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A simple example for saving a tensorflow model and preparing it for using on Android

```
create_hellotensor.py
       # Create a simple TF Graph
       # By Omid Alemi - Jan 2017
       # Works with TF <r1.0
       import tensorflow as tf
       I = tf.placeholder(tf.float32, shape=[None,3], name='I') # input
       W = tf.Variable(tf.zeros_initializer(shape=[3,2]), dtype=tf.float32, name='W') # weights
       b = tf.Variable(tf.zeros_initializer(shape=[2]), dtype=tf.float32, name='b') # biases
       0 = tf.nn.relu(tf.matmul(I, W) + b, name='0') # activation / output
       saver = tf.train.Saver()
      init_op = tf.global_variables_initializer()
  14
       with tf.Session() as sess:
  16
         sess.run(init_op)
         # save the graph
  18
         tf.train.write_graph(sess.graph_def, '.', 'hellotensor.pbtxt')
  20
         # normally you would do some training here
         # we will just assign something to W
         sess.run(tf.assign(W, [[1, 2],[4,5],[7,8]]))
  24
         sess.run(tf.assign(b, [1,1]))
  26
         #save a checkpoint file, which will store the above assignment
         saver.save(sess, 'hellotensor.ckpt')
  28
```

```
create model tf1.py
       # Create a simple TF Graph
       # By Omid Alemi - Jan 2017
       # Works with TF r1.0
       import tensorflow as tf
       I = tf.placeholder(tf.float32, shape=[None,3], name='I') # input
       W = tf.Variable(tf.zeros(shape=[3,2]), dtype=tf.float32, name='W') # weights
       b = tf.Variable(tf.zeros(shape=[2]), dtype=tf.float32, name='b') # biases
       0 = tf.nn.relu(tf.matmul(I, W) + b, name='0') # activation / output
      saver = tf.train.Saver()
      init_op = tf.global_variables_initializer()
  14
       with tf.Session() as sess:
        sess.run(init_op)
         tf.train.write_graph(sess.graph_def, '.', 'tfdroid.pbtxt')
  19
  20
         # normally you would do some training here
```

```
# but fornow we will just assign something to W
sess.run(tf.assign(W, [[1, 2],[4,5],[7,8]]))
sess.run(tf.assign(b, [1,1]))

# save a checkpoint file, which will store the above assignment
saver.save(sess, 'tfdroid.ckpt')
```

```
prep_model.py
   # Preparing a TF model for usage in Android
       # By Omid Alemi - Jan 2017
      # Works with TF <r1.0
   5 import sys
   6 import tensorflow as tf
      from tensorflow.python.tools import freeze_graph
      from tensorflow.python.tools import optimize_for_inference_lib
   9
  10
       MODEL_NAME = 'hellotensor'
       # Freeze the graph
  14
      input graph path = MODEL NAME+'.pbtxt'
      checkpoint_path = './'+MODEL_NAME+'.ckpt'
  16
  input_saver_def_path = ""
  18 input_binary = False
  19   output_node_names = "0"
  20 restore_op_name = "save/restore_all"
  21 filename_tensor_name = "save/Const:0"
  22  output_frozen_graph_name = 'frozen_'+MODEL_NAME+'.pb'
  output optimized graph name = 'optimized '+MODEL NAME+'.pb'
  24
       clear devices = True
       freeze_graph.freeze_graph(input_graph_path, input_saver_def_path,
  28
                                input_binary, checkpoint_path, output_node_names,
                                restore_op_name, filename_tensor_name,
                                output_frozen_graph_name, clear_devices, "")
       # Optimize for inference
  34
  36
       input_graph_def = tf.GraphDef()
       with tf.gfile.Open(output_frozen_graph_name, "r") as f:
          data = f.read()
  38
           input_graph_def.ParseFromString(data)
  39
  40
       output_graph_def = optimize_for_inference_lib.optimize_for_inference(
  41
  42
              input_graph_def,
              ["I"], # an array of the input node(s)
  43
  44
               ["0"], # an array of output nodes
  45
              tf.float32.as_datatype_enum)
  48
       # Save the optimized graph
  49
       f = tf.gfile.FastGFile(output_optimized_graph_name, "w")
  50
       f.write(output_graph_def.SerializeToString())
       # tf.train.write_graph(output_graph_def, './', output_optimized_graph_name)
```

```
prep_model_tf1.py
```

```
# Preparing a TF model for usage in Android
    # By Omid Alemi - Jan 2017
    # Works with TF r1.0
    import sys
    import tensorflow as tf
    from tensorflow.python.tools import freeze_graph
     from tensorflow.python.tools import optimize_for_inference_lib
10
    MODEL NAME = 'tfdroid'
    # Freeze the graph
14
    input_graph_path = MODEL_NAME+'.pbtxt'
16
    checkpoint_path = './'+MODEL_NAME+'.ckpt'
17 input_saver_def_path = ""
18 input_binary = False
19 output node names = "0"
20 restore_op_name = "save/restore_all"
21 filename_tensor_name = "save/Const:0"
    output_frozen_graph_name = 'frozen_'+MODEL_NAME+'.pb'
    output_optimized_graph_name = 'optimized_'+MODEL_NAME+'.pb'
24
    clear_devices = True
26
    freeze_graph.freeze_graph(input_graph_path, input_saver_def_path,
28
                              input_binary, checkpoint_path, output_node_names,
                              restore_op_name, filename_tensor_name,
30
                              output_frozen_graph_name, clear_devices, "")
34
    # Optimize for inference
36
    input graph def = tf.GraphDef()
    with tf.gfile.Open(output_frozen_graph_name, "r") as f:
        data = f.read()
38
        input_graph_def.ParseFromString(data)
40
41
     output_graph_def = optimize_for_inference_lib.optimize_for_inference(
42
            input_graph_def,
            ["I"], # an array of the input node(s)
43
44
            ["0"], # an array of output nodes
            tf.float32.as_datatype_enum)
45
46
47
    # Save the optimized graph
48
49
    f = tf.gfile.FastGFile(output_optimized_graph_name, "w")
50
    f.write(output_graph_def.SerializeToString())
    # tf.train.write_graph(output_graph_def, './', output_optimized_graph_name)
```

```
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```