

파이썬으로 배우는 AI 로봇

파이썬 응용실습

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주요 내용

- ▶ 남성, 여성 분류
- ▶ 고양이, 강아지 분류

파이썬 패키지 설치

```
$pip install jupyter notebook    # for jupyter
$pip install image                # for PIL
$pip install matplotlib          # for show image
$pip install tensorflow           # for tensorflow cpu
$pip install --upgrade tensorflow
$pip install sklearn             # for data split
$pip install keras               # for optimizer
```

파이썬 패키지

```
C:\Users\solro>pip install jupyter notebook
Collecting jupyter
  Using cached jupyter-1.0.0-py2.py3-none-any.whl (2.7 kB)
Collecting notebook
  Using cached notebook-6.4.6-py3-none-any.whl (9.9 MB)
Collecting jupyter-console
  Using cached jupyter_console-6.4.0-py3-none-any.whl (22 kB)
```

```
C:\Users\solro>pip install image
Collecting image
  Downloading image-1.5.33.tar.gz (15 kB)
  Preparing metadata (setup.py) ... done
Collecting pillow
  Downloading Pillow-8.4.0-cp310-cp310-win_amd64.whl (3.2 MB)
  | 3.2 MB 6.4 MB/s
```

```
C:\Users\solro>pip install matplotlib
Collecting matplotlib
  Downloading matplotlib-3.5.1-cp310-cp310-win_amd64.whl (7.2 MB)
  | 7.2 MB 6.4 MB/s
Requirement already satisfied: packaging>=20.0 in c:\pythonpro\python3\lib\site-packages (from matplotlib) (21.3)
Requirement already satisfied: numpy>=1.17 in c:\pythonpro\python3\lib\site-packages (from matplotlib) (1.21.4)
Requirement already satisfied: pillow>=6.2.0 in c:\pythonpro\python3\lib\site-packages (from matplotlib) (8.4.0)
Collecting fonttools>=4.22.0
  Downloading fonttools-4.28.5-py3-none-any.whl (890 kB)
  | 890 kB 6.4 MB/s
```

파이썬 패키지

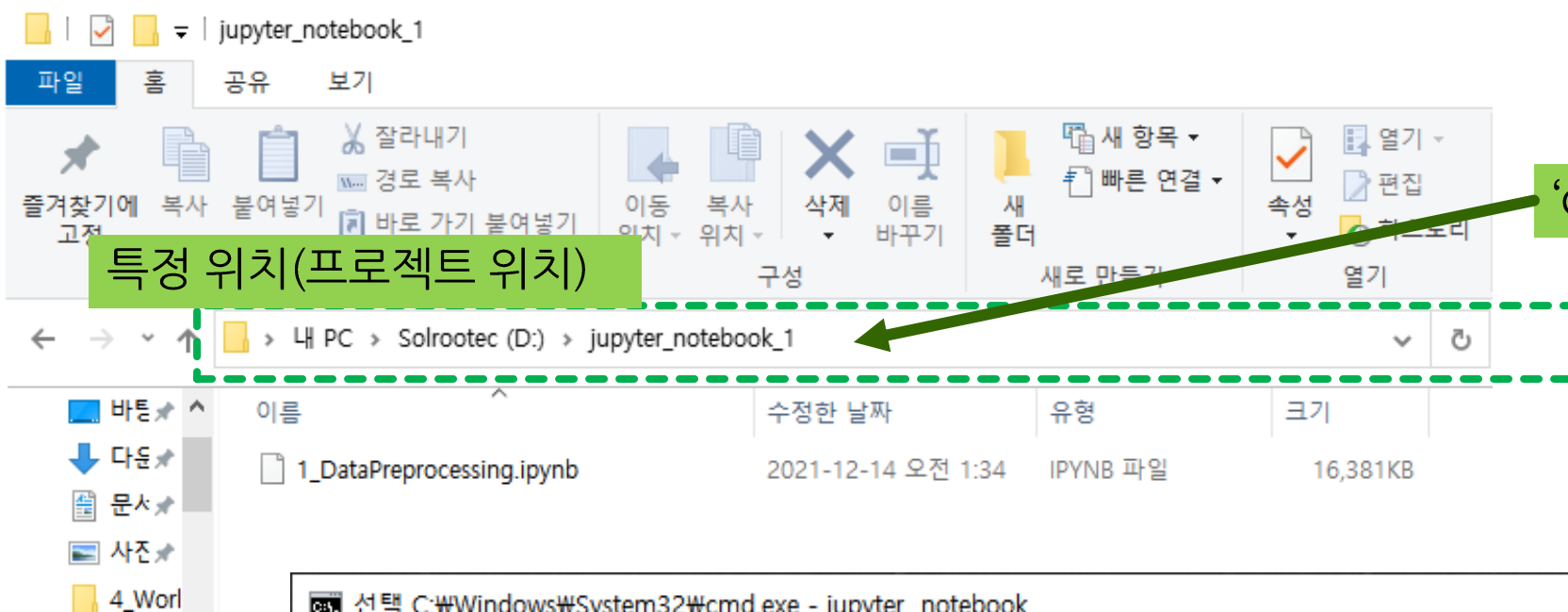
```
C:\Users\solro>pip install tensorflow
Collecting tensorflow
  Downloading tensorflow-2.7.0-cp39-cp39-win_amd64.whl (430.8 MB)
    | 32.6 MB 6.4 MB/s eta 0:01:03
```

```
C:\Users\solro>pip install --upgrade tensorflow
Requirement already satisfied: tensorflow in c:\pythonpro\python39\lib\site-packages (2.7.0)
Requirement already satisfied: keras<2.8,>=2.7.0rc0 in c:\pythonpro\python39\lib\site-packages (from tensorflow) (2.7.0)
Requirement already satisfied: termcolor>=1.1.0 in c:\pythonpro\python39\lib\site-pack
```

```
C:\Users\solro>pip install sklearn
Collecting sklearn
  Downloading sklearn-0.0.tar.gz (1.1 kB)
  Preparing metadata (setup.py) ... done
Collecting scikit-learn
  Downloading scikit_learn-1.0.1-cp39-cp39-win_amd64.whl (7.2 MB)
    | 7.2 MB 3.2 MB/s
```

```
C:\Users\solro>pip install keras
Requirement already satisfied: keras in c:\pythonpro\python39\lib\site-packages (2.7.0)
```

주피터 특정 위치에서 실행



```
C:\Windows\System32\cmd.exe - jupyter notebook
Microsoft Windows [Version 10.0.19042.1415]
(c) Microsoft Corporation. All rights reserved.

D:\jupyter_notebook_1>jupyter notebook
[21:34:10.465 NotebookApp] Serving notebooks from local directory: D:\jupyter_notebook_1
[21:34:10.465 NotebookApp] Jupyter Notebook 6.4.6 is running at:
[21:34:10.465 NotebookApp] http://localhost:8888/?token=7aa55b8ca81ccd67586c8813942fcf24e3b6d4b19f49c2bf
[21:34:10.465 NotebookApp] or http://127.0.0.1:8888/?token=7aa55b8ca81ccd67586c8813942fcf24e3b6d4b19f49c2bf
```

주피터 사용법

Command & Edit mode

Shift + Enter: 코드 실행 + 다음셀 이동

Ctrl + Enter: 코드 실행 + 현재셀

Command mode

A: 위에 새 Cell 만들기

B: 아래에 새 Cell 만들기

X: 해당 Cell 삭제

Z: 바로 전 삭제 Cell 복원

Y: coding type 페이지

M: markdown type 페이지

<https://hogni.tistory.com/29>

<https://greeksharifa.github.io/references/2019/01/26/Jupyter-usage/>

<https://pasus.tistory.com/134>

Etc.

남성, 여성 분류



고양이, 강아지 분류

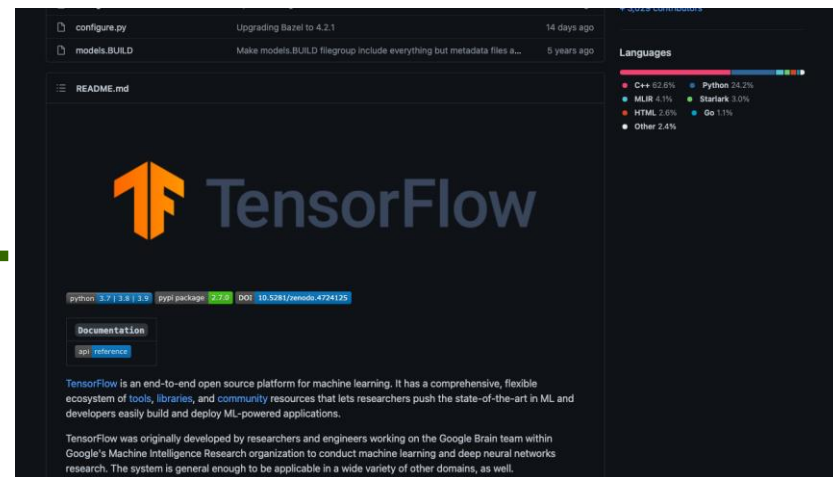
The screenshot shows a web browser window with the address bar at `localhost:8888/tree/AI_camera_2`. The JupyterLab interface has tabs for 'Files', 'Running', and 'Clusters'. The 'Files' tab is active, displaying a file tree for the directory `AI_camera_2`. The tree includes a parent directory `..` and several sub-items: `Data_Cat_Dog`, `Data_real`, `Model`, and four Jupyter Notebook files: `1_WiFi_camera_test.ipynb`, `2_model_train.ipynb`, `3_take_image.ipynb`, and `4_image_predict.ipynb`. Each item has a checkbox for selection and columns for 'Name', 'Last Modified', and 'File size'.

	Name	Last Modified	File size
<input type="checkbox"/>	..	몇 초 전	
<input type="checkbox"/>	Data_Cat_Dog	17시간 전	
<input type="checkbox"/>	Data_real	한 시간 전	
<input type="checkbox"/>	Model	한 시간 전	
<input type="checkbox"/>	1_WiFi_camera_test.ipynb	한 시간 전	1.63 kB
<input type="checkbox"/>	2_model_train.ipynb	한 시간 전	235 kB
<input type="checkbox"/>	3_take_image.ipynb	한 시간 전	2.42 kB
<input type="checkbox"/>	4_image_predict.ipynb	한 시간 전	3.91 kB

Thank you

텐서플로우 환경 설정

- ▶ 텐서플로우를 실행할 수 있게 만들기 위해,
- ▶ "Microsoft Visual C++ 2015-2019 Redistributable" 패키지를 설치
- ▶ <https://support.microsoft.com/ko-kr/help/2977003/the-latest-supported-visual-c-downloads>



Visual Studio 2015, 2017 및 2019

Visual Studio 2015, 2017 및 2019용 Microsoft Visual C++ 재배포 가능 패키지를 다운로드합니다. 다음 업데이트는 Visual Studio 2015, 2017 및 2019용으로 지원되는 최신 Visual C++ 재배포 가능 패키지입니다. Universal C Runtime의 기본 버전이 포함되어 있습니다. 자세한 내용은 MSDN을 참조하세요.

- x86: [vc_redist.x86.exe](#)
- x64: [vc_redist.x64.exe](#)
- ARM64: [vc_redist.arm64.exe](#)

참고 Visual C++ 2015, 2017 및 2019 모두 동일한 재배포 가능 파일을 공유합니다.