

Assignment @ Resolute AI Software Private Limited

By SHIVAM KUMAR

In [1]: `pip install opencv-python`

Requirement already satisfied: opencv-python in c:\users\shivam\anaconda3\lib\site-packages (4.9.0.80)
Requirement already satisfied: numpy>=1.21.2 in c:\users\shivam\anaconda3\lib\site-packages (from opencv-python) (1.24.3)
Note: you may need to restart the kernel to use updated packages.

In [2]: `pip install cvlib`

Requirement already satisfied: cvlib in c:\users\dhiwaha_k\anaconda3\lib\site-packages (0.2.7)
Requirement already satisfied: requests in c:\users\dhiwaha_k\anaconda3\lib\site-packages (from cvlib) (2.27.1)
Requirement already satisfied: numpy in c:\users\dhiwaha_k\anaconda3\lib\site-packages (from cvlib) (1.21.5)
Requirement already satisfied: imageio in c:\users\dhiwaha_k\anaconda3\lib\site-packages (from cvlib) (2.9.0)
Requirement already satisfied: pillow in c:\users\dhiwaha_k\anaconda3\lib\site-packages (from cvlib) (9.0.1)
Requirement already satisfied: progressbar in c:\users\dhiwaha_k\anaconda3\lib\site-packages (from cvlib) (2.5)
Requirement already satisfied: imutils in c:\users\dhiwaha_k\anaconda3\lib\site-packages (from cvlib) (0.5.4)
Requirement already satisfied: idna<4,>=2.5 in c:\users\dhiwaha_k\anaconda3\lib\site-packages (from requests->cvlib) (3.3)
Requirement already satisfied: charset-normalizer~2.0.0 in c:\users\dhiwaha_k\anaconda3\lib\site-packages (from requests->cvlib) (2.0.4)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\dhiwaha_k\anaconda3\lib\site-packages (from requests->cvlib) (2021.10.8)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\dhiwaha_k\anaconda3\lib\site-packages (from requests->cvlib) (1.26.9)
Note: you may need to restart the kernel to use updated packages.

```
In [3]: pip install tensorflow
```

Requirement already satisfied: tensorflow in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (2.10.0)

Requirement already satisfied: wrapt>=1.11.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (1.12.1)

Requirement already satisfied: libclang>=13.0.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (14.0.6)

Requirement already satisfied: flatbuffers>=2.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (22.10.26)

Requirement already satisfied: gast<=0.4.0,>=0.2.1 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (0.4.0)

Requirement already satisfied: tensorflow-estimator<2.11,>=2.10.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (2.10.0)

Requirement already satisfied: tensorboard<2.11,>=2.10 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (2.10.1)

Requirement already satisfied: typing-extensions>=3.6.6 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (4.1.1)

Requirement already satisfied: numpy>=1.20 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (1.21.5)

Requirement already satisfied: opt-einsum>=2.3.2 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (3.3.0)

Requirement already satisfied: astunparse>=1.6.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (1.6.3)

Requirement already satisfied: termcolor>=1.1.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (2.1.0)

Requirement already satisfied: google-pasta>=0.1.1 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (0.2.0)

Requirement already satisfied: grpcio<2.0,>=1.24.3 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (1.42.0)

Requirement already satisfied: absl-py>=1.0.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (1.3.0)

Requirement already satisfied: tensorflow-io-gcs-filesystem>=0.23.1 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (0.27.0)

Requirement already satisfied: h5py>=2.9.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (3.6.0)

Requirement already satisfied: protobuf<3.20,>=3.9.2 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (3.19.1)

Requirement already satisfied: keras<2.11,>=2.10.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (2.10.0)

Requirement already satisfied: keras-preprocessing>=1.1.1 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (1.1.2)

Requirement already satisfied: setuptools in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (61.2.0)

Requirement already satisfied: packaging in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (21.3)

Requirement already satisfied: six>=1.12.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorflow) (1.16.0)

Requirement already satisfied: wheel<1.0,>=0.23.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from astunparse>=1.6.0->tensorflow) (0.37.1)

Requirement already satisfied: markdown>=2.6.8 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorboard<2.11,>=2.10->tensorflow) (3.3.4)

Requirement already satisfied: tensorboard-plugin-wit>=1.6.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorboard<2.11,>=2.10->tensorflow) (1.8.1)

Requirement already satisfied: google-auth<3,>=1.6.3 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorboard<2.11,>=2.10->tensorflow) (1.33.0)

Requirement already satisfied: tensorboard-data-server<0.7.0,>=0.6.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorboard<2.11,>=2.10->tensorflow) (0.6.1)

Requirement already satisfied: werkzeug>=1.0.1 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorboard<2.11,>=2.10->tensorflow) (2.0.3)

Requirement already satisfied: requests<3,>=2.21.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorboard<2.11,>=2.10->tensorflow) (2.27.1)

Requirement already satisfied: google-auth-oauthlib<0.5,>=0.4.1 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from tensorboard<2.11,>=2.10->tensorflow) (0.4.6)

Requirement already satisfied: rsa<5,>=3.1.4 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from google-auth<3,>=1.6.3->tensorboard<2.11,>=2.10->tensorflow) (4.7.2)

Requirement already satisfied: pyasn1-modules>=0.2.1 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from google-auth<3,>=1.6.3->tensorboard<2.11,>=2.10->tensorflow) (0.2.8)

Requirement already satisfied: cachetools<5.0,>=2.0.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from google-auth<3,>=1.6.3->tensorboard<2.11,>=2.10->tensorflow) (4.2.2)

Requirement already satisfied: requests-oauthlib>=0.7.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from google-auth-oauthlib<0.5,>=0.4.1->tensorboard<2.11,>=2.10->tensorflow) (1.3.1)

Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from pyasn1-modules>=0.2.1->google-auth<3,>=1.6.3->tensorboard<2.11,>=2.10->tensorflow) (0.4.8)

Requirement already satisfied: charset-normalizer~=2.0.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (2.0.4)

Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (1.26.9)

Requirement already satisfied: certifi>=2017.4.17 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (2021.10.8)

Requirement already satisfied: idna<4,>=2.5 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (3.3)

Requirement already satisfied: oauthlib>=3.0.0 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from requests-oauthlib>=0.7.0->google-auth-oauthlib<0.5,>=0.4.1->tensorboard<2.11,>=2.10->tensorflow) (3.2.2)

Requirement already satisfied: pyparsing!=3.0.5,>=2.0.2 in c:\users\dhiwaha_r_k\anaconda3\lib\site-packages (from packaging->tensorflow) (3.0.4)

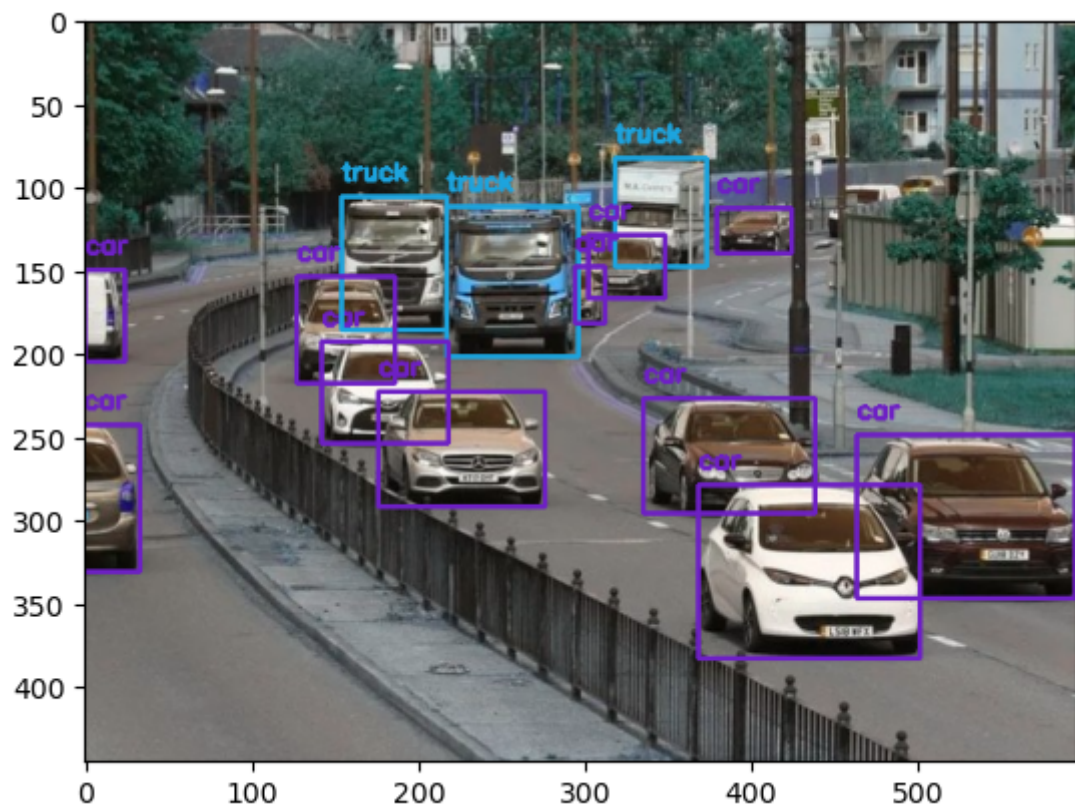
Note: you may need to restart the kernel to use updated packages.

```
In [2]: import cv2
import numpy as np
import matplotlib.pyplot as plt
import cvlib as cv
from cvlib.object_detection import draw_bbox
from numpy.lib.polynomial import poly
```

WARNING:tensorflow:From C:\Users\shivam\anaconda3\Lib\site-packages\keras\src\losses.py:2976: The name tf.losses.sparse_softmax_cross_entropy is deprecated. Please use tf.compat.v1.losses.sparse_softmax_cross_entropy instead.

```
In [3]: img = cv2.imread("cars.jpg")
box,label,count = cv.detect_common_objects(img)
output = draw_bbox(img,box,label,count)
```

```
In [4]: plt.imshow(output)
plt.show()
print("Number of cars in this image are " +str(label.count('car')))
```



Number of cars in this image are 11

```
In [ ]: Thanks
```