2. Keras / TensorFlow 環境建置

OUTLINE

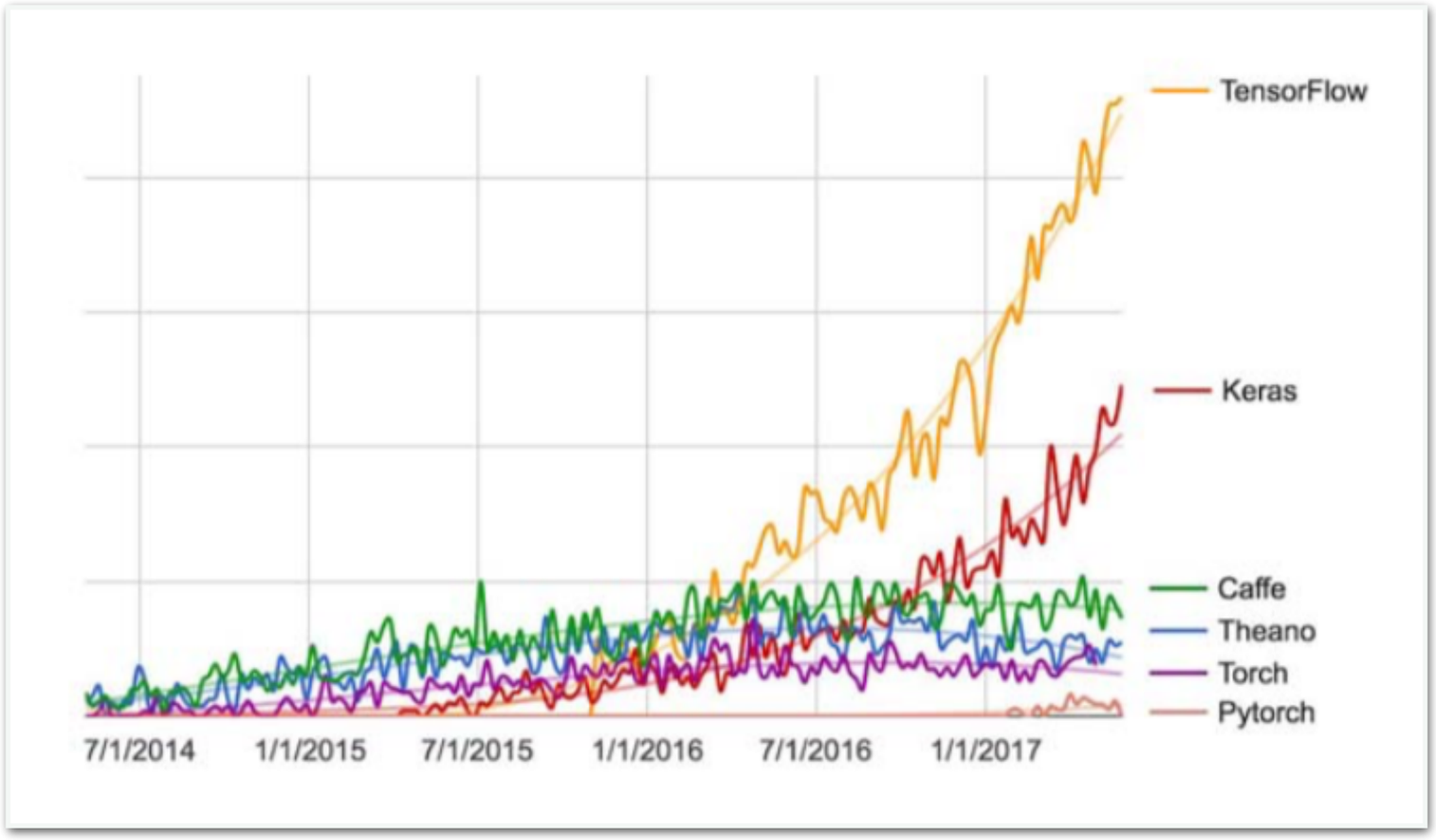
PART 1 *Keras* 實作 - 深度學習基礎

1. Keras / TensorFlow 環境建置
2. 類神經網路演算法
3. Fully-connected Deep Networks
4. 卷積神經網路 (CNN)
5. 遞歸神經網路 (RNN)
6. Workshop 1: MNIST 手寫數字辨識
7. Workshop 2: IMDB 影評情緒分析

An Introduction to Keras

Keras Official Website **:** https://keras.io

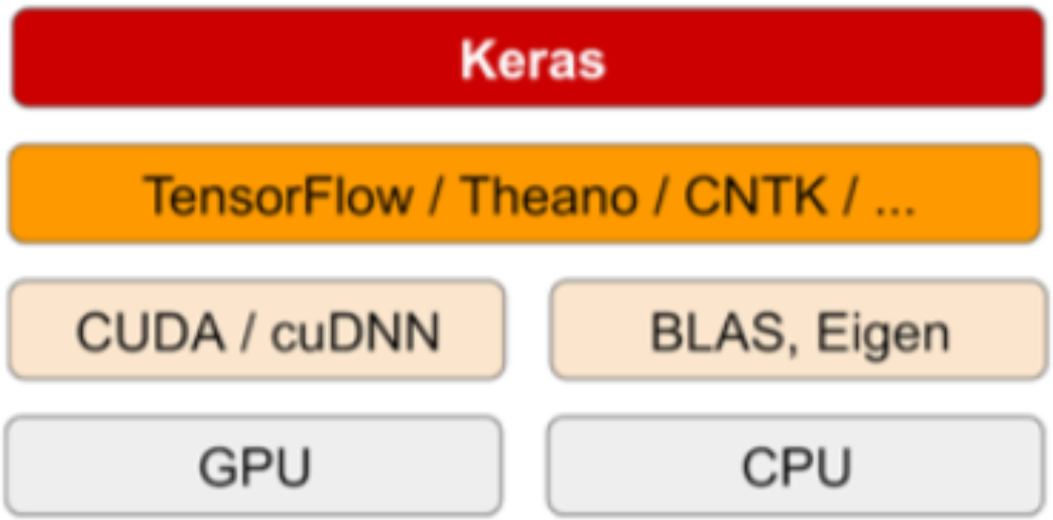
- Running the same code seamlessly on CPU or GPU.
- A user-friendly API that makes it easy to quickly prototype deep-learning models.
- It has built-in support for convolutional networks (for computer vision), recurrent networks (for sequence processing), and any combination of both.
- It supports arbitrary network architectures: multi-input or multi-output models, layer sharing, model sharing, and so on.



Google web search interest for different deep-learning frameworks over time

An Introduction to Keras (cont'd)

The deep-learning software and hardware stack



- Theano (http://deeplearning.net/software/theano) is developed by the MILA lab at *Université de Montréal*.
- TensorFlow (www.tensorflow.org) is developed by Google.
- CNTK (https://github.com/Microsoft/CNTK) is developed by Microsoft.

- Keras is a model-level library, providing high-level building blocks for developing deep-learning models.
- It doesn't handle low-level operations such as tensor manipulation and differentiation. Instead, it relies on a specialized, well-optimized tensor library to do so, serving as the *backend engine* of Keras.
- Currently, the three existing backend implementations are the TensorFlow backend, the Theano backend, and the Microsoft Cognitive Toolkit (CNTK) backend.

Steps of Keras/TensorFlow Installation

- Install **Anaconda** (e.g., **Anaconda3-5.2.0-Windows-x86_64.exe**)
- Install **TensorFlow** *on Anaconda Prompt*

  conda install tensorflow

  (or **TensorFlow GPU**
  => for GPU Version :
  - Install **Nvidia Cuda**
  - Install **Nvidia CuDNN**)

- Install **Keras** *on Anaconda Prompt*

  conda install keras

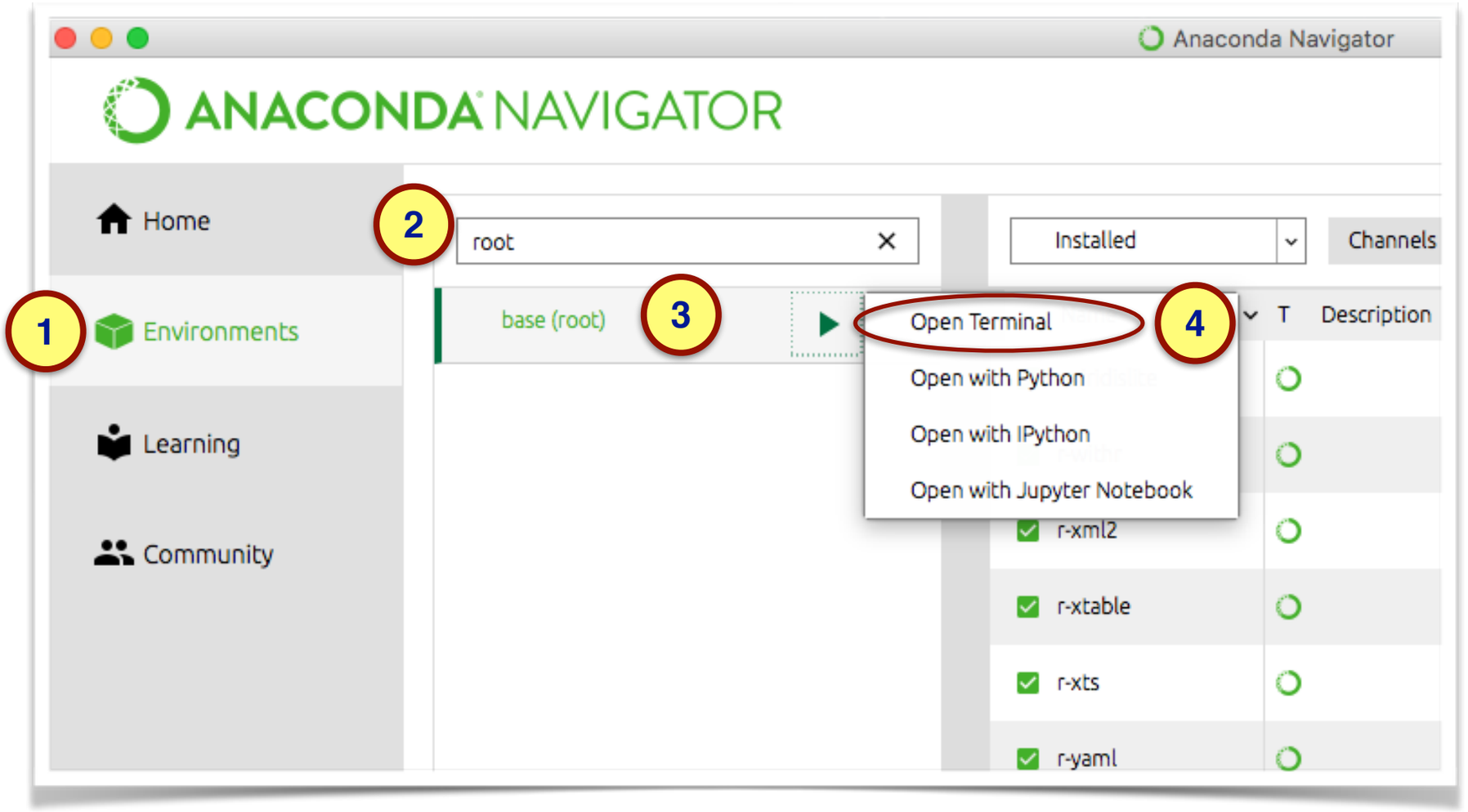
[Note] : ***@ 2019/07***

1. Anaconda with **Python 3.7 on Windows** ***doesn't*** support TensorFlow.
2. **Environment For Windows** : **Anaconda3-5.2.0-Windows-x86_64.exe**

Installing TensorFlow & Keras with Anaconda Prompt

Q : How to open Anaconda Prompt?

STEP 1 : From the **Anaconda NAVIGATOR**



STEP 2 : On the **Terminal** prompt, key in : **conda install tensorflow**