Assignment_6.3

April 26, 2021

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

```
Collecting opencv-python
  Downloading opencv_python-4.5.1.48-cp38-cp38-manylinux2014_x86_64.whl (50.4
MB)
     |                 | 50.4 MB 51 kB/s s eta 0:00:01
|                        | 22.7 MB 9.6 MB/s eta 0:00:03
|                       | 28.3 MB 9.6 MB/s eta 0:00:03
|                      | 30.0 MB 9.6 MB/s eta 0:00:03             |
32.9 MB 9.6 MB/s eta 0:00:02     |                      | 36.2 MB 9.6
MB/s eta 0:00:02     |                  | 45.8 MB 14.5 MB/s eta
0:00:01
Requirement already satisfied: numpy>=1.17.3 in
/opt/conda/lib/python3.8/site-packages (from opencv-python) (1.19.5)
Installing collected packages: opencv-python
Successfully installed opencv-python-4.5.1.48
Note: you may need to restart the kernel to use updated packages.
```

[2]:
```
from tensorflow.keras.applications.resnet50 import ResNet50
from tensorflow.keras.preprocessing import image
from tensorflow.keras.applications.resnet50 import preprocess_input,␣
 ↪decode_predictions
import numpy as np
import os, cv2

model = ResNet50(weights='imagenet')

img_path = 'images'

images = os.listdir(img_path)

for i,name in enumerate(images):
    print(name)
```

```
Downloading data from https://storage.googleapis.com/tensorflow/keras-
applications/resnet/resnet50_weights_tf_dim_ordering_tf_kernels.h5
102973440/102967424 [==============================] - 6s 0us/step
dog_image.jpeg
```

```
mountain.jpg
leaves.jpeg
face.jpg
sails.jpg
tulip.jpg
car_race.jpg
```

[3]:
```
for i,name in enumerate(images):

    if name != '.ipynb_checkpoints':
        img = cv2.imread(img_path + '/' + name)
        img = cv2.resize(img, (224,224))
        x = image.img_to_array(img)
        x = np.expand_dims(x, axis=0)
        x = preprocess_input(x)

        preds = model.predict(x)

        decpr = name, decode_predictions(preds, top=3)[0]

        print(decpr)

        with open('results/6_3_predictions.txt', 'w') as f:
            f.write(decpr[0])
    else:
        pass
```

```
Downloading data from https://storage.googleapis.com/download.tensorflow.org/dat
a/imagenet_class_index.json
40960/35363 [==================================] - 0s 1us/step
('dog_image.jpeg', [('n02099712', 'Labrador_retriever', 0.38258508),
('n02099601', 'golden_retriever', 0.2927683), ('n02104029', 'kuvasz',
0.23491032)])
('mountain.jpg', [('n09468604', 'valley', 0.5485007), ('n03388043', 'fountain',
0.20469311), ('n09193705', 'alp', 0.0893717)])
('leaves.jpeg', [('n03325584', 'feather_boa', 0.9214795), ('n03724870', 'mask',
0.007529321), ('n13133613', 'ear', 0.007031317)])
('face.jpg', [('n03255030', 'dumbbell', 0.16447403), ('n03970156', 'plunger',
0.07434542), ('n04350905', 'suit', 0.06821001)])
('sails.jpg', [('n03388043', 'fountain', 0.5505136), ('n04147183', 'schooner',
0.0990495), ('n03743016', 'megalith', 0.082701765)])
('tulip.jpg', [('n07718747', 'artichoke', 0.47765028), ('n04507155', 'umbrella',
0.19606842), ('n03991062', 'pot', 0.07105192)])
('car_race.jpg', [('n02930766', 'cab', 0.53403914), ('n03977966', 'police_van',
0.18049975), ('n04467665', 'trailer_truck', 0.100334756)])
```

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