Install Tensorflow and Keras

Part I, background

Tensorflow and Keras are the two add-ons you need for DTSC-680. Keras is a user interface and Tensorflow is the backend workhorse. In the past, these two libraries were installed separately. Today, however, Keras has been optimized for Tensorflow and seamlessly integrated with Tensorflow. Once you have installed Tensorflow, Keras can be imported from Tensorflow.

Part II, verify your Python and Jupyter installs

Python PIP via terminal/console is an easy way to install Tensorflow and Keras. Before starting to install, however, it is important to confirm that the Python instance you are using is the same instance used by Jupyter. You can get the version information from your Python terminal/console and compare it against the version information retrieved from Jupyter notebook. Please see screenshots below.

Sample Python terminal output

```
(base) C:\Users\xiqu0001>python
Python 3.8.8 (default, Apr 13 2021, 15:08:03) [MSC v.1916 64 bit (AMD64)] :: Anaconda, Inc. on
win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Sample Jupyter Notebook output (Notebook > Help > About)

```
Current Kernel Information:

Python 3.8.8 (default, Apr 13 2021, 15:08:03) [MSC v.1916 64 bit (AMD64)]
Type 'copyright', 'credits' or 'license' for more information
IPython 7.22.0 -- An enhanced Interactive Python. Type '?' for help.

                                                                    OK
```
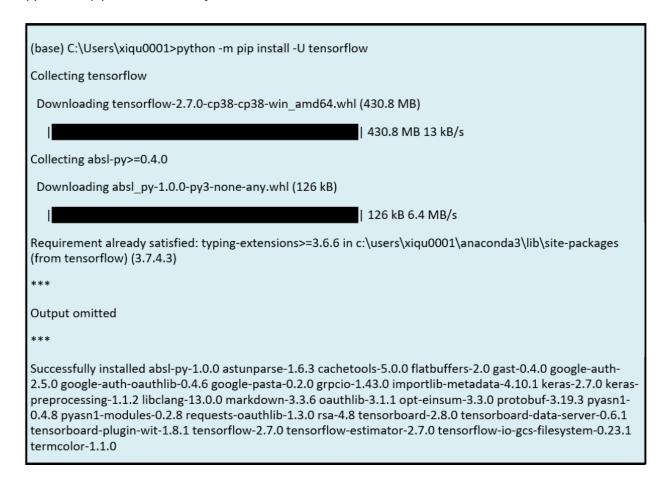
Part III, install Tensorflow and Keras

Note: please check your available HDD space before installing. You will need at least 500MB to complete the installation.

From your Python terminal/console, execute the command below. This will start the installation. The package contains 18 components. The installation typically takes between 5-10 minutes, depending on your computer speed and Internet bandwidth, etc. You will see a list of the components installed when the installation is completed.

"python -m pip install -U tensorflow"

```
(base) C:\Users\xiqu0001>python -m pip install -U tensorflow

Collecting tensorflow

  Downloading tensorflow-2.7.0-cp38-cp38-win_amd64.whl (430.8 MB)

     |██████████████████████████████████| 430.8 MB 13 kB/s

Collecting absl-py>=0.4.0

  Downloading absl_py-1.0.0-py3-none-any.whl (126 kB)

     |██████████████████████████████████| 126 kB 6.4 MB/s

Requirement already satisfied: typing-extensions>=3.6.6 in c:\users\xiqu0001\anaconda3\lib\site-packages
(from tensorflow) (3.7.4.3)

***

Output omitted

***

Successfully installed absl-py-1.0.0 astunparse-1.6.3 cachetools-5.0.0 flatbuffers-2.0 gast-0.4.0 google-auth-
2.5.0 google-auth-oauthlib-0.4.6 google-pasta-0.2.0 grpcio-1.43.0 importlib-metadata-4.10.1 keras-2.7.0 keras-
preprocessing-1.1.2 libclang-13.0.0 markdown-3.3.6 oauthlib-3.1.1 opt-einsum-3.3.0 protobuf-3.19.3 pyasn1-
0.4.8 pyasn1-modules-0.2.8 requests-oauthlib-1.3.0 rsa-4.8 tensorboard-2.8.0 tensorboard-data-server-0.6.1
tensorboard-plugin-wit-1.8.1 tensorflow-2.7.0 tensorflow-estimator-2.7.0 tensorflow-io-gcs-filesystem-0.23.1
termcolor-1.1.0
```

Part IV, verify your installation

From Jupyter Notebook, run the cell below. You should see versions 2.7.x. This indicates that you have successfully installed Tensorflow and Keras.

```python
import tensorflow as tf
from tensorflow import keras
print('Tensorflow: ',tf.__version__, ',','Keras: ',keras.__version__)

Tensorflow:  2.7.0 , Keras:  2.7.0
```