**Tensorflow Installation Guidance.**

**Manual Python Setup**

* Instructor: [Aizaz](https://sites.wustl.edu/jeffheaton/) Ali, Youtube Channel:  FutureScope
* For more information visit youtube channel: https://www.youtube.com/c/FutureScope/.

**Software Installation**

This class is technically oriented. A successful student needs to be able to compile and execute Python code that makes use of TensorFlow for deep learning. There are two options for you to accomplish this:

* Install Python, TensorFlow and some IDE (Jupyter, TensorFlow, and others)
* Use Google CoLab in the cloud

**Installing Python and TensorFlow**

First step is download python and install it but I prefer download Anaconda or Miniconda. Miniconda is the minimal set of features from the extensive Anaconda.

I prefer to download Anacodna from the official link here..

URL: <https://repo.anaconda.com/archive/Anaconda3-2021.05-Windows-x86_64.exe> or https://www.anaconda.com/products/individual

After installation of Anaconad python will automatically be installed in your computer or laptop. You must make sure that TensorFlow has the version of Python that it is compatible with. The best way to accomplish this is with an Anaconda environment. Each environment that you create can have its own Python version, drivers, and Python libraries. I suggest that you create an environment to hold the Python instance for this class. Use the following command to create your environment. I am calling the environment **tensorflow**, you can name yours whatever you like

.

***conda create –n tf tensorflow***

To enter this environment, you must use the following command:

***conda activate tensorflow***

We will now install TensorFlow. We will make use of conda for this installation.

How to install TensorFlow for either a CPU or GPU. To use GPU, you must have a [compatible NVIDIA GPU](https://developer.nvidia.com/cuda-gpus).

**Install TensorFlow for CPU Only**

The following command installs TensorFlow for CPU support. Even if you have a GPU, it will not be used.

***conda install -c anaconda tensorflow***

**Install TensorFlow for GPU and CPU**

The following command installs TensorFlow for GPU support. All of the complex driver installations should be handled by this command.

***conda install -c anaconda tensorflow-gpu***

**Install Additional Libraries for ML**

There are several additional libraries that you will need for this course. This command will install them. Make sure you are still in your **tensorflow** environment.

***conda env update --file tools.yml***

The [tools.yml](https://raw.githubusercontent.com/jeffheaton/t81_558_deep_learning/master/tools.yml) file is located in the root directory for this GitHub repository.

**Register your Environment**

The following command registers your **tensorflow** environment. Again, make sure you "conda activate" your new **tensorflow** environment.

***python -m ipykernel install --user --name tensorflow --display-name "Python 3.8 (tensorflow)"***

**Testing your Environment**

You can now start Jupyter notebook. Use the following command.

***jupyter notebook***

You can now run the following code to check that you have the versions expected.

*# What version of Python do you have?*

**import** **sys**

**import** **tensorflow.keras**

**import** **pandas** **as** **pd**

**import** **sklearn** **as** **sk**

**import** **tensorflow** **as** **tf**

print(f"Tensor Flow Version: **{**tf.\_\_version\_\_**}**")

print(f"Keras Version: **{**tensorflow.keras.\_\_version\_\_**}**")

print()

print(f"Python **{**sys.version**}**")

print(f"Pandas **{**pd.\_\_version\_\_**}**")

print(f"Scikit-Learn **{**sk.\_\_version\_\_**}**")

gpu = len(tf.config.list\_physical\_devices('GPU'))>0

print("GPU is", "available" **if** gpu **else** "NOT AVAILABLE")

Tensor Flow Version: 2.1.0

Keras Version: 2.2.4-tf

Python 3.7.7 (default, May 6 2020, 11:45:54) [MSC v.1916 64 bit (AMD64)]

Pandas 1.0.5

Scikit-Learn 0.23.1

GPU Not available