

Understand Tensorflow

Deep-Learning Package Zoo

- Torch
- Caffe
- Theano
- CuDNN
- Tensorflow
- Mxnet
- Keras
- Etc.



What do we choose?

- Model specification: Configuration file (e.g. Caffe, DistBelief, CNTK) versus programmatic generation (e.g. Torch, Theano, Tensorflow)
- For programmatic models, choice of high-level language: Lua (Torch) vs. Python (Theano, Tensorflow) vs others.
- We chose to work with python because of rich community and library infrastructure.

TensorFlow vs. Theano

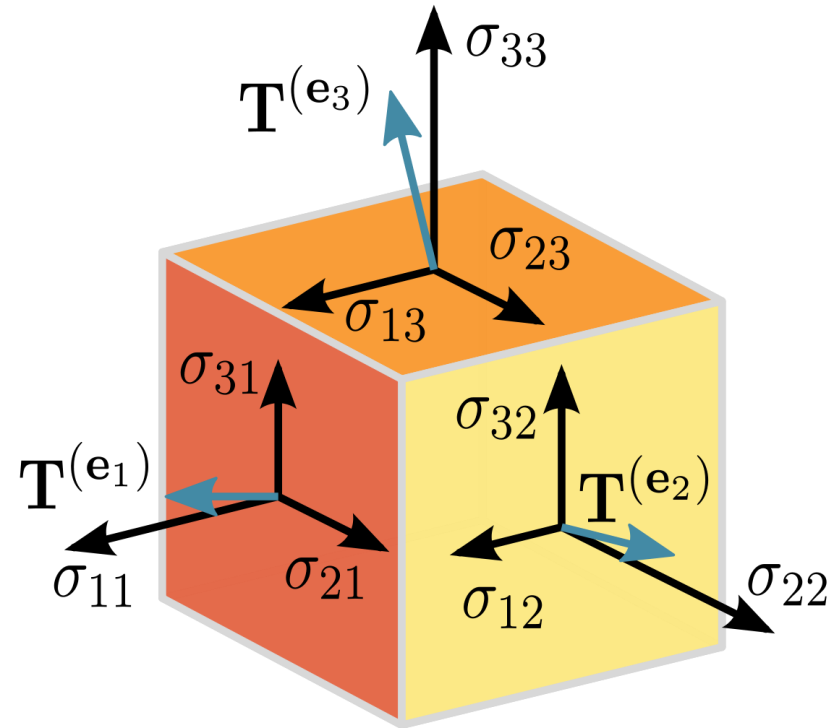
- Theano is another deep-learning library with python-wrapper (was inspiration for Tensorflow)
- Theano and TensorFlow are very similar systems.
- TensorFlow has better support for distributed systems though, and has development funded by Google, while Theano is an academic project.

What is TensorFlow?

- TensorFlow is a deep learning library recently open-sourced by Google.
- But what does it actually do?
 - TensorFlow provides primitives for defining functions on tensors and automatically computing their derivatives.



But what's a Tensor?



- Common to have fixed basis, so a tensor can be represented as a multidimensional array of numbers.

Tensorflow vs Numpy

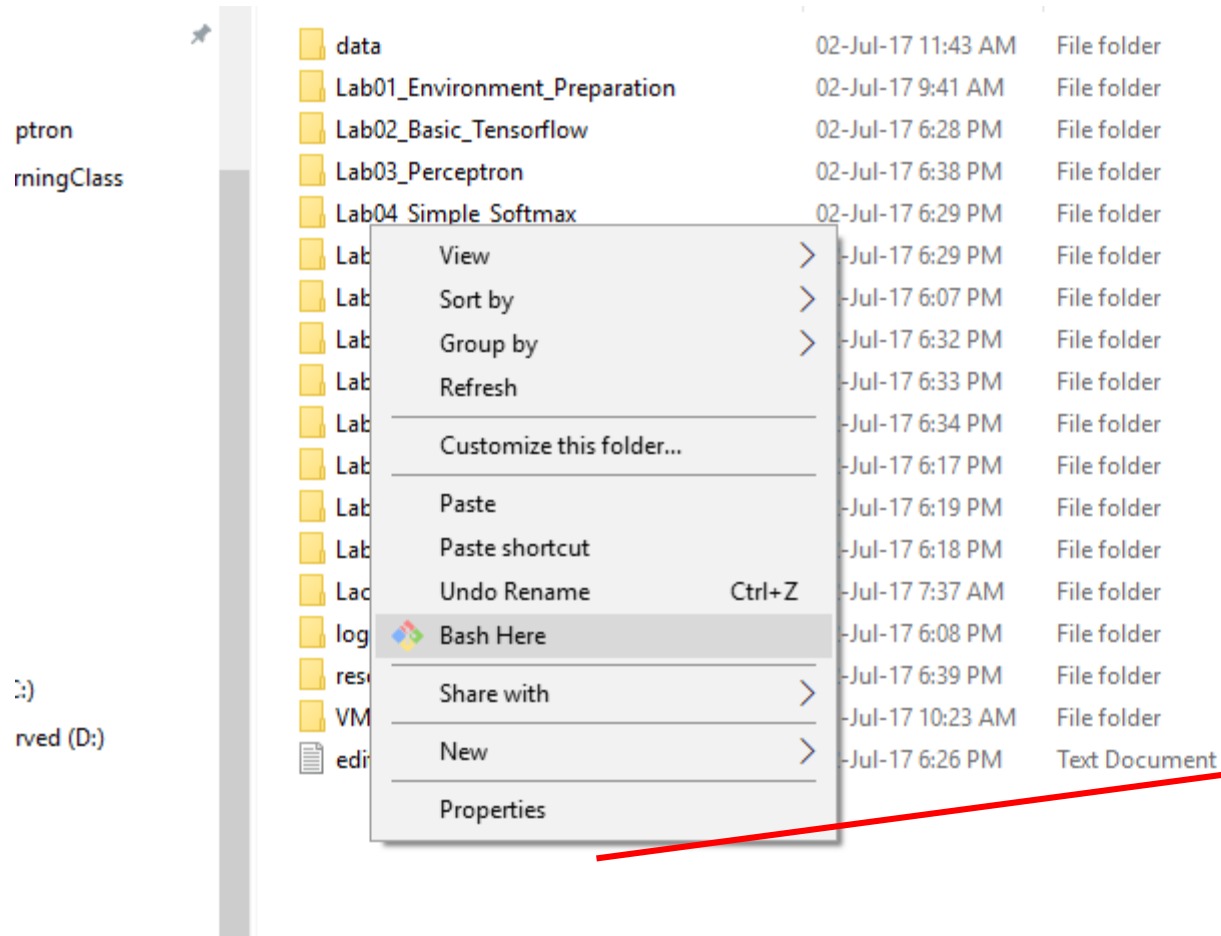


VS



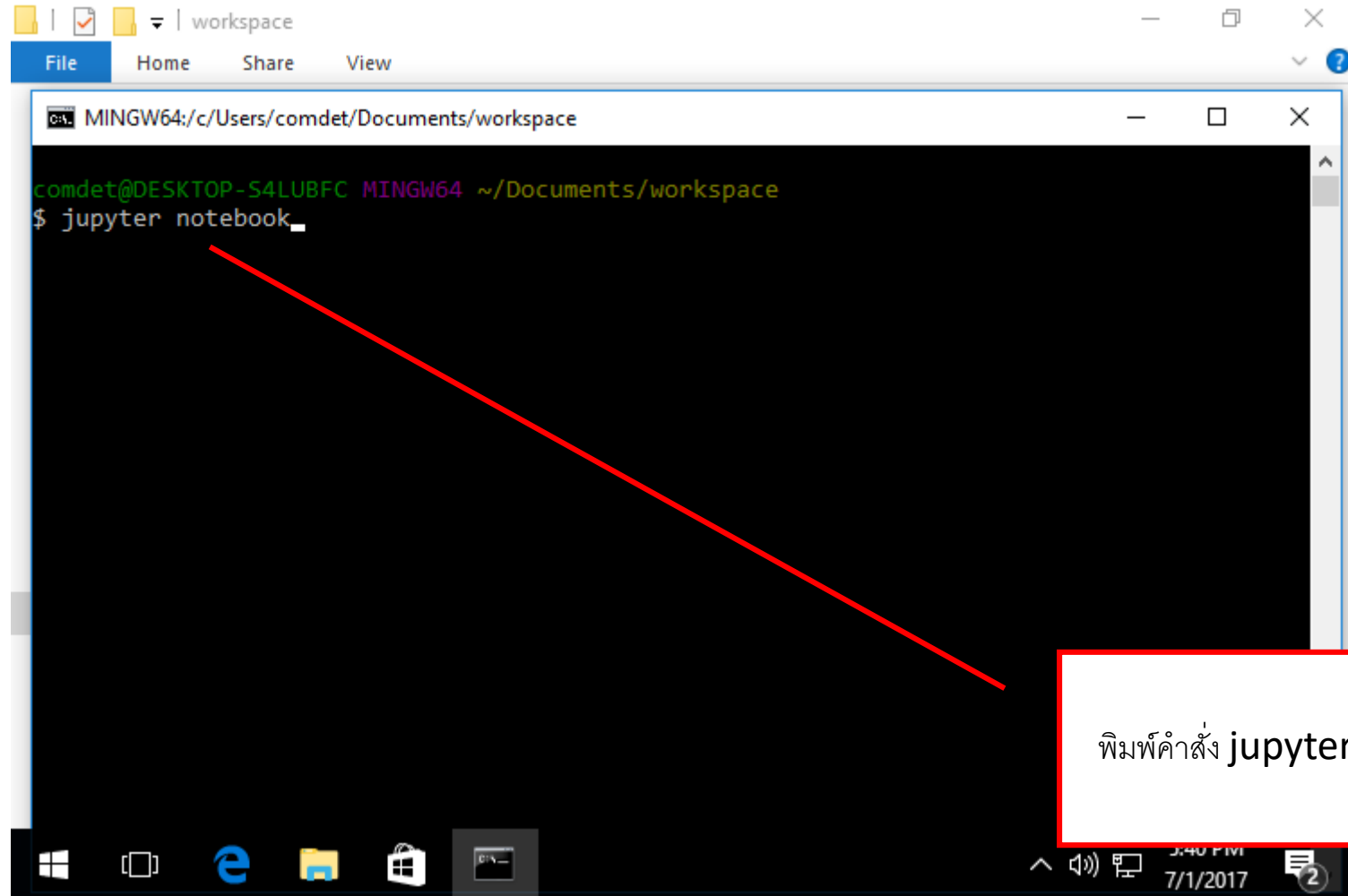
- Few people make this comparison, but TensorFlow and Numpy are quite similar. (Both are N-d array libraries!)
- Numpy has Ndarray support, but doesn't offer methods to create tensor functions and automatically compute derivatives
- Tensorflow - GPU Support

Let Begin!



คลิกขวาที่ว่างๆ ของ **folder** ที่สนใจ เลือก
Git Bash Here

Let Begin!

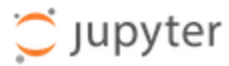


The image shows a Windows File Explorer window with the address bar set to 'workspace'. Below it, a terminal window is open, displaying the command prompt 'MINGW64: c:/Users/comdet/Documents/workspace'. The user has entered the command 'jupyter notebook' and is waiting for a response. A red arrow points from the text box to the command in the terminal.

```
comdet@DESKTOP-S4LUBFC MINGW64 ~/Documents/workspace
$ jupyter notebook
```


พิมพ์คำสั่ง jupyter notebook กด Enter

Let Begin!



Files Running Clusters

Select items to perform actions on them.

☐ 

- ☐ data
- ☐ Lab01_Environment_Preparation
- ☐ Lab02_Basic_Tensorflow
- ☐ Lab03_Perceptron
- ☐ Lab04_Simple_Softmax
- ☐ Lab05_Multi_Layer_Percentron
- ☐ Lab06_Deep_Learning
- ☐ Lab07_Deep_Learning_Ext
- ☐ Lab08_Convolution_Neural_Network
- ☐ Lab09_Deep_Q_Learning
- ☐ Lab10_Recurrent_NeuralNetwork

เข้าไปยัง Folder
Lab02_Basic_Tensorflow

Let Begin!

Select items to perform actions on them.



คลิกที่ไฟล์นี้

Home Lab3_Understand_Tensc X +

localhost:8888/notebooks/Lab3_Understand_Tensor.ipynb

jupyter Lab3_Understand_Tensor (autosaved)

Kernel not found

I couldn't find a kernel matching Tensorflow 3. Please select a kernel: Python [conda root] v

Continue without kernel OK

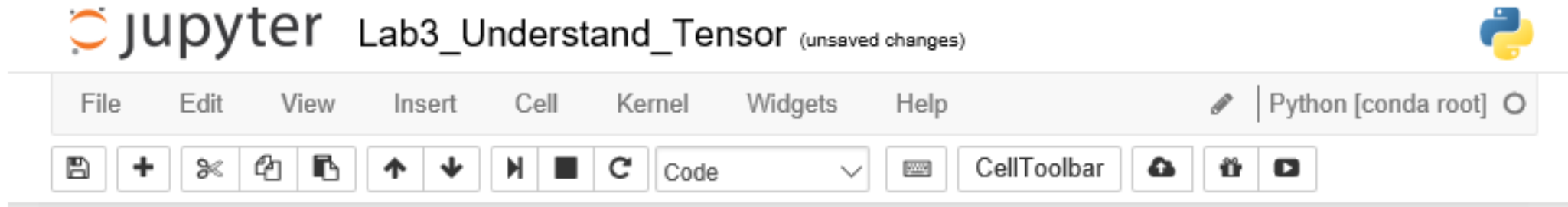
```
In [1]: from __future__ import absolute_import
from __future__ import division
from __future__ import print_function
#pip install matplotlib
import matplotlib.pyplot as plt
import matplotlib.cm as cm
import tensorflow as tf
import numpy as np
import os
import time
```

Tensorflow constant

```
In [7]: x = tf.constant(5)
y = tf.constant(6)
result = x*y
```

Windows taskbar: 5:42 PM 7/1/2017

What? wait a minus, Let understand our tools.



Let's got to our Jupyter