# Download TF Models Pretrained Models from Tensorflow Model Zoo and Install TFOD

**if** os.name=='nt':

!pip install wget

**import** **wget**

**if** **not** os.path.exists(os.path.join(paths['APIMODEL\_PATH'], 'research', 'object\_detection')):

!git clone https://github.com/tensorflow/models {paths['APIMODEL\_PATH']}

# *# Install Tensorflow Object Detection* if os.name=='posix': !apt-get install protobuf-compiler !cd Tensorflow/models/research && protoc object\_detection/protos/\*.proto --python\_out=. && cp object\_detection/packages/tf2/setup.py . && python -m pip install . if os.name=='nt': url="https://github.com/protocolbuffers/protobuf/releases/download/v3.15.6/protoc-3.15.6-win64.zip" wget.download(url) !move protoc-3.15.6-win64.zip {paths['PROTOC\_PATH']} !cd {paths['PROTOC\_PATH']} && tar -xf protoc-3.15.6-win64.zip os.environ['PATH'] += os.pathsep + os.path.abspath(os.path.join(paths['PROTOC\_PATH'], 'bin')) !cd Tensorflow/models/research && protoc object\_detection/protos/\*.proto --python\_out=. && copy object\_detection\\packages\\tf2\\setup.py setup.py && python setup.py build && python setup.py install !cd Tensorflow/models/research/slim && pip install -e .

VERIFICATION\_SCRIPT = os.path.join(paths['APIMODEL\_PATH'], 'research', 'object\_detection', 'builders', 'model\_builder\_tf2\_test.py')

*# Verify Installation*

!python {VERIFICATION\_SCRIPT}

**Import object detection**

**if** os.name == 'nt':

wget.download(PRETRAINED\_MODEL\_URL)

!move {PRETRAINED\_MODEL\_NAME+'.tar.gz'} {paths['PRETRAINED\_MODEL\_PATH']}

!cd {paths['PRETRAINED\_MODEL\_PATH']} && tar -zxvf {PRETRAINED\_MODEL\_NAME+'.tar.gz'}

CREATE LABEL MAP (IN SCRIPT)

Run the script

labels = [{'name':'ThumbsUp', 'id':1}, {'name':'ThumbsDown', 'id':2}, {'name':'ThankYou', 'id':3}, {'name':'LiveLong', 'id':4}]

**with** open(files['LABELMAP'], 'w') **as** f:

**for** label **in** labels:

f.write('item { **\n**')

f.write('**\t**name:**\'{}\'\n**'.format(label['name']))

f.write('**\t**id:**{}\n**'.format(label['id']))

f.write('}**\n**')

CREATE TF RECORDS (IN SCRIPT)

SCRIPTS\_PATH = Tensorflow\scripts

git clone https://github.com/nicknochnack/GenerateTFRecord SCRIPT\_PATH

TF\_RECORD\_SCRIPT = Tensorflow\scripts\generate\_tfrecord.py

IMAGE\_PATH = Tensorflow\workspace\images

ANNOTATION\_PATH = Tensorflow\workspace\annotations

LABEL\_MAP = Tensorflow\workspace\annotations\label\_map.pbtxt

python Tensorflow\scripts\generate\_tfrecord.py -x Tensorflow\workspace\images\train -l Tensorflow\workspace\annotations\label\_map.pbtxt -o Tensorflow\workspace\annotations\train.record

python Tensorflow\scripts\generate\_tfrecord.py -x Tensorflow\workspace\images\test -l Tensorflow\workspace\annotations\label\_map.pbtxt -o Tensorflow\workspace\annotations\test.record

Copy Model Config to Training Folder (IN SCRIPT)

PRETRAINED\_MODEL\_PATH = Tensorflow\workspace\pre-trained-models\ssd\_mobilenet\_v2\_fpnlite\_320x320\_coco17\_tpu-8\pipeline.config

CHECKPOINT\_PATH = Tensorflow\workspace\models\my\_ssd\_mobnet

copy Tensorflow\workspace\pre-trained-models\ssd\_mobilenet\_v2\_fpnlite\_320x320\_coco17\_tpu-8\pipeline.config Tensorflow\workspace\models\my\_ssd\_mobnet

Update Config For Transfer Learning

RUN the script Update\_Config\_for\_Transfer\_Learning.py

TRAINING THE MODEL

TRAINING\_SCRIPT = Tensorflow\models\research\object\_detection\model\_main\_tf2.py

CHECKPOINT\_PATH = Tensorflow\workspace\models\my\_ssd\_mobnet

PIPELINE\_CONFIG = Tensorflow\workspace\models\my\_ssd\_mobnet\pipeline.config

python TRAINING\_SCRIPT --model\_dir= CHECKPOINT\_PATH --pipeline\_config\_path=PIPELINE\_CONFIG --num\_train\_steps=2000

python Tensorflow\models\research\object\_detection\model\_main\_tf2.py --model\_dir=Tensorflow\workspace\models\my\_ssd\_mobnet --pipeline\_config\_path=Tensorflow\workspace\models\my\_ssd\_mobnet\pipeline.config --num\_train\_steps=4000

EVALUATE THE MODEL

Run the following command

>python Tensorflow\models\research\object\_detection\model\_main\_tf2.py --model\_dir=Tensorflow\workspace\models\my\_ssd\_mobnet --pipeline\_config\_path=Tensorflow\workspace\models\my\_ssd\_mobnet\pipeline.config --checkpoint\_dir=Tensorflow\workspace\models\my\_ssd\_mobnet

VIEW ON TENSORBOARD

Go to Tensorflow\workspace\models\my\_ssd\_mobnet\train

Run

>tensorboard --logdir=.

Go to Tensorflow\workspace\models\my\_ssd\_mobnet\eval

Run

>tensorboard --logdir=.