

Introduction to TensorFlow

Tensorflow is a deep learning framework that provides an easy interface to a variety of functionalities, required to perform state of the art deep learning tasks such as image recognition, text classification and so on. It is a machine learning framework developed by Google and is used for designing, building, and training of deep learning models such as the [neural networks](#). The [Google Cloud Vision](#) and [AlphaGo](#) are some of the examples of the applications built on top of TensorFlow. TensorFlow is an open source library and can be download and used it for free.

TensorFlow Installation Types

When installing TensorFlow, you can choose either the CPU-only or GPU-supported version. I'd recommend to install the CPU version if you need to design and train simple machine learning models, or if you're just starting out. However, the CPU version can be slower while performing complex tasks, especially those involving image processing. If you need to use TensorFlow to process a huge amount of data, especially cases in which the data involves images, I'd recommend installing the GPU-supported version.

GPU supported TensorFlow requires you to install a number of libraries and drivers. It supports NVIDIA GPU card, with support for CUDA Compute 3.5 or higher.

You must install the following software in order to run the GPU version of TensorFlow:

- NVIDIA GPU drivers
- CUDA Toolkit: CUDA 9.0.
- NCCL 2.2 (optional)
- cuDNN SDK (7.2 or higher)
- TensorRT for improved latency and throughput.

Choosing the Installation Method

On Windows, TensorFlow can be installed via either "pip" or "anaconda". Python comes with the [pip](#) package manager, so if you have already installed Python, then you should have [pip](#) as well. The package can install TensorFlow together with its dependencies.

[Anaconda](#) is also a great option for installing TensorFlow, but it is not shipped with Python like [pip](#) is, therefore you must download and install it separately.

Both packages are open source, so feel free to choose the one you like.

Installation with pip

To get the `pip` package manager, you first need to install Python. Download the latest version of Python from the [official Python website](https://www.python.org/) and install it.

Once the installation completes, check for the version of `pip` running on your system. To do so, go to the command prompt and type:

```
$ pip3 --version
```

Since you have installed the latest version of Python, that is, Python 3.x, you have `pip3`, and not `pip`. The latter was used with Python 2.7.

It is now finally time to install TensorFlow. Run the windows command prompt as an administrator. To do so, go to the start menu on your Windows machine, search for "cmd", right click it and choose "Run as administrator".

After that, you only have to run one simple command to install TensorFlow. Here is the command:

```
$ pip3 install --upgrade tensorflow
```

The command will take some time to execute, so remain patient. With `pip`, you can install TensorFlow with GPU support as follows:

```
$ pip3 install tensorflow-gpu
```

And that's it! You can now skip to the section "Verifying the Installation" below to make sure it installed correctly.

Installation with Anaconda

Python is not shipped with Anaconda, so you must first install it on your system. You can download it from [Anaconda.com](https://www.anaconda.com).

Once the package is downloaded, double-click it to start the installation. Installation instructions for Anaconda can be found at [this link](#). The installer will be verified and a welcome window will pop up.

Click "Next" and "Finish" in the subsequent windows to complete the installation of Anaconda.

Now that you have installed Anaconda, you can use "conda", a package manager used for the management of virtual environments and installation of packages for Anaconda.

To see details of the `conda` package, type this command in the prompt:

```
$ conda info
```

We will now create a Python virtual environment with conda. A virtual environment is an isolated working copy of Python, capable of maintaining its own files, paths, and directories so that you can work with specific versions of the different Python libraries without affecting the other Python projects.

To create a virtual environment for the TensorFlow, execute the `conda create` command with the following syntax:

```
$ conda create -n [environment-name]
```

Let us name the environment as `tsorenvirion`. Although you can use any name you want.

```
$ conda create -n tsorenvirion
```

You will be prompted to allow the process to proceed. Just type "y" for "yes" and press the enter key on your keyboard. The environment will be created successfully.

We can then activate the environment we have just created:

```
$ activate tsorenvirion
```

You will see the prompt change.

Next, run the following command to install TensorFlow:

```
$ conda install tensorflow
```

A list of packages to be installed alongside TensorFlow will be shown. The command will prompt you to confirm the installation of these packages. Type "y" and then press the enter key. The progress of the installation process will be shown on the command prompt.

Verifying the Installation

Now that TensorFlow has been installed, we can verify whether the installation was successful or not. To do so, we can run Python's `import` statement and see if we can successfully import the TensorFlow library.

In the previously opened command prompt, which should be using the virtual environment in which you installed TensorFlow, type `python` to get to the Python terminal:

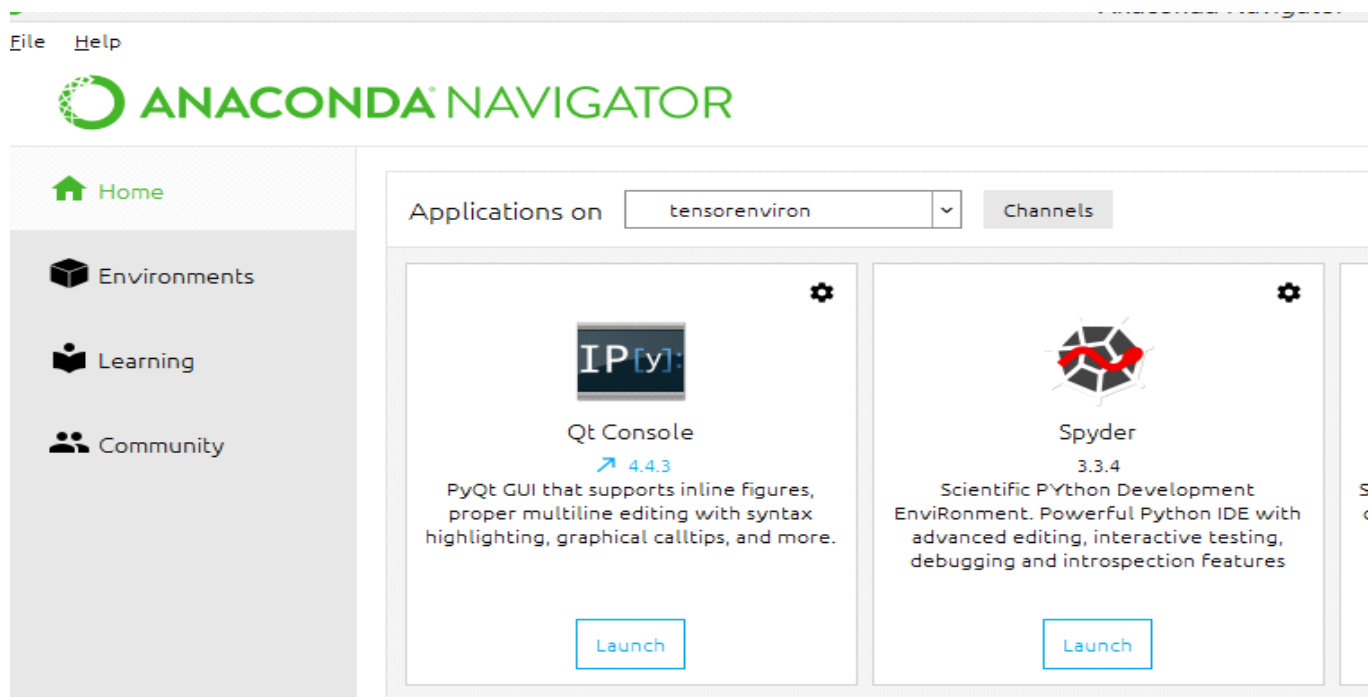
```
$ python
```

Now try to import the library:

```
import tensorflow as tf
```

If everything is okay, the command will return nothing other than the Python prompt. However, if the installation was unsuccessful, you will get an error.

However, if you want to work in Spyder IDE go for anaconda navigator first and open it.



And Select the application of "tensorenviro" which you created while installing "tensorflow" in Anaconda prompt and relaunch the Spyder again. Once it is done successfully check it in on spyder entering as "import tensorflow as tf"

If you found no issues, then successfully you installed it.