

TensorFlow Coding session - IMSP 1st DATA Science school

In this session we will make first steps with TF coding in colab environment.

Define from the code below that you want to access your Google drive contents

```
from google.colab import drive
drive.mount('/content/drive/')
```

After giving authorisation to this Notebook to access your Google Drive documents contents you can now list your Drive Documents. Using the commands below.

```
!ls "/content/drive/My Drive"
```

From here one, you can install your packages using

```
"!apt-get install packages" or
"!pip install -q packages"
```

You are also able to git clone or wget your codes, data and files from external sources. ==> Upload a file to your drive

```
"!wget file_url -P "/content/drive/My Drive/ColabDev" "
```

==> Git clone your Git project

```
"!git clone Git_Repository_Url"
```

You can navigate in your Drive folder and especially change working directory with the command below:

```
"import os"
"os.chdir("drive/CodelabDev")"
```

Using the "!ls" command allows you to list the content.

The code below let you know whether you are using a GPU or TPU or CPU device at execution. Note that tensorflow environment is already provided.

```
import tensorflow as tf
tf.test.gpu_device_name().
```

```
import os
os.chdir("My Drive/ColabDev")
!ls
```

To Run a tensorboard from codelabs we will use this repo : https://github.com/mixuala/colab_utils . The code below allows to load a VM that will expose the tensorboard to a public url for monitoring.

```

# You can change the directory name
LOG_DIR = 'tb_logs'

!wget https://bin.equinox.io/c/4VmDzA7iaHb/ngrok-stable-linux-amd64.zip
!unzip ngrok-stable-linux-amd64.zip

import os
if not os.path.exists(LOG_DIR):
    os.makedirs(LOG_DIR)

get_ipython().system_raw(
    'tensorboard --logdir {} --host 0.0.0.0 --port 6006 &'
    .format(LOG_DIR))

get_ipython().system_raw('./ngrok http 6006 &')

!curl -s http://localhost:4040/api/tunnels | python3 -c \
    "import sys, json; print(json.load(sys.stdin)['tunnels'][0]['public_url'])"

```

From now TensorBoard updates are stored in the defined repository and we can see the changes at the URL given above. Let's write our code now.

```

import numpy as np

X = tf.placeholder(dtype=tf.float32, shape = [None,100])
W = tf.Variable(tf.ones([100]), name="w")
b = tf.Variable(tf.ones([100]), name = "b")
a = tf.constant(2.0)

Y = X*W + tf.add(b,a)

#init
init = tf.global_variables_initializer()

sess = tf.Session()
sess.run(init)

file_writer = tf.summary.FileWriter('tb_logs', sess.graph)

x_in = np.random.randn(1,100)

Y_ = sess.run(Y, feed_dict = {X : x_in}).

print(Y_)
#sess.close()

```