openSAP Enterprise Deep Learning with TensorFlow

Installation Guide
Anaconda, TensorFlow, Jupyter Notebooks

Introduction

In this course, we offer hands-on exercises as an optional element. These exercises are not essential to complete the course successfully and pass the final exam.

We will be using Jupyter notebooks, Python, and TensorFlow extensively throughout the course. All code examples from the course are made available to you, to follow the course or to kick-start your own development project. All described systems are free-of-charge.

Install Anaconda for Python 3.6

1. To install Anaconda, download the Anaconda installer file for the Python 3.6 version that suits your operation system from this site: https://www.anaconda.com/download/
2. Double click the downloaded installer file and invoke the installation process.
3. Follow the steps and select the default options to complete the installation.

After having Anaconda installed, we create a virtual environment that allows sandboxed evaluation of libraries.

1. To create our python environment, we first open the command line (Command Prompt in Windows, Terminal in Mac / Unix).
2. Invoking the following command creates a conda environment named tensorflow with Python version 3.6

    > conda create -n tensorflow python=3.6

If an error occurs that says: 'conda is not recognized as an internal or external command, operable program or batch file', it means you have to add conda/python to your path. To do so, click here and follow the instructions.

To work with our newly created conda environment, we have to activate it. This is done by issuing the following command:

On Windows

    > activate tensorflow

     (tensorflow)> # Your prompt will change with the name of environment in braces

On Unix and Mac

    > source activate tensorflow

    (tensorflow)> # Your prompt will change with the name of environment in brace

Install TensorFlow

To install TensorFlow inside your conda environment enter the following command for the CPU version:

    (tensorflow)> pip install --ignore-installed --upgrade tensorflow

This should install all TensorFlow dependencies and TensorFlow in the environment we just created inside Anaconda.

To check whether everything worked out as planned, we can start a Python session in the Command Prompt, import TensorFlow and check the version with following commands:

    > python

    > import tensorflow as tf

    > tf.__version__

Install additional packages

If you want to install additional packages (for the course or your own experiments), use the command:

    (tensorflow)> conda install PACKAGE_NAME

For example, to install jupyter and work through the course notebooks, enter the following command:

    (tensorflow)> conda install jupyter

To follow the examples in this week please install the following packages:

- Jupyter

- Numpy (already installed with TensorFlow)

- matplotlib

- Pandas

Activate jupyter

To activate jupyter and view notebooks, enter the command:

    (tensorflow)> jupyter notebook

In the opening browser, you can navigate to the respective .ipynb file you want to open.

This section only applies to users with a Graphical Processing Unit (GPU):

If you have a GPU that can be leveraged by TensorFlow (check here: https://developer.nvidia.com/cuda-gpus) you can significantly speed up your model training by installing the GPU version of TensorFlow.

For details on how to install the GPU version, we refer to the official TensorFlow guide: https://www.tensorflow.org/install/

Add conda/python to your path

If an error occurs that says: 'conda is not recognized as an internal or external command, operable program or batch file', you can add the path of your anaconda installation on Windows with the SETX command. Just type in the command prompt:

> SETX PATH "%PATH%;PATH_TO_ANACONDA;PATH_TO_PYTHON"

In which case PATH_TO_ANACONDA is the path to the folder Anaconda was installed in and PATH_TO_PYTHON the folder Python was installed in.

For example:

> SETX PATH
"%PATH%;C:\Users\TestUser\AppData\Local\Continuum\anaconda3\Scripts\;C:\Users\TestUser\AppData\Local\Continuum\anaconda3\"

Note: After you added conda/python to your path, make sure to reopen the command line (Command Prompt in Windows, Terminal in Mac / Unix).

If you do not know where both are installed, open the Anaconda Prompt and type:

> where conda

This gives you the path to the folder your conda.exe resides in.
For the installed Python version, you can type:

> where python

Both paths can then be added via the SETX command as described above.

If you run into path issues on Mac / Unix, you can type the following or add it to your .bash_profile / .bashrc:

> export PATH=$HOME/PATH_TO_ANACONDA/bin:$PATH

Installation of Facets for Data Visualization

To install Facets, clone the code from the official GitHub repository using the following command:

> git clone https://github.com/PAIR-code/facets.git

The clone operation creates a folder called facets

Copy the file called facets-jupyter.html in facets/facets-dist folder your local file path <anaconda_path>/share/jupyter/nbextensions/

Restart your Jupyter notebook if you are already running it, otherwise start Jupyter using

> jupyter notebook

We wish you all a successful and joyful course!

Coding Samples
Any software coding or code lines/strings ("Code") provided in this documentation are only examples and are not intended for use in a production system environment. The Code is only intended to better explain and visualize the syntax and phrasing rules for certain SAP coding. SAP does not warrant the correctness or completeness of the Code provided herein and SAP shall not be liable for errors or damages cause by use of the Code, except where such damages were caused by SAP with intent or with gross negligence.

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