

# Introduction to TensorFlow™

Fast Campus  
Start Deep Learning with TensorFlow

# TensorFlow

A multidimensional array.



**Tensor**Flow



A graph of operations.

# History of DL Tools

- Mark 1 Perceptron – 1960
- Torch – 2002
- CUDA – 2007
- Theano – 2008
- Caffe – 2014
- DistBelief – 2011
- TensorFlow 0.1 – 2015
- PyTorch 0.1 – 2017
- TensorFlow 1.0 – 2017
- PyTorch 1.0 – 2017
- TensorFlow 2.0 – 2019

# TensorFlow in One Slide

- **What is it:** Deep Learning Library (*and more*)
    - **Facts:** Open Source, Python, Google
  - **Community:**
    - 117,000+ GitHub stars
    - TensorFlow.org: Blogs, Documentation, DevSummit, YouTube talks
  - **Ecosystem:**
    - **Keras:** high-level API
    - **TensorFlow.js:** in the browser
    - **TensorFlow Lite:** on the phone
    - **Colaboratory:** in the cloud
    - **TPU:** optimized hardware
    - **TensorBoard:** visualization
    - **TensorFlow Hub:** graph modules
  - **Alternatives:** PyTorch, MXNet, CNTK
- **Extras:**
    - Swift for TensorFlow
    - TensorFlow Serving
    - TensorFlow Extended (TFX)
    - TensorFlow Probability
    - Tensor2Tensor

# TensorFlow Statistics

41,000,000

Downloads

50,000+

commits



9,900+

pull requests

1,800+

contributors

# Search Results on Github

 tensorflow  Pull requests Issues Marketplace Explore

Repositories 54K

Code 9M

Commits 773K

Issues 111K

Marketplace 0


Topics 291

Wikis 5K

Users 717

Languages

Python	28,020
Jupyter Notebook	11,919
JavaScript	1,151
HTML	965
C++	937
Java	747
Shell	450
Dockerfile	212
TypeScript	178
C#	148

 **Tensorflow** ★ Star

TensorFlow is an open source software library for numerical computation.  
[See topic](#)

54,357 repository results Sort: Best match ▾

**tensorflow/tensorflow** ● C++ ★ 122k

An Open Source Machine Learning Framework for Everyone

[tensorflow](#) [python](#) [machine-learning](#)

Apache-2.0 license Updated 14 minutes ago 2 issues need help

**aymericdamien/TensorFlow-Examples** ● Jupyter Notebook ★ 29.8k

TensorFlow Tutorial and Examples for Beginners with Latest APIs

[tensorflow](#) [python](#) [machine-learning](#) [tutorial](#)

Updated 9 hours ago

**jikexueyuanwiki/tensorflow-zh** ● TeX ★ 10.4k

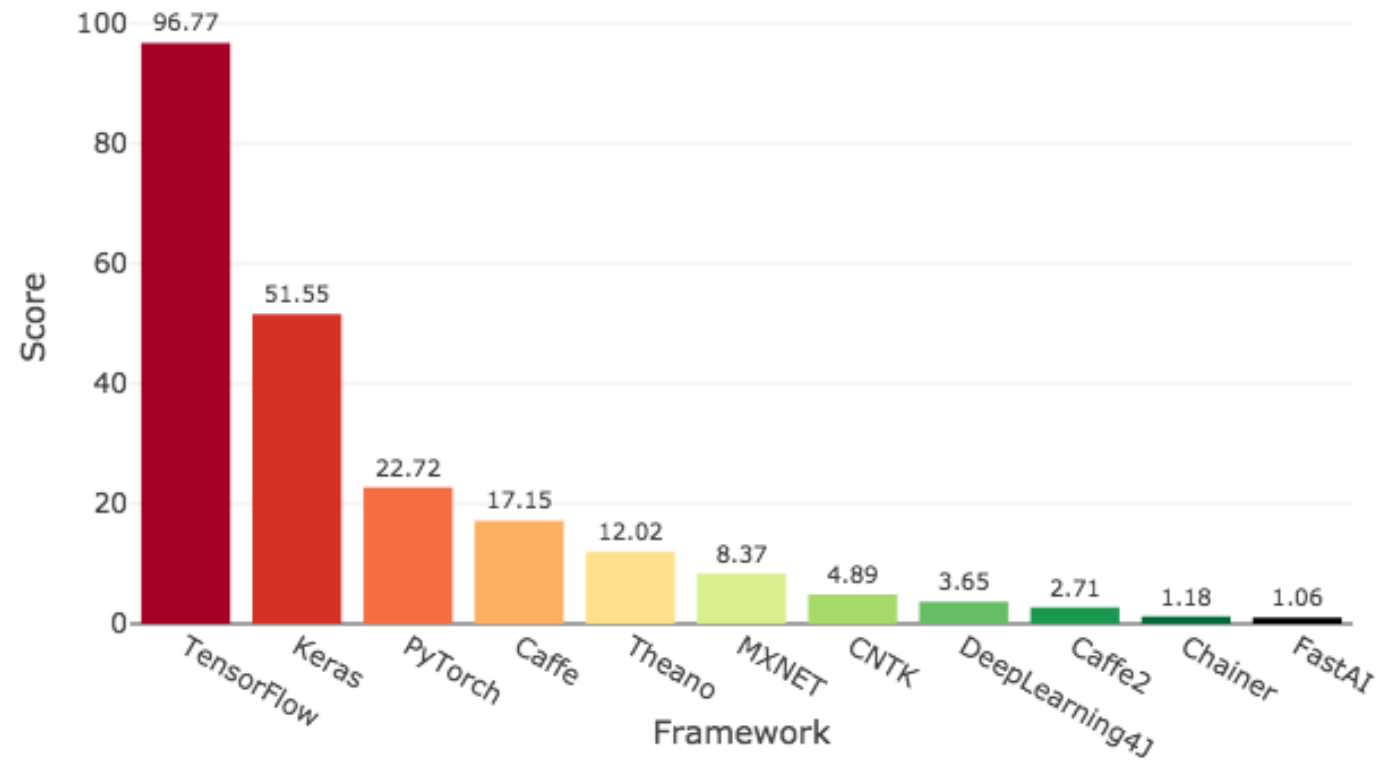
谷歌全新开源人工智能系统TensorFlow官方文档中文版

Updated on 12 Jul 2018

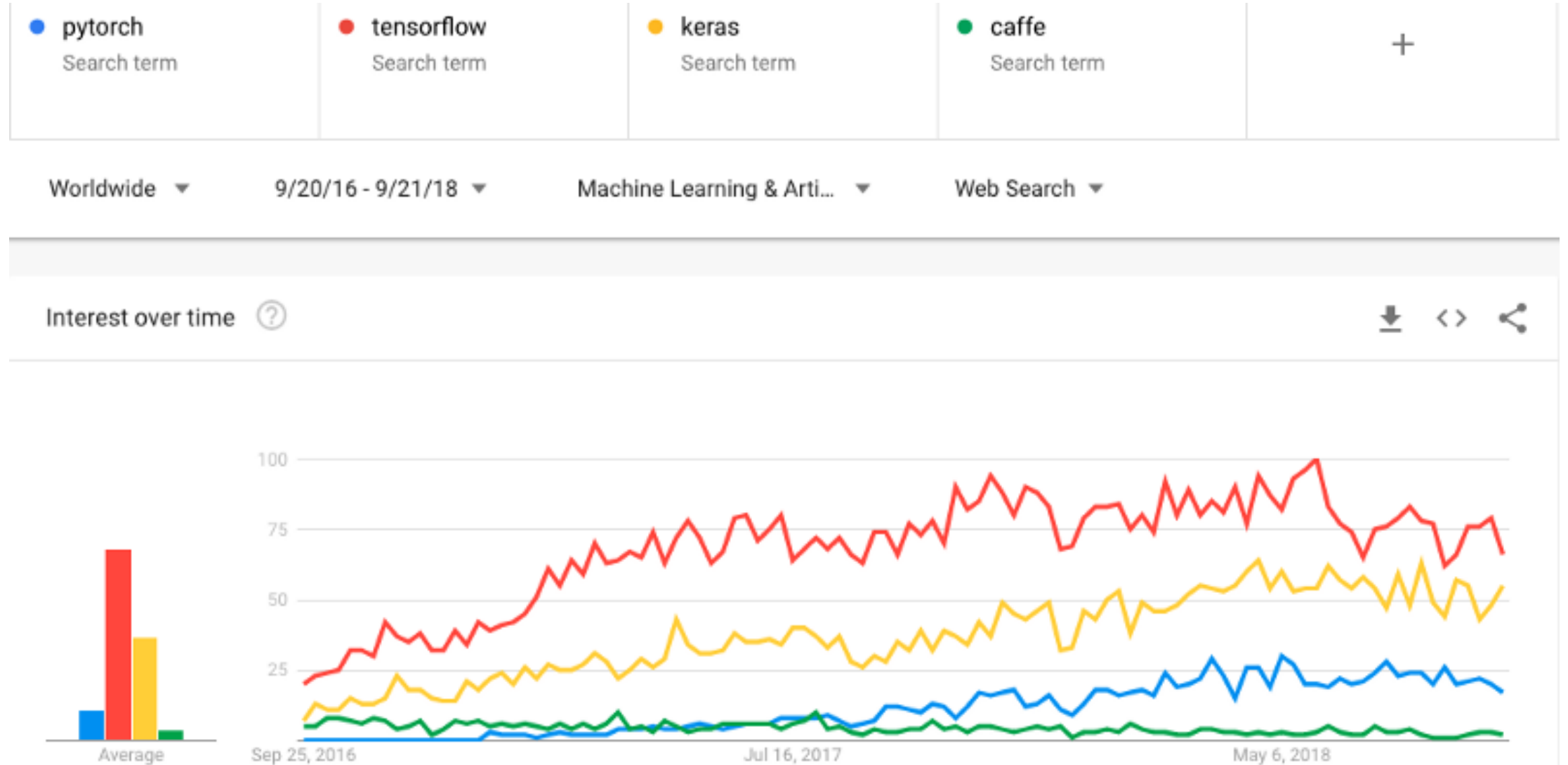
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# Popularity

Deep Learning Framework Power Scores 2018



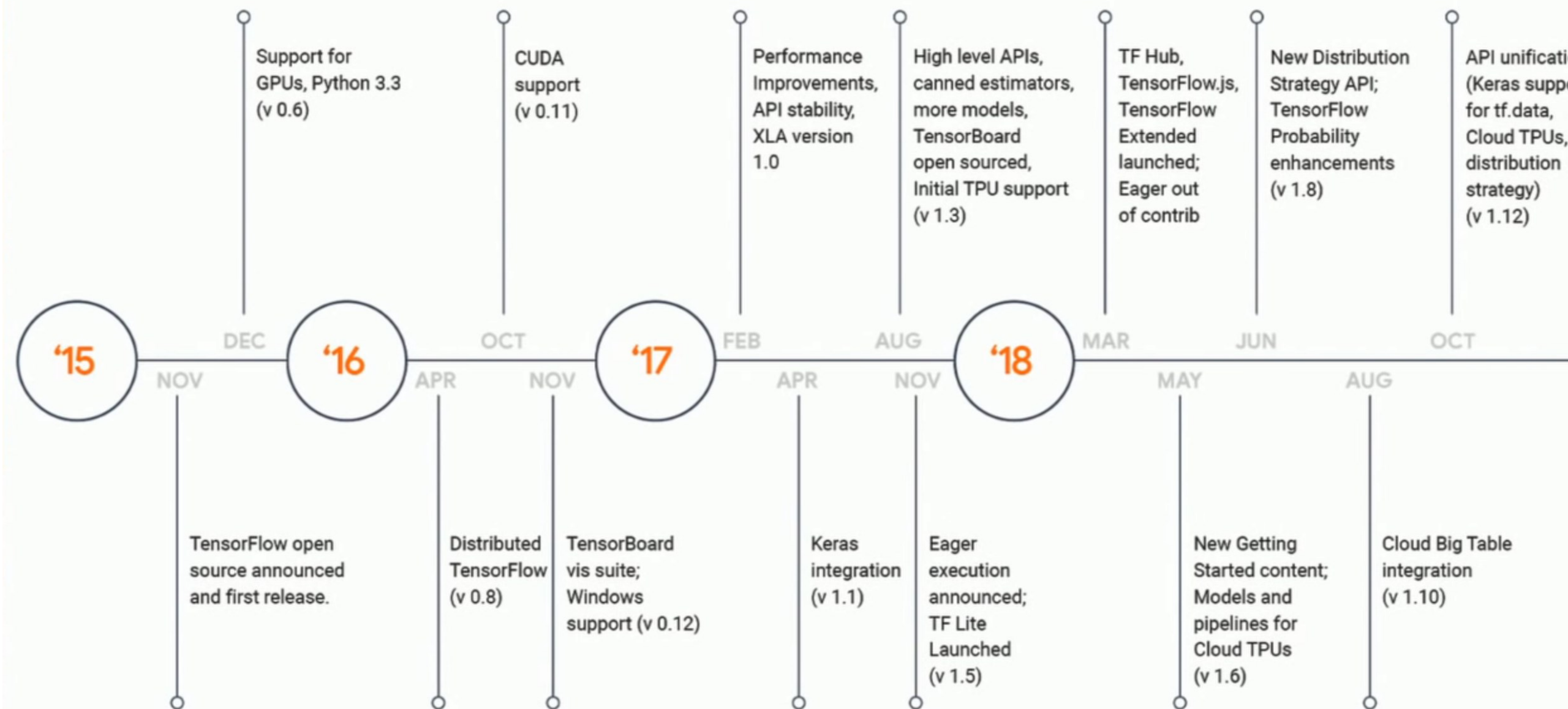
# Google Search Statistics





# Companies Using Tensorflow

- Google
- OpenAI
- DeepMind
- Snapchat
- Uber
- Airbus
- eBay
- Dropbox
- A bunch of startups



# TensorFlow Dev Summit 2019

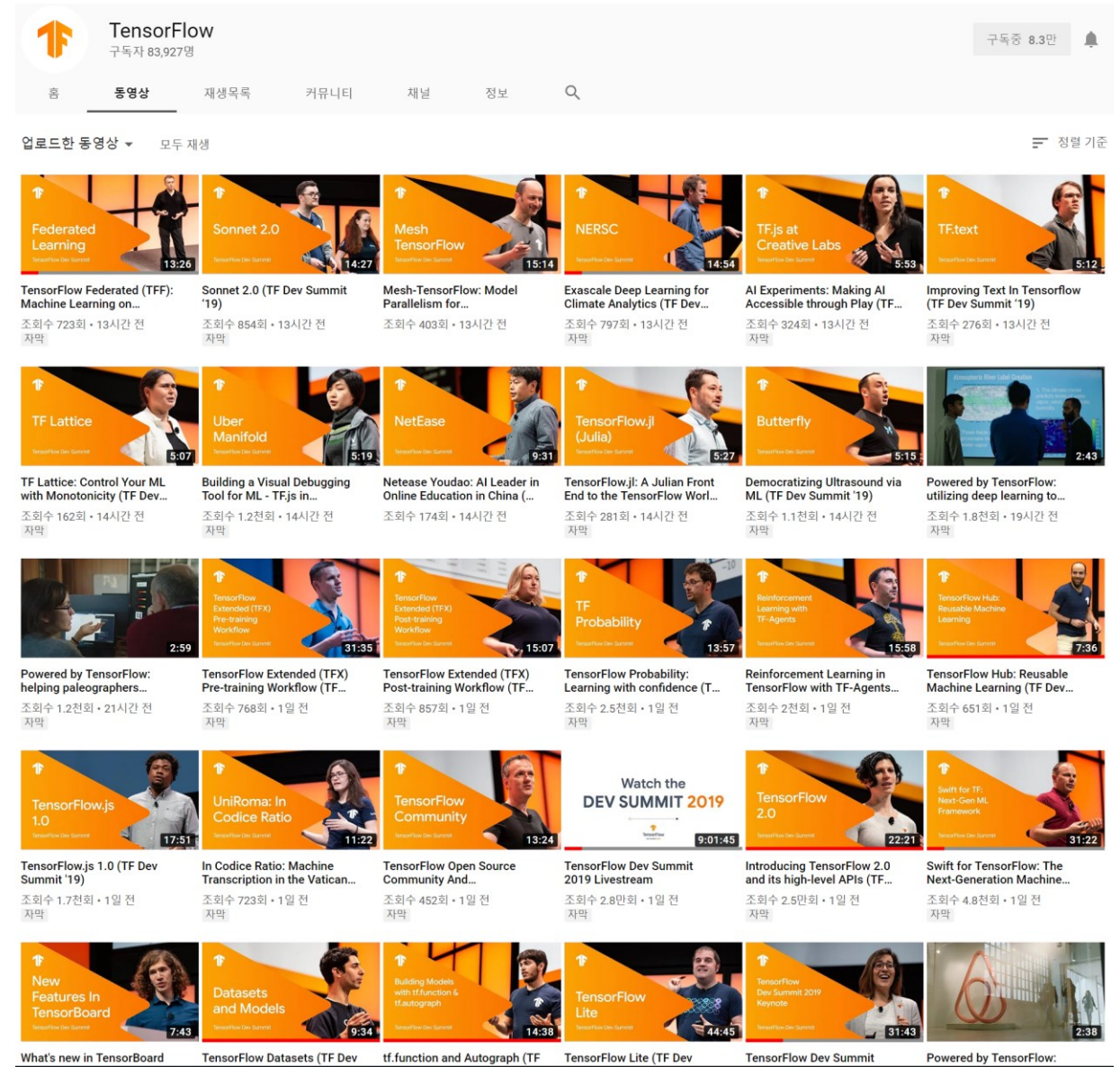
## Recap of the 2019 TensorFlow Dev Summit



TensorFlow  
Mar 8 · 7 min read

Posted by Fred Alcober and Sandeep Gupta, on behalf of the TensorFlow team

TensorFlow held its third and biggest yet annual Developer Summit in Sunnyvale, CA on March 6 and 7, 2019. The event was attended by approximately 1,000 machine learning enthusiasts and watched over livestream by tens of thousands more.



# TensorFlow 2.0

- API cleanup
- tf.keras
- Eager execution
- Functions, not sessions

```
# TensorFlow 1.X
outputs = session.run(f(placeholder), feed_dict={placeholder: input})
# TensorFlow 2.0
outputs = f(input)
```