# Train Model Using Python

## Setup:

TensorFlow cloned from <https://github.com/tensorflow/tensorflow.git> in d:\

Download mobilenet/imagenet models

Mobilenet: <http://download.tensorflow.org/models/mobilenet_v1_1.0_224_frozen.tgz>

Imagenet: <http://download.tensorflow.org/models/image/imagenet/inception-2015-12-05.tgz>

For Inception V3:

input\_layer = Mul

input\_size = 299

input\_mean = 128

input\_std = 128

output\_layer = final\_result

For MobileNet:

input\_layer = input

input\_size = [last number of model architecture]

input\_mean = 127.5

input\_std = 127.5

output\_layer = final\_result

**Step1:**

python tensorflow/examples/image\_retraining/retrain.py --output\_graph=/tmp/retrained\_models/output\_graph.pb --output\_labels=/tmp/retrained\_models/output\_labels.txt --image\_dir=/arpitphotos --architecture=mobilenet\_1.0\_224

**Step2:**

python tensorflow/python/tools/strip\_unused.py --input\_graph=/tmp/retrained\_models/output\_graph.pb --output\_graph=/tmp/retrained\_models/stripped\_output\_graph.pb --input\_node\_names=Mul --output\_node\_names=final\_result --input\_binary=true

**Step3:** This step is needed to make the model run successfully on Android. Before quantization, the retrained model size is almost 90MB, and the app would just crash when the model is loaded on an actual Android device. With quantization, the model size is only a little over 20MB. This may be skiped

python tensorflow/tools/quantization/quantize\_graph.py --input=/tmp/retrained\_models/stripped\_output\_graph.pb --output\_node\_names="final\_result" --print\_nodes --output=/tmp/retrained\_models/quantized\_stripped\_output\_graph.pb --mode=weights --logtostderr

**Step4: Optimize for mobile**

python tensorflow/python/tools/optimize\_for\_inference.py --input=/tmp/retrained\_models/quantized\_stripped\_output\_graph.pb --output=/tmp/retrained\_models/optimized\_quantized\_stripped\_output\_graph.pb --input\_names=Mul --output\_names=final\_result

**Step:5 Validate output**

python tensorflow/examples/image\_retraining/label\_image.py --graph=/tmp/retrained\_models/optimized\_quantized\_stripped\_output\_graph.pb --labels=/tmp/retrained\_models/output\_labels.txt --output\_layer=final\_result:0 --image=/arpitphotos/arpit/20882214\_795059637343640\_7194533053665622445\_n.jpg

reference

https://github.com/dbrant/mlnotes