Understand Tensorflow

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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.
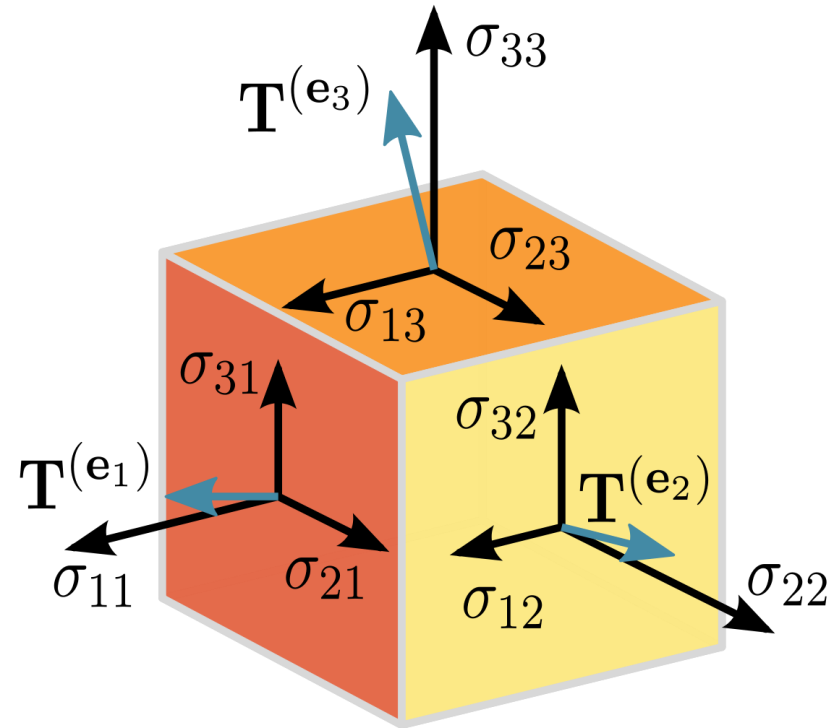
TensorFlow vs. Theano

- 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.
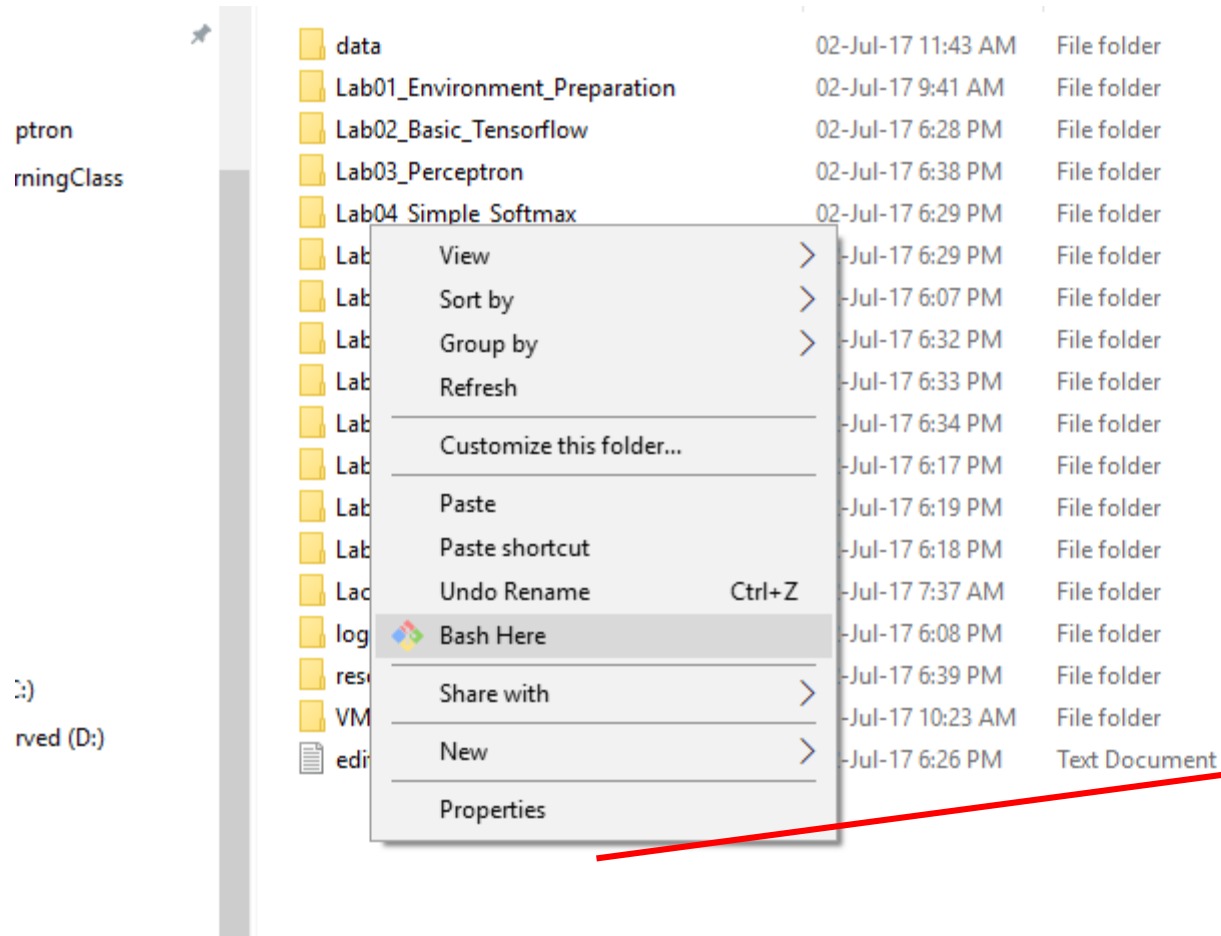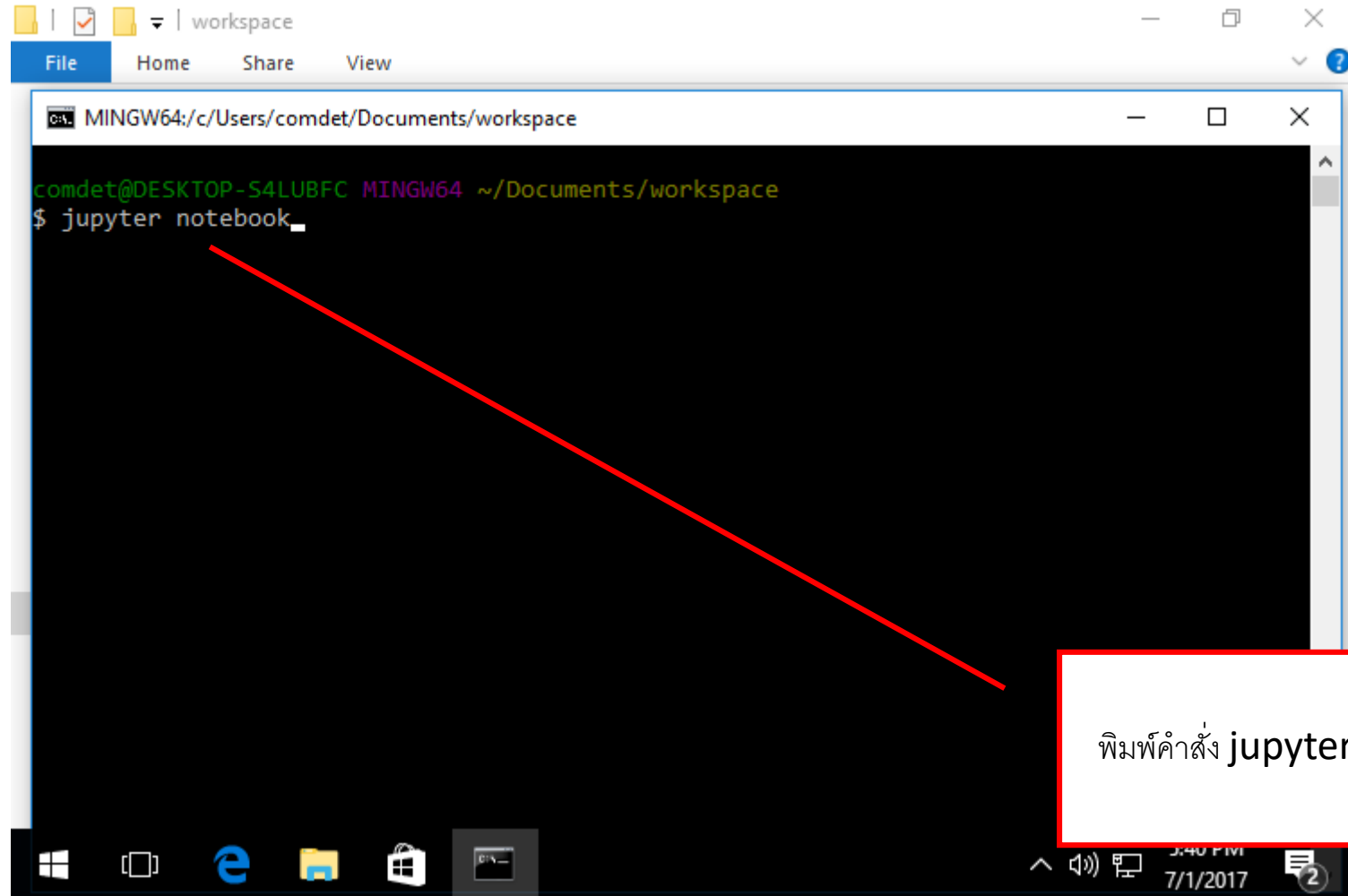
Tensorflow vs Numpy

- 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!

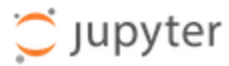คลิกขวาที่ว่างๆ ของ **folder** ที่สอน เลือก
Git Bash Here

Let Begin!

พิมพ์คำสั่ง jupyter notebook กด Enter

Let Begin!

Let Begin!

Select items to perform actions on them.

☐ ▼	🏠 / **Lab02_Basic_Tensorflow**
	📁 ..
☐	📁 images
☐	📁 logs
☐	📓 Lab02_Understand_Tensor.ipynb
☐	📄 Lab02_Basic_Tensorflow.pdf

คลิกที่ไฟล์นี้

localhost:8888/notebooks/Lab3_Understand_Tensor.ipynb

jupyter Lab3_Understand_Tensor (autosaved)

File

Kernel not found

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

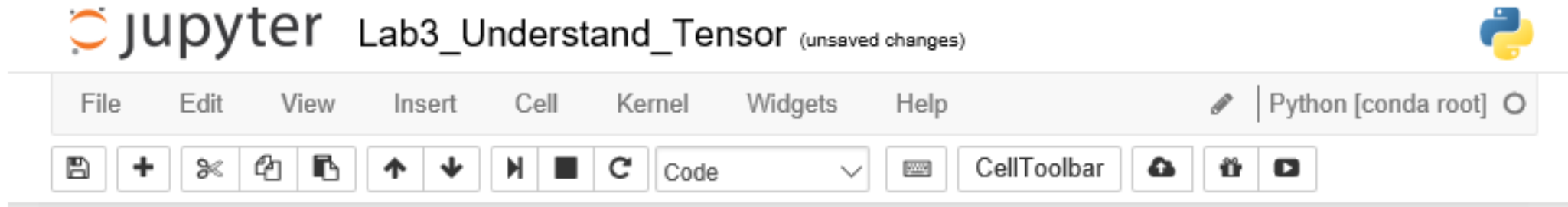Continue without kernel   OK

```
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
```

5:42 PM
7/1/2017

What? wait a minus, Let understand our tools.

Let's got to our Jupyter