

Tensorflow Installing

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1. www.tensorflow.org

자 Tensorflow를 설치해 봅시다!



1. www.tensorflow.org

TensorFlow 를 설치할 예정인데..



<https://www.tensorflow.org/install/>

여기부터 보고 시작하지요.

1. www.tensorflow.org

가능하면 GPU가 있어야 좋은데..



- GPU card with CUDA Compute Capability 3.0 or higher. See [NVIDIA documentation](#) for a list of supported GPU cards.

GPU-Z 를 통해서 그래픽 카드를 보고.

<https://developer.nvidia.com/cuda-gpus>

여기에서 확인 좀 해보죠.

1. www.tensorflow.org

어쨌든, 문서를 보니.. Tensorflow 설치 가이드가 되어 있군요.



우리는 이것저것 다 포함된 ANACONDA를 설치하고.

If GPU 있음 :

CUDA 설치하고
cuDNN 도 덮어 씌워보고
Tensorflow-gpu 버전을 설치

Else :

Tensorflow-cpu 버전을 설치

할겁니다.

1. www.tensorflow.org



Requires Python 3.4, 3.5, or 3.6

```
$ python3 --version  
$ pip3 --version  
$ virtualenv --version
```

2019.3.4 기준
python 3.6.x 까지 지원!

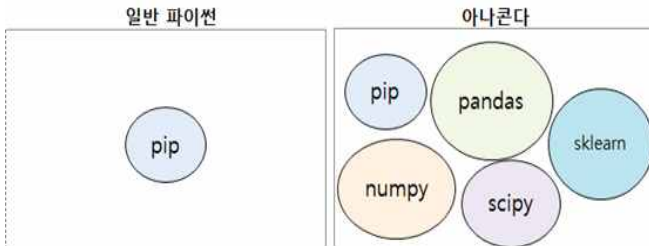
2. www.anaconda.com



여기서 잠깐!

저희는 Anaconda를 사용할 것 입니다.
기존에 있던 python은 삭제해 주세요!

Why we use anaconda?



2. www.anaconda.com

Tensorflow.org 가 이르길, 윈도우에서 Python 3.5.x or 3.6.x 라 하였고...

<https://www.anaconda.com>



Python 3.6 version *



[64-Bit Graphical Installer \(515 MB\)](#) ⓘ

[32-Bit Graphical Installer \(420 MB\)](#)

비트확인? Win + r dxdiag 권장.
(요즘은 보통 64bit)

2. www.anaconda.com

저는, 그냥 커맨드라인 하나로 쓰려고 **체크**합니다.



Advanced Options

☒ Add Anaconda to my PATH environment variable

Not recommended. Instead, open Anaconda with the Windows Start menu and select "Anaconda (64-bit)". This "add to PATH" option makes Anaconda get found before previously installed software, but may cause problems requiring you to uninstall and reinstall Anaconda.

☒ Register Anaconda as my default Python 3.6

This will allow other programs, such as Python Tools for Visual Studio, PyCharm, Wing IDE, PyDev, and MSI binary packages, to automatically detect Anaconda as the primary Python 3.6 on the system.

2. www.anaconda.com

안녕 아나콘다?

Win + r conda --v



```
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

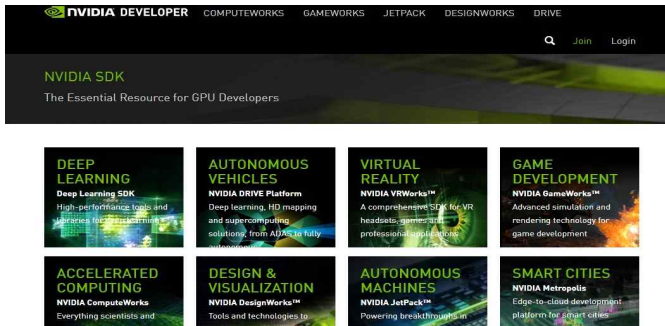
C:\WINDOWS\system32>conda --v
conda 4.3.29
```

위의 창과 비슷하면, 아나콘다와 인사 성공한 것.

3. developer.nvidia.com

NVIDIA! 지금 GPU 가속 머신러닝은 거의 NVIDIA 독점! AMD 힘내라!

<https://developer.nvidia.com/>



3. developer.nvidia.com

일단은 저희가 준비한 링크 /파일로만 진행을 하죠.

CUDA 9.0 : 구글링을 사랑합니다.

<https://developer.nvidia.com/cuda-80-ga2-download-archive>

Select Target Platform ⓘ

Click on the green buttons that describe your target platform
Only supported platforms will be shown.

Operating
System

Windows

Linux

Mac OSX

Architecture
ⓘ

x86_64

Version

10

8.1

7

Server 2016

Server 2012 R2

Server 2008 R2

Installer
Type ⓘ

exe (network)

exe (local)

3. developer.nvidia.com

일단은 저희가 준비한 링크 / 파일로만 진행을 하죠.

cuDNN : <https://developer.nvidia.com/rdp/cudnn-download> 가입필수.

Download cuDNN v6.0 (April 27, 2017), for CUDA 8.0

Download packages updated April 27, 2017 to resolve issues related to dilated convolution on Kepler Architecture GPUs.

[cuDNN User Guide](#)

[cuDNN Install Guide](#)

[cuDNN v6.0 Library for Linux](#)

[cuDNN v6.0 Library for Power8](#)

[cuDNN v6.0 Library for Windows 7](#)

[cuDNN v6.0 Library for Windows 10](#)

4. again : www.tensorflow.org

https://www.tensorflow.org/install/install_windows

4. Issue the appropriate command to install TensorFlow inside your conda environment. To install the CPU-only version of TensorFlow, enter the following command:



```
(tensorflow)C:> pip install --ignore-installed --upgrade tensorflow
```

To install the GPU version of TensorFlow, enter the following command (on a single line):

```
(tensorflow)C:> pip install --ignore-installed --upgrade tensorflow-gpu
```

Win + r cmd

Win + s cmd

4. again : www.tensorflow.org

```
D:\#>conda list
```



```
spyder          3.0.0          py35_0
sqlalchemy       1.0.13         py35_0
statsmodels      0.6.1          np111py35_1
sympy            1.0            py35_0
tensorflow-gpu   1.3.0          <pip>
tensorflow-tensorboard 0.1.8          <pip>
```


5. 'Hello World!' : Jupyter



```
D:\#>cd temp
```

```
D:\#temp>jupyter notebook
```

```
[I 23:52:45.297 NotebookApp] [nb_conda_kernels] enabled, 2 kernels found
```

```
[I 23:52:47.438 NotebookApp] [nb_conda] enabled
```

```
[I 23:52:47.776 NotebookApp] #u2713 nbpresent HTML export ENABLED
```

```
[I 23:52:47.783 NotebookApp] #u2713 nbpresent PDF export ENABLED
```

```
[I 23:52:48.083 NotebookApp] [nb_anacondacloud] enabled
```

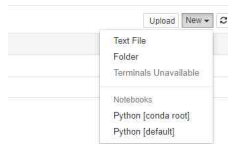
```
[I 23:52:48.203 NotebookApp] Serving notebooks from local directory: D:\#temp
```

```
[I 23:52:48.203 NotebookApp] 0 active kernels
```

```
[I 23:52:48.203 NotebookApp] The Jupyter Notebook is running at: http://localhost:8888/
```

```
[I 23:52:48.203 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
```

5. 'Hello World!' : Jupyter



```
In [1]: a = "Hello World!"
```

```
In [2]: print(a)
```

Hello World!

6. Points to Note



Tensorflow 는 **google** 이 만들었어요!
따라서 크롬에서 제일 잘 작동하겠지요?
Jupyter 는 브라우저 상에서 돌아가는 프로그램이므로
Chrome 을 기본 브라우저로 지정해 줍시다!

6. Points to Note

이렇게 크롬을 안쓰면 **Tensorboard** 가 실행이 안됩니다...

```
InvalidArgumentError (see above for traceback): Cannot assign a device for operation 'hidden_layer/Add_layer1': Operation was explicitly assigned to /device:GPU:0 but available devices are [ /job:localhost/replica:0/task:0/device:CPU:0 ]. Make sure the device specification refers to a valid device.
```

```
[[{{node hidden_layer/Add_layer1}} = Add[T=DT_FLOAT, _device="/device:GPU:0"](Input_layer/Input_1, Input_layer/Input_2)]]
```

그 이외에도 불편한 점이 좀 많아요 ㅎㅎ...

6. Points to Note

실수로 **Anaconda python 3.7.x** 를 다운받았다!

--> **python downgrading** 이 필요하다!

6. Points to Note

```
conda install python=3.5.0  
# or maybe  
conda install python=2.7.8  
# or whatever you want....
```

이렇게 하면 **python downgrading** 완료!!!