInstaller你這個小淘氣~:

```
# -*- mode: python ; coding: utf-8 -*-
import sys
sys.setrecursionlimit(9000000)
block_cipher = None

a = Analysis(['main.py'],
             pathex=['C:\\Users\\*\\Documents\\GUI-20200323'],
             binaries=[],
             datas=[],
             hiddenimports=['pkg_resources.py2_warn', 'sklearn.utils._cython_bl
as'], # 再加1個
             hookspath=[],
             runtime_hooks=[],
             excludes=[],
             win_no_prefer_redirects=False,
             win_private_assemblies=False,
             cipher=block_cipher,
             noarchive=False)
```

7. 收工

根據孟母三遷原理，我們終於順利打包完成並且可以執行main.exe了(灑花)。然後你的螢幕會彈出辛苦拉的視窗以及一個黑色畫面，消除黑色畫面的方法很簡單，只要依照下面代碼位置方式修改.spec檔後再次打包即可。



```
a = Analysis(['main.py'],
             pathex=['C:\\Users\\*\\Documents\\GUI-20200323'],
             binaries=[],
             datas=[],
             hiddenimports=['pkg_resources.py2_warn', 'sklearn.utils._cython_bl
as'],
             hookspath=[],
             runtime_hooks=[],
             excludes=[],
             win_no_prefer_redirects=False,
             win_private_assemblies=False,
             cipher=block_cipher,
             noarchive=False)
pyz = PYZ(a.pure, a.zipped_data,
          cipher=block_cipher)
exe = EXE(pyz,
          a.scripts,
          [],
          exclude_binaries=True,
          name='main',
          debug=False,
          bootloader_ignore_signals=False,
          strip=False,
          upx=True,
          console=False # console要從True改成False)
```

結論:

- 打包完成不等於可以順利運行.exe檔
- PyInstaller的打包方式是由.spec定義
- 我們可以自定義.spec
- 如果有引用第三方套件(Numpy、Pandas等等)，容易有漏打包問題，導致執行檔有閃退問題
- 用終端機執行.exe來確認閃退原因
- 每次自動打包前都要刪掉資料夾build、資料夾dist、配置文件.spec，以確保遺毒消除
- 每次手動打包前都要刪掉資料夾build、資料夾dist，以確保遺毒消除
- 補一下最後的main.spec代碼，可以拿來跟下一篇比較


```
# -*- mode: python ; coding: utf-8 -*-
import sys # 這邊要注意
sys.setrecursionlimit(9000000) # 這邊要注意
block_cipher = None

a = Analysis(['main.py'],
             pathex=['C:\\Users\\e10832\\Documents\\GUI-20200323'],
             binaries=[],
             datas=[],
             hiddenimports=['pkg_resources.py2_warn', 'sklearn.utils._cython_bl
as'], # 這邊要注意
             hookspath=[],
             runtime_hooks=[],
             excludes=[],
             win_no_prefer_redirects=False,
             win_private_assemblies=False,
             cipher=block_cipher,
             noarchive=False)
pyz = PYZ(a.pure, a.zipped_data,
          cipher=block_cipher)
exe = EXE(pyz,
          a.scripts,
          [],
          exclude_binaries=True,
          name='main',
          debug=False,
          bootloader_ignore_signals=False,
          strip=False,
          upx=True,
          console=True )# 命令視窗開啟(True)
coll = COLLECT(exe,
                a.binaries,
                a.zipfiles,
                a.datas,
                strip=False,
                upx=True,
                upx_exclude=[],
                name='main')
```

參考資料:

[1]https://blog.csdn.net/weixin_41417982/article/details/82216363

[2]https://blog.csdn.net/qq_40587575/article/details/86500445

[3]<https://blog.csdn.net/j754379117/article/details/77281354>

[4]<https://medium.com/@peaceful0907/%E5%B0%87%E4%BD%A0%E7%9A%84pytho>

n-code-%E6%89%93%E5%8C%85-pyinstaller-6777d0e06f58

[5]<https://zhuanlan.zhihu.com/p/58199926>

[6]<https://zhuanlan.zhihu.com/p/40716095>

[7]<https://zhuanlan.zhihu.com/p/76974787>

[8]<https://xken831.pixnet.net/blog/post/463075799-%5Bpython%5D-%E8%A7%A3%E6%B1%BA-recursionerror%3A-maximum-recursion-depth-exce>