

MMLDT-CSET 2021

Mechanistic Machine Learning for Engineering and Applied Science Setup Machine Learning Environment

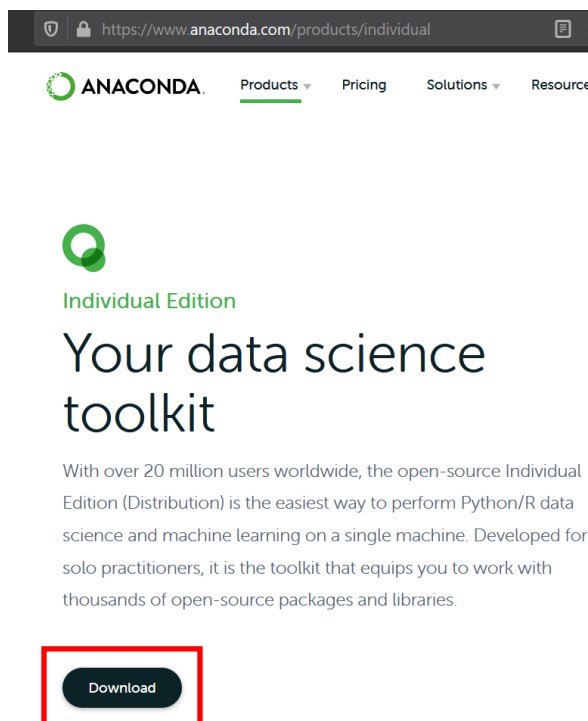
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Please follow the following instructions to install Anaconda, Jupyter Notebook, TensorFlow, and other machine learning libraries for this short course.

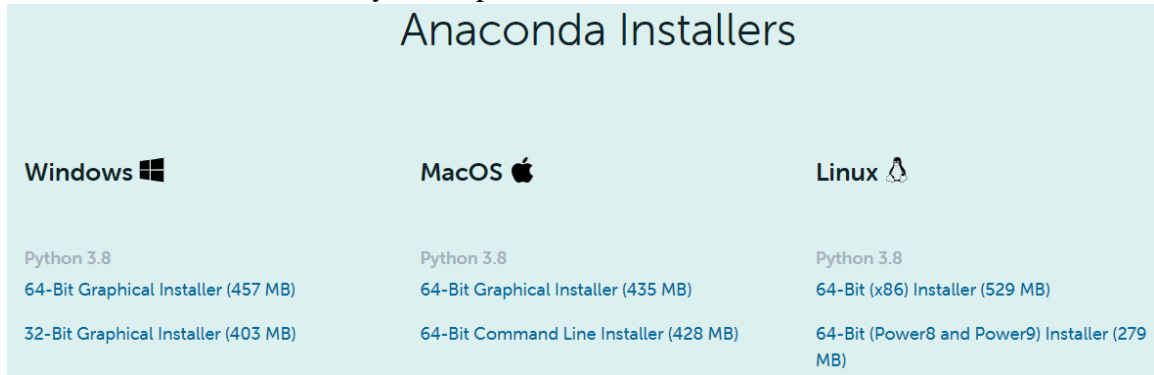
1. Install Anaconda

You need to install the requisite programs that you will use in this short course. Fortunately, you just have to download one package from the internet which is **Anaconda**. You can find it at: <https://www.anaconda.com/products/individual>

- 1) Click on **Download** as shown in the image below.



2) **Install** the latest version for your respective OS.



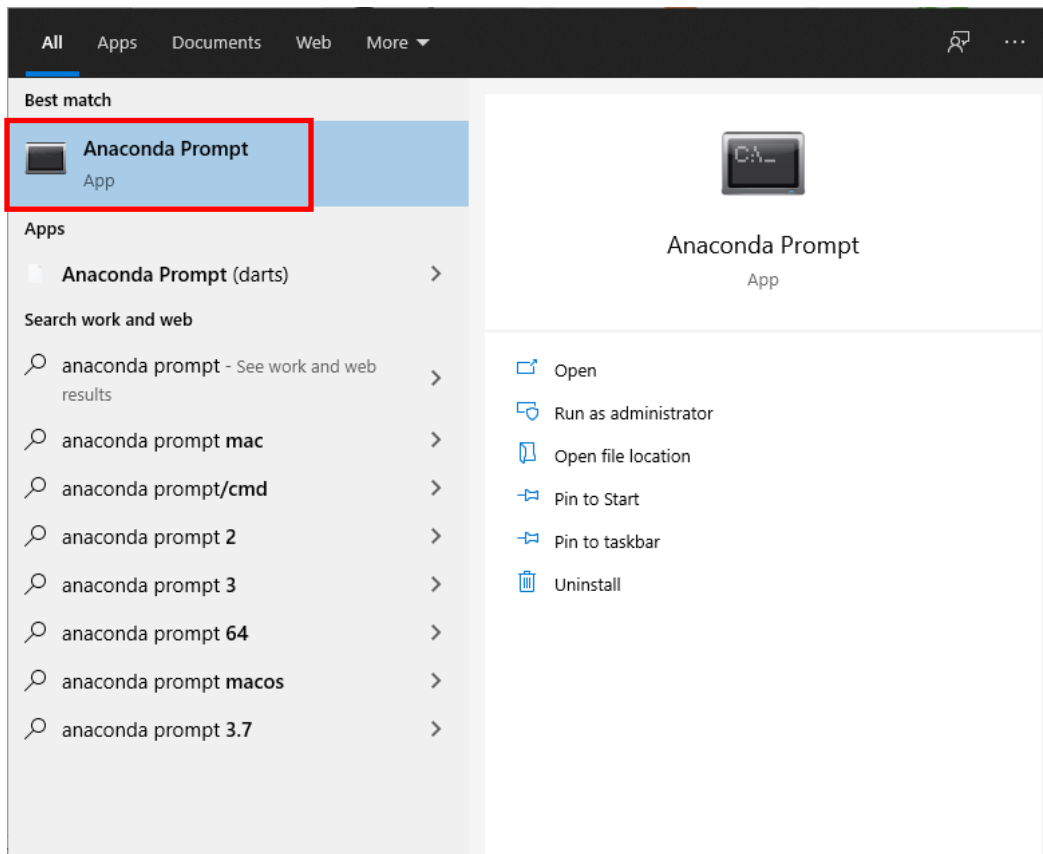
Installation tutorial: <https://www.youtube.com/watch?v=5mDYijMfSzs>

2. Jupyter Notebook

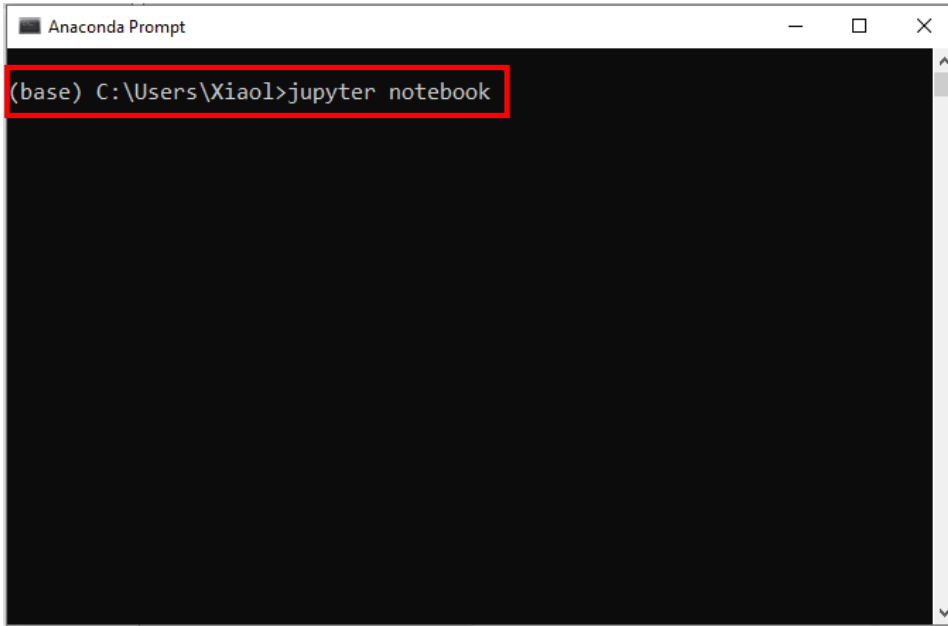
Jupyter Notebook is automatically installed in the Anaconda “base” environment when Anaconda is installed.

1) Launch Jupyter Notebook

- First, open “Anaconda Prompt”.



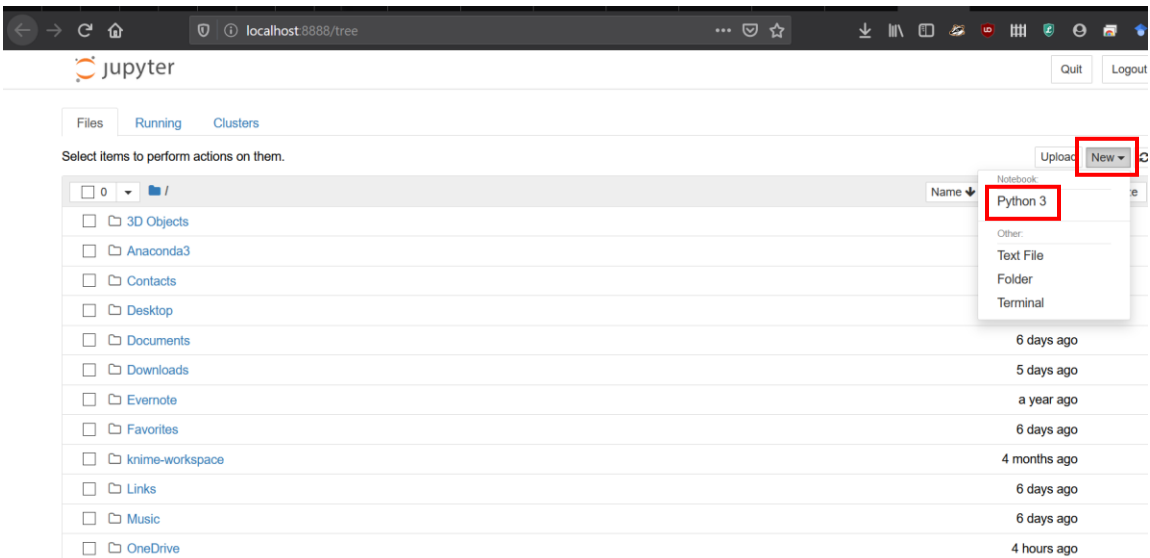
- Then, type “jupyter notebook” and press “Enter”. A Jupyter Notebook will be launched from the anaconda “base” environment and all libraries installed in the “base” environment are accessible by the Jupyter Notebook.



2) Create a new Jupyter Notebook

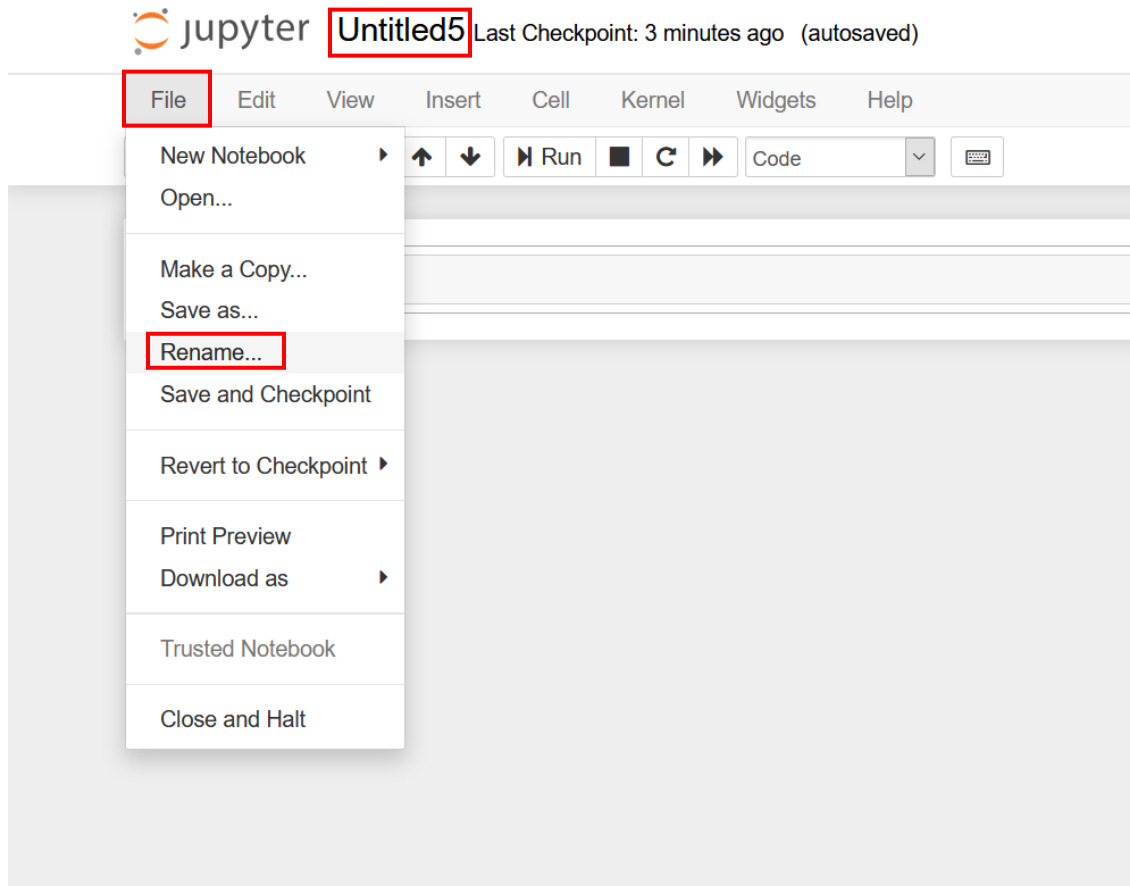
A window should open in your default browser as in the image below. The menu list shows the folders in the directory where the Jupyter Notebook was launched.

- Navigate to the folder where you want the notebook to be stored.
- On the right-hand side, click on **New** > **Python 3**, which creates a Jupyter Notebook with a Python 3 kernel from the “base” environment.



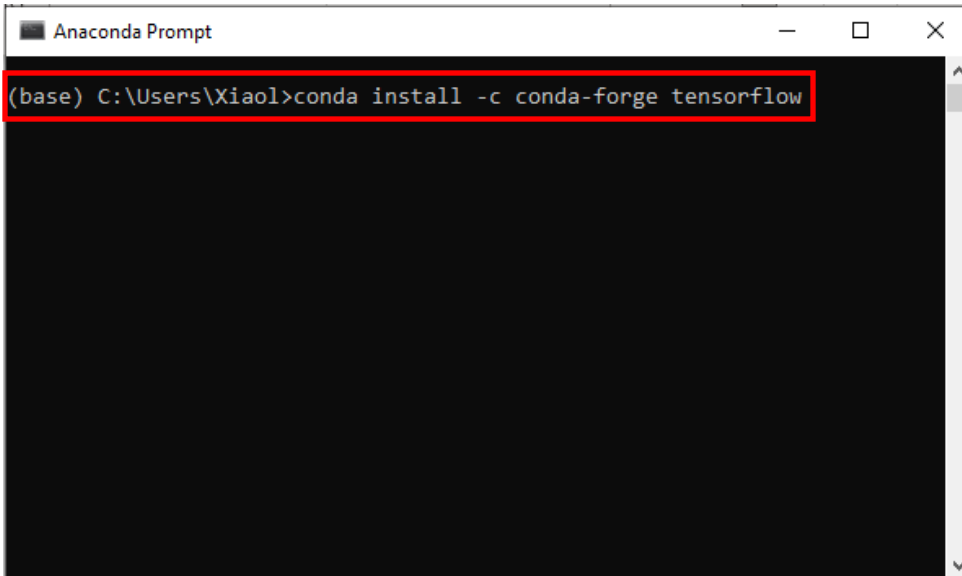
3) Rename and save the Jupyter Notebook

- **File > Rename** or click on the current file name at the top, which is “Untitled5” in this example.
- To save it, go to **File** → **Save as** or press ‘Ctrl’ + ‘s’. A notebook file will be saved in the directory where the Jupyter Notebook was created.



3. Install TensorFlow and Keras

- 1) Open “Anaconda Prompt”.
- 2) Type “conda install -c conda-forge tensorflow” and press “Enter”. It should install automatically. At some places, it may ask you to press (y) for yes to update some packages. You can let it update the python packages and finish installation.



```
Anaconda Prompt
(base) C:\Users\Xiao1>conda install -c conda-forge tensorflow
```

3) Check installation:

- Create a new Jupyter Notebook
- Type the following in code cells and check if the appropriate versions have been installed. The TensorFlow and Keras versions should be $\geq 2.2.0$.

```
In [3]: 1 import tensorflow as tf
        2 from tensorflow import keras
```

```
In [4]: 1 tf.__version__
```

```
Out[4]: '2.3.0'
```

```
In [5]: 1 keras.__version__
```

```
Out[5]: '2.4.0'
```

4. Install Other Libraries

- Open “Anaconda Prompt”.
- Type and execute the following commands to install Matplotlib (for plotting), Pandas, and Scikit-Learn.
 - `conda install -c anaconda matplotlib`
 - `conda install -c anaconda pandas`
 - `conda install -c anaconda scikit-learn`
- To list all installed libraries in the environment, type and execute “conda list”.