TensorFlow

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1. INTRODAION

Tensor Flow is an office at Google that makes artificial intelligence very fast. He can recognize objects in front of him and recognize the sound or movement of a sign.

2. TensorFlow Lite example apps

Explore pre-trained TensorFlow Lite models and learn how to use them in sample apps for a variety of ML applications.

3. Object detection

Tensor Flow is trained to detect the type, shape, and location of an object from among multiple categories of objects. When looking at an image or video, Tensor Flow can detect the object, determine its type, and provide information about it.

- Input Signature

  The model takes an image as input. Lets assume the expected image is 300x300 pixels, with three channels (red, blue, and green) per pixel. This should be fed to the model as a flattened buffer of 270,000 byte values (300x300x3). If the model is quantized, each value should be a single byte representing a value between 0 and 255.

- Output Signature

  The model outputs four arrays, mapped to the indices 0-4. Arrays 0, 1, and 2 describe N detected objects, with one element in each array corresponding to each object.

  - 0 Locations
  - 1 Classes
  - 2 Scores
  - 3 Number of detections

3.1 Android

It is a camera application that can detect objects (bounding boxes and categories) via the back camera of your device. You can use a MobileNet

SSD model, EfficientDet Lite 0, EfficientDet Lite1, or EfficientDet Lite2 model trained on a dataset.This app must work on an actual Android device.

3.2 IOS

This is a camera app that continuously detects objects (bounding boxes and categories) in frames seen by your device's rear camera, using a quantum MobileNet SSD model trained on the COCO dataset.Model files are downloaded via scripts in Xcode upon build and run. You don't need to do any steps to explicitly download TFLite models into the project.

4. Example

Imagine that a model might be trained to detect apple and banana. When the image is submitted, the exact number of detection results will be determined

Class	Score	Location
Apple	0.92	[18, 21, 57, 63]
Banana	0.88	[100, 30, 180, 150]