

What's new in TensorFlow 2.0?

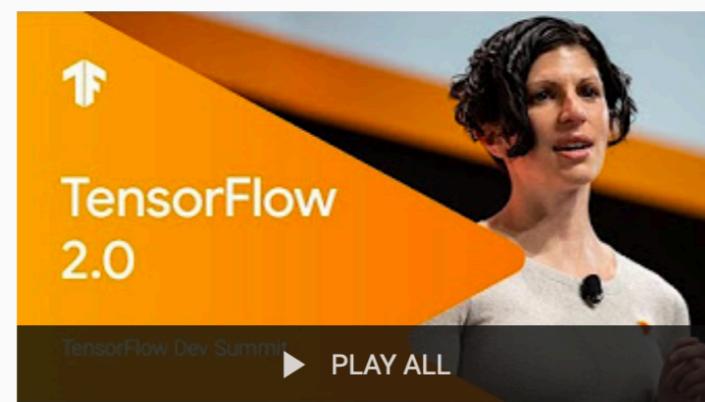
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TensorFlow Dev Summit 2019

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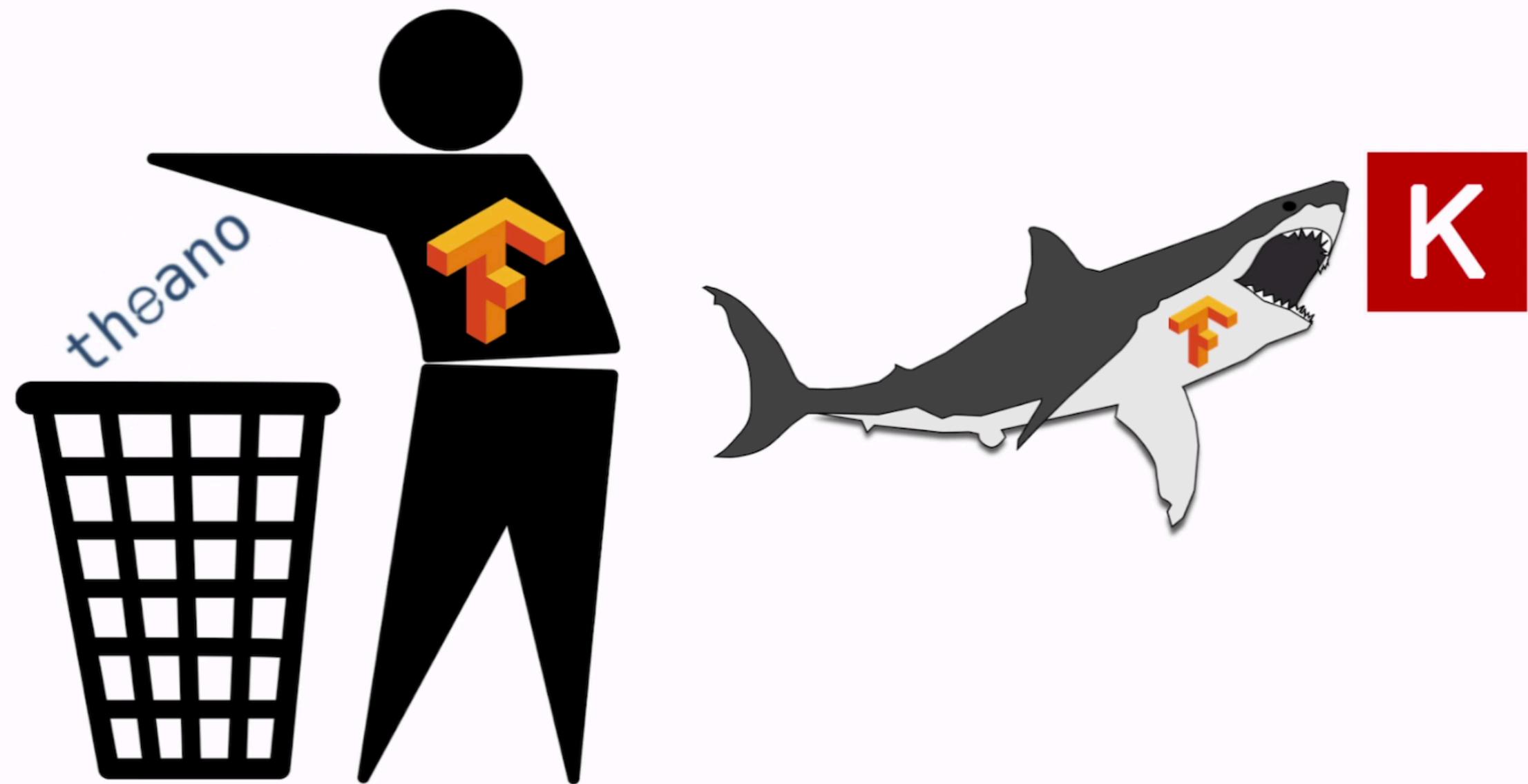
TensorFlow Dev Summit 2019 took place on March 6th and 7th at the Google Event Center in Sunnyvale, CA. Learn all about it → <http://bit.ly/TFDS19>

TensorFlow Dev Summit brings together a diverse mix of machine learning users from around the world for two days of highly technical talks, demos, and conversation with the TensorFlow team and community.

Get started at <https://www.tensorflow.org/>

#TFDevSummit

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TensorFlow 1.X

TensorFlow 2.X

How TensorFlow 2.0 is changing everything (eating Keras, kicking Theano)

118 views

118

3

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Romeo Kienzler

Published on Mar 20, 2019

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François Chollet

@fchollet

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When there's too much hype around something, it can lead people to become cynical about it and assume it's worthless.

But cynicism is not wisdom. It's laziness. If you think you already know all the answers, there's a lot you're going to miss. Keep an open mind and keep learning

5:07 PM - 20 Mar 2019

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As a Keras user, what implementation of the Keras API do you use most of the time?

- Standalone Keras package
- tf.keras
- Other (e.g. MXNet-Keras)
- Show results

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7:43 PM - 24 Mar 2019

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20



The screenshot shows a Firefox browser window with the URL <https://dataplatform.cloud.ibm.com/analytics/notebooks/v2/d94668e2-3d68-4ee2-bc87-...>. The browser has many tabs open, including WhatsApp, Riot, and various IBM-related sites. The main content is an IBM Watson Studio Jupyter notebook titled "My Projects / tf2 / tf2.keras". The notebook contains Python code for a neural network:

```
In [10]: train_images = train_images / 255.0  
test_images = test_images / 255.0  
  
In [ ]:  
#ps_strategy = tf.distribute.experimental.ParameterServerStrategy()  
#with ps_strategy.scope():  
  
    model = tf.keras.Sequential([  
        tf.keras.layers.Flatten(input_shape=(28, 28)),  
        tf.keras.layers.Dense(128, activation=tf.nn.relu),  
        tf.keras.layers.Dense(10, activation=tf.nn.softmax)  
    ])  
  
In [ ]: model.compile(optimizer='adam',  
                      loss='sparse_categorical_crossentropy',  
                      metrics=['accuracy'])  
  
In [ ]: model.fit(train_images, train_labels, epochs=5)  
  
In [ ]: test_loss, test_acc = model.evaluate(test_images, test_labels)  
print('Test accuracy:', test_acc)  
  
In [ ]:
```

On the right side of the notebook interface, there is a video player showing a man with long hair and headphones, sitting in a car and speaking. The video player has a green border around the code block where the model definition is located.

What's new in TensorFlow 2.0? Video Series - (2 of X) - Keras Distribution Strategy Integration

49 views

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Romeo Kienzler

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romeokienzler Update distribute_strategy.ipynb

e9f193d 4 days ago

5 contributors

894 lines (893 sloc) | 40.9 KB

 [Raw](#) [Blame](#) [History](#) **Copyright 2018 The TensorFlow Authors.**

```
In [0]: #@title Licensed under the Apache License, Version 2.0 (the "License");
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```

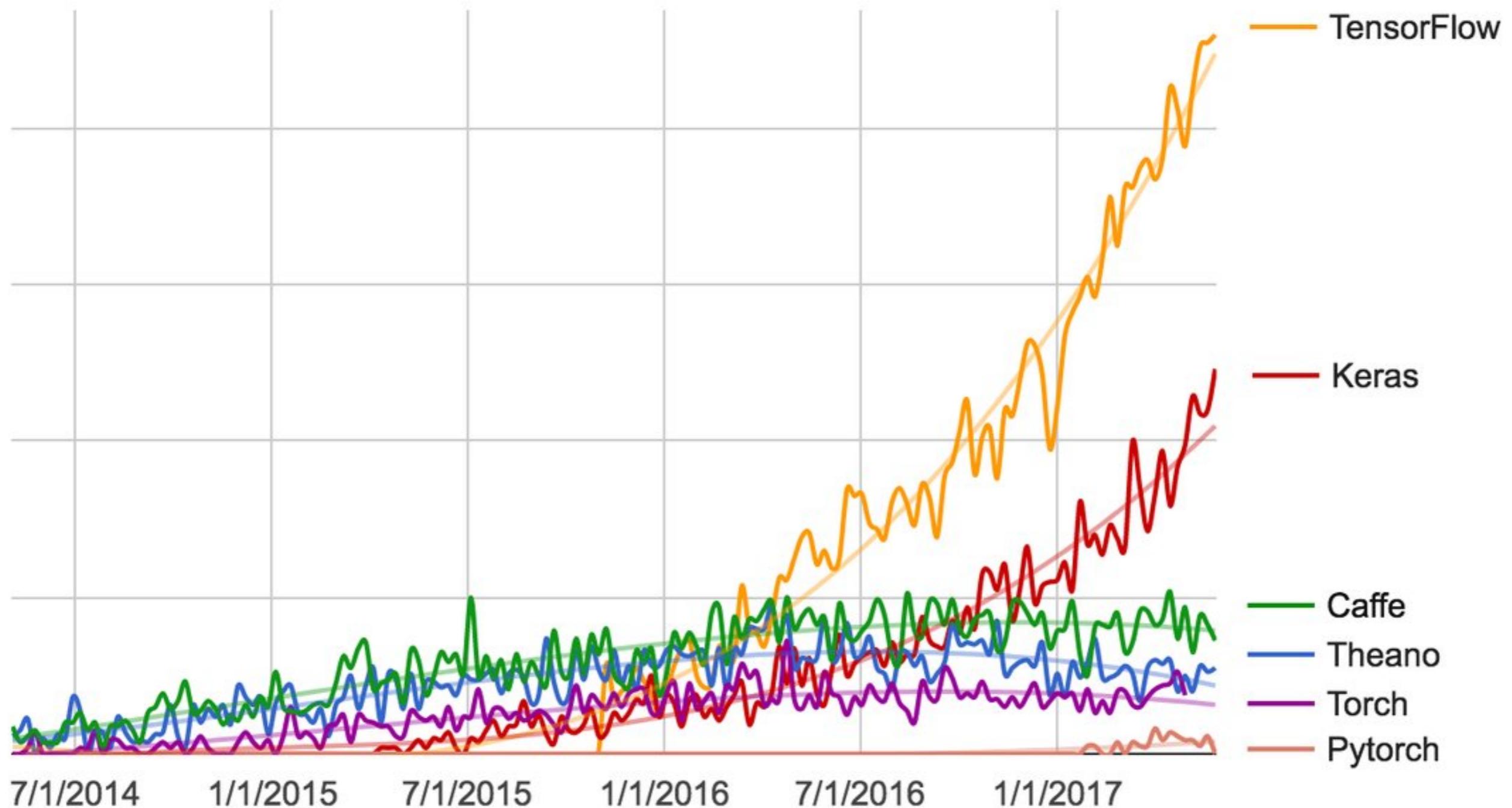
Distributed Training in TensorFlow

What's DeepLearning?

What's Machine Learning?

What's old in TensorFlow 1.x?

Deep learning framework search interest



```
KLD = -0.5 * torch.sum(1 + logvar - mu.pow(2) - logvar.exp())
```



My Projects / ... / tf2.eagerexec ▾



File Edit View Insert Cell Kernel Help

Not Trusted | Python 3.5

Format



Code ▾

In [2]: `tf.__version__`

Out[2]: '1.3.0'

In [3]: `import numpy as np`In [5]: `a = tf.constant(np.array([1., 2., 3.]))`
`type(a)`
`#print(a.numpy())`

Out[5]: tensorflow.python.framework.ops.Tensor

In [6]: `b = tf.constant(np.array([4.,5.,6.]))`
`type(b)`
`#print(b.numpy())`

Out[6]: tensorflow.python.framework.ops.Tensor

In [7]: `c = tf.tensordot(a, b,1)`
`type(c)`

Out[7]: tensorflow.python.framework.ops.Tensor

In [9]: `#print(c.numpy())`

32.0

In [8]: `session = tf.Session()`
`output = session.run(c)`
`print(output)`

32.0



```
In [2]: tf.__version__
```

```
Out[2]: '2.0.0-alpha0'
```

```
In [3]: import numpy as np
```

```
In [6]: a = tf.constant(np.array([1., 2., 3.]))
print(type(a))
print(a.numpy())
```

```
<class 'tensorflow.python.framework.ops.EagerTensor'>
[1. 2. 3.]
```

```
In [7]: b = tf.constant(np.array([4., 5., 6.]))
print(type(b))
print(b.numpy())
```

```
<class 'tensorflow.python.framework.ops.EagerTensor'>
[4. 5. 6.]
```

```
In [8]: c = tf.tensordot(a, b, 1)
type(c)
```

```
Out[8]: tensorflow.python.framework.ops.EagerTensor
```

```
In [9]: print(c.numpy())
```

```
self.main = nn.Sequential(
    # input is (nc) x 64 x 64
    nn.Conv2d(nc, ndf, 4, 2, 1, bias=False),
    nn.LeakyReLU(0.2, inplace=True),
    # state size. (ndf) x 32 x 32
    nn.Conv2d(ndf, ndf * 2, 4, 2, 1, bias=False),
    nn.BatchNorm2d(ndf * 2),
    nn.LeakyReLU(0.2, inplace=True),
    # state size. (ndf*2) x 16 x 16
    nn.Conv2d(ndf * 2, ndf * 4, 4, 2, 1, bias=False),
    nn.BatchNorm2d(ndf * 4),
    nn.LeakyReLU(0.2, inplace=True),
    # state size. (ndf*4) x 8 x 8
    nn.Conv2d(ndf * 4, ndf * 8, 4, 2, 1, bias=False),
    nn.BatchNorm2d(ndf * 8),
    nn.LeakyReLU(0.2, inplace=True),
    # state size. (ndf*8) x 4 x 4
    nn.Conv2d(ndf * 8, 1, 4, 1, 0, bias=False),
    nn.Sigmoid()
)
```



My Projects / ... / tf2.keras



```
In [21]: from tensorflow.keras import Sequential
from tensorflow.keras.layers import Flatten, Dense

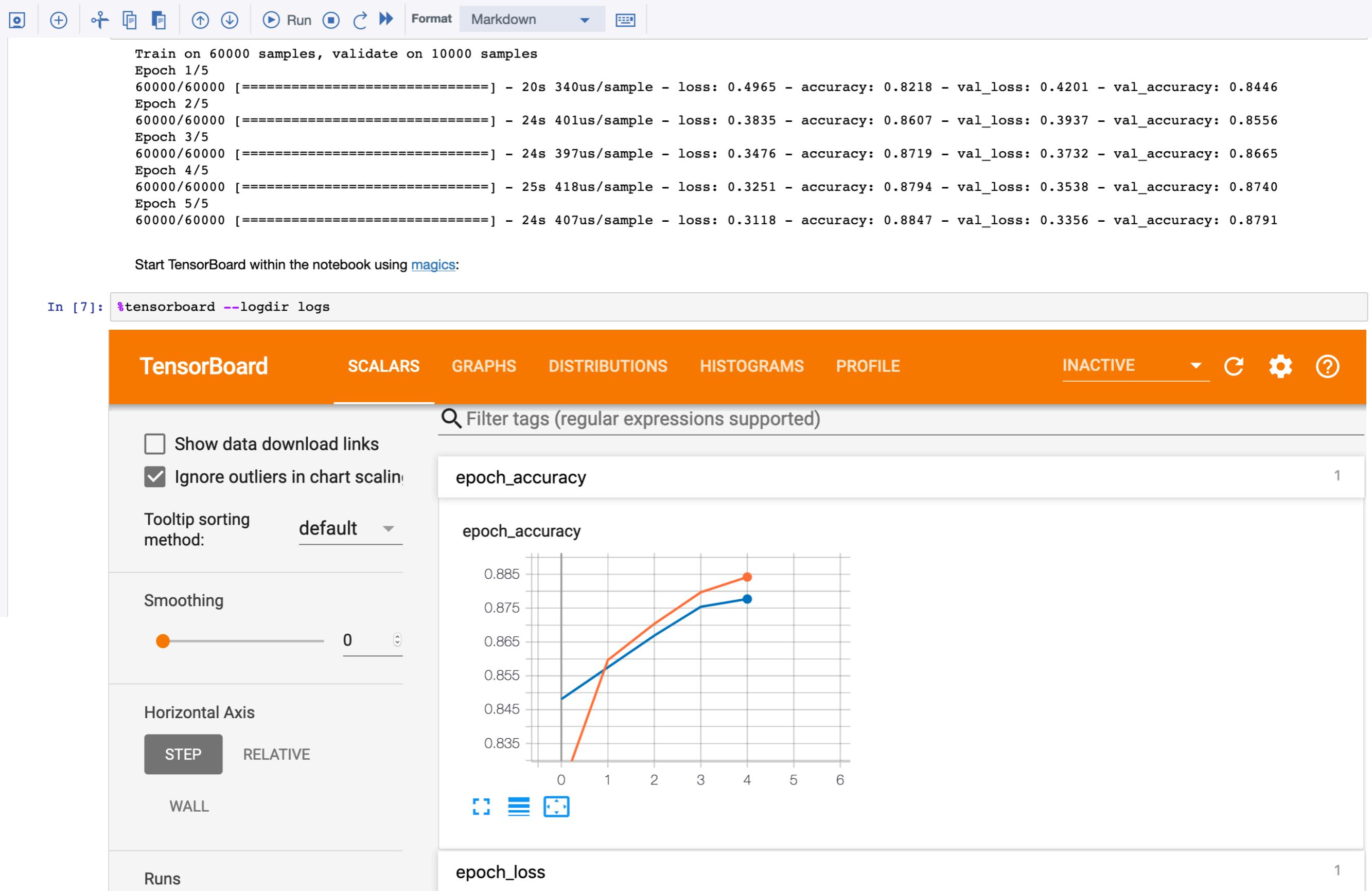
ps_strategy = tf.distribute.experimental.ParameterServerStrategy()
with ps_strategy.scope():

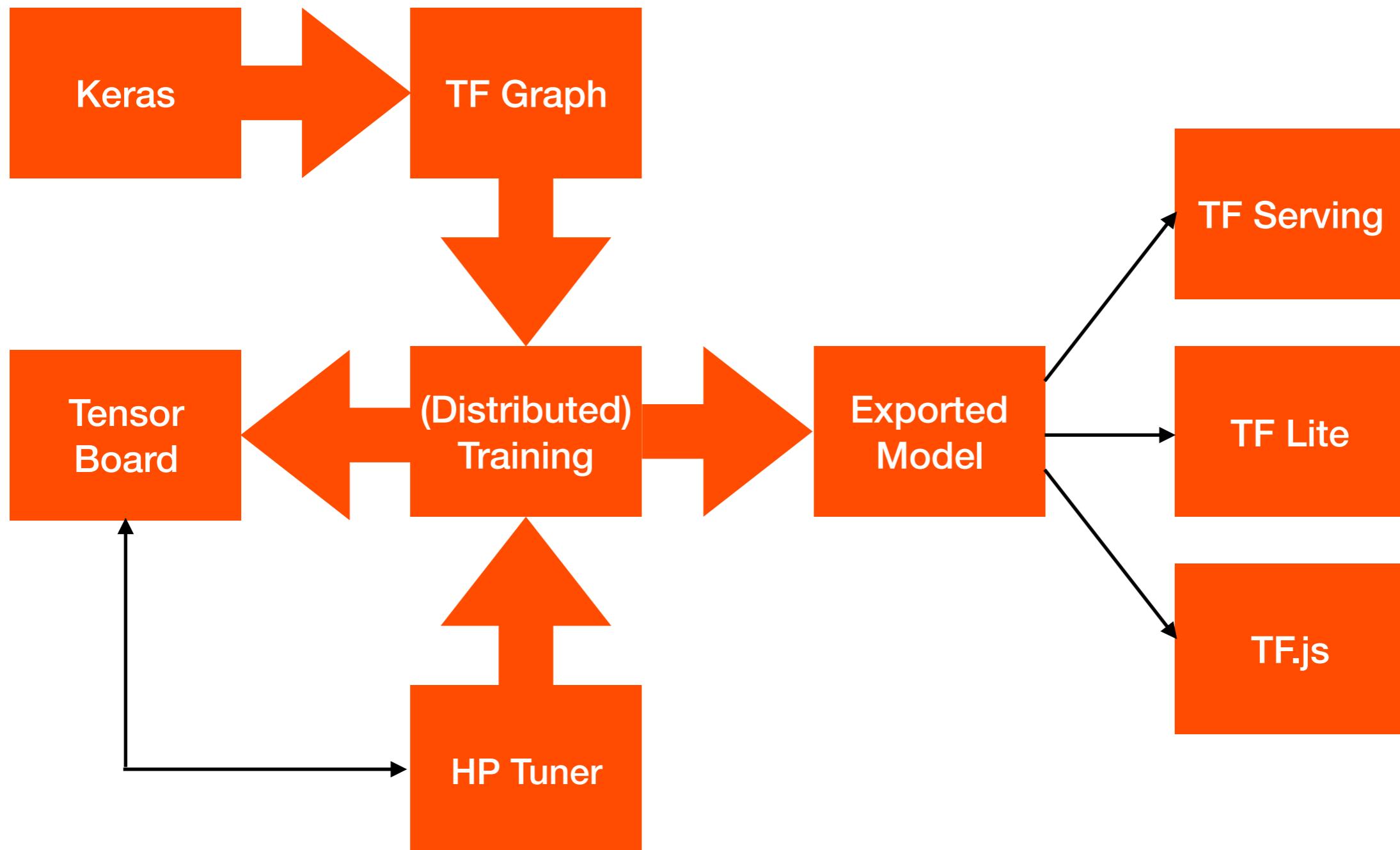
    model = Sequential([
        Flatten(input_shape=(28, 28)),
        Dense(128, activation=tf.nn.relu),
        Dense(10, activation=tf.nn.softmax)
    ])

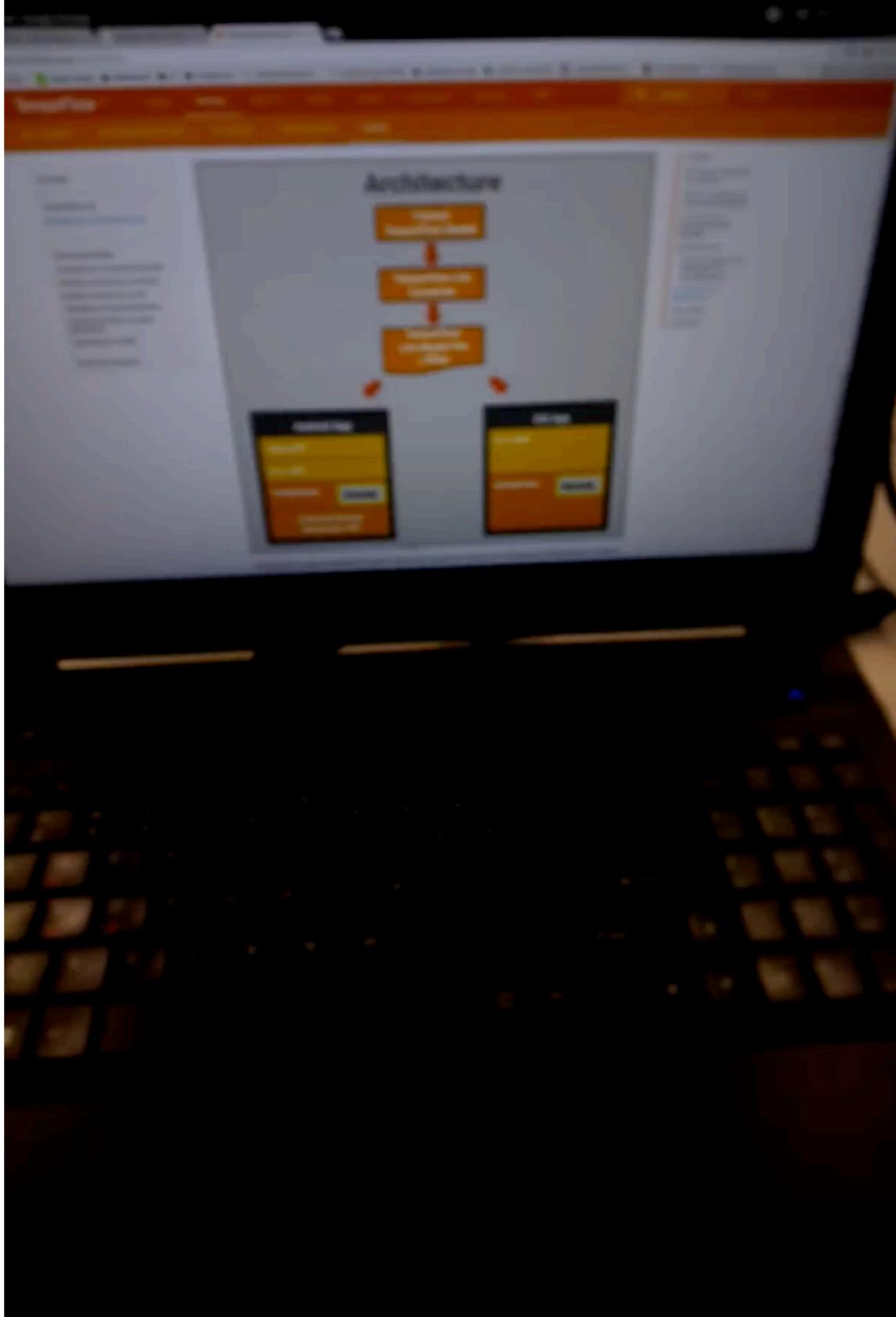
    model.compile(optimizer='adam',
                  loss='sparse_categorical_crossentropy',
                  metrics=['accuracy'])

    model.fit(train_images, train_labels, epochs=5)
```

```
Epoch 1/5
1875/1875 [=====] - 11s 6ms/step - loss: 0.4952 - accuracy: 0.8246
```







79ms
candle:0.07058824
otterhound:0.05882353
syringe:0.050980393



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Veremin — A Browser-based Video Theremin

Making music visually using TensorFlow.js, PoseNet, and the Web MIDI & Web Audio APIs

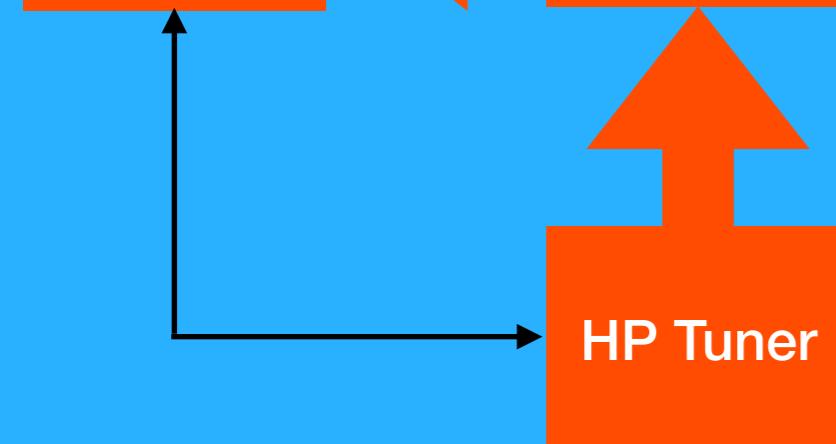
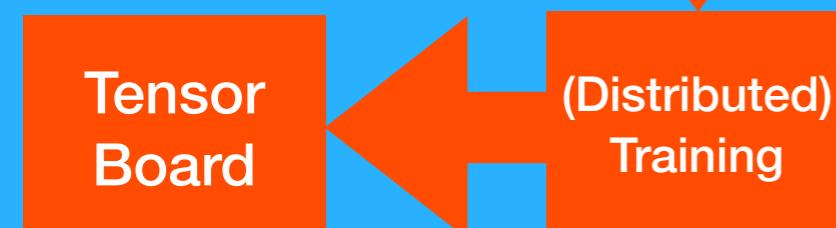
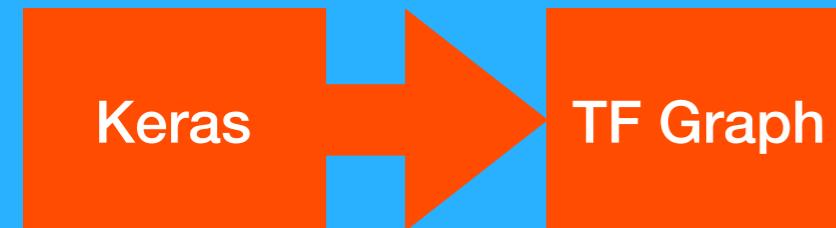


va barbosa

Feb 7 · 4 min read

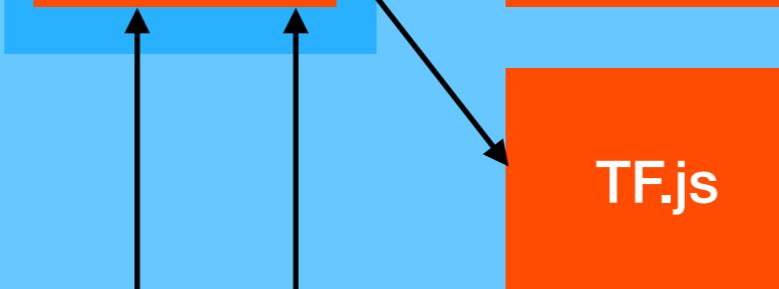
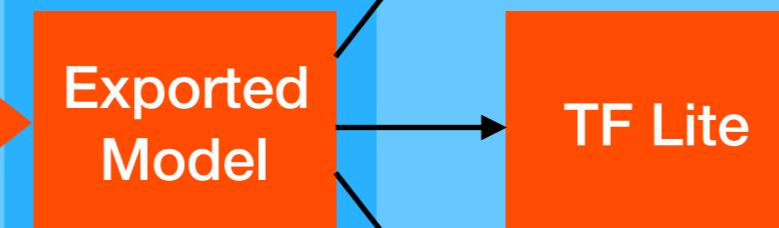
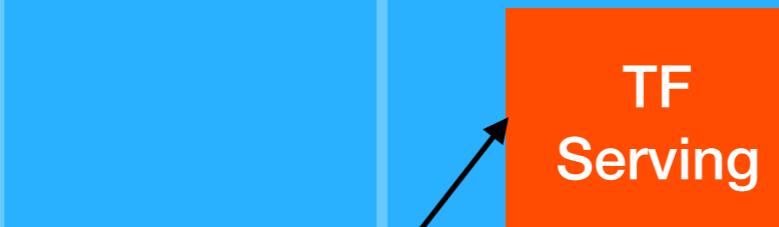
IBM Watson Open Scale

IBM Watson Studio



Model Asset Exchange

Watson Machine Learning Fabric for Deep Learning



IBM
Fairness
360

Adversarial
Robustness
Toolbox

NeuNetS

Explain a transaction



✓ 1234 x

Transaction: **1234**

Deployment: **Loan Processing**

Model Name: **Loan Model**

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APPROVED

10%

90%

Factors contributing to a **DENIED** confidence level

ACCOUNT BALANCE: **Less than \$1,000**

17%

APPLICANT AGE: **30 years**

62%

ACCOUNT STATUS: **Poor**

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COUNTRY: **Canada**

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ACCOUNT AGE: **More than 2 years**

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Romeo Kienzler

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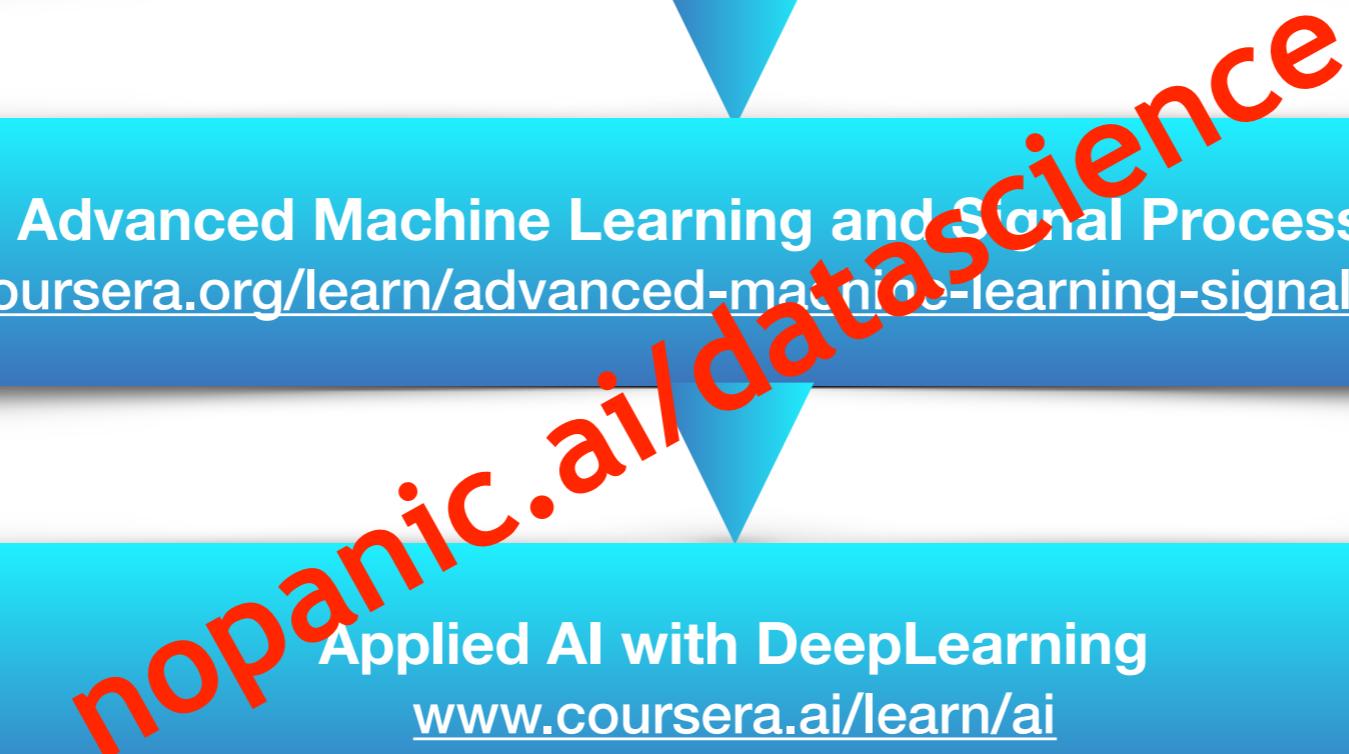
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