NagarajVinay_Assignment_6_3

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0.1 Assignment 6.3

0.1.1 Using a pretrained convnet

[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 53 kB/s s eta 0:00:01  |
| 102 kB 3.9 MB/s eta 0:00:13     |                              | 11.6 MB 3.9
MB/s eta 0:00:11     |                            | 14.2 MB 3.9 MB/s eta
0:00:10
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.
```

[1]:
```
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'

#image_datagen = image.ImageDataGenerator(rescale=1./255)
#image_generator = image_datagen.flow_from_directory(img_path,
#                                                    target_size=(224,224),
#                                                    batch_size=10)

images = os.listdir(img_path)

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

```
    print(name)
```

```
mimosa.jpg
trex.jpg
sushi.jpg
emmetts_new_tooth.jpg
gremlin.jpg
sophie.jpg
foster_lab.jpg
gecko.jpg
```

[2]:
```
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 0us/step
('mimosa.jpg', [('n03443371', 'goblet', 0.65488887), ('n03179701', 'desk',
0.08665114), ('n07932039', 'eggnog', 0.05871984)])
('trex.jpg', [('n01704323', 'triceratops', 0.40456378), ('n04296562', 'stage',
0.1465022), ('n01443537', 'goldfish', 0.1260222)])
('sushi.jpg', [('n03623198', 'knee_pad', 0.08567188), ('n03127747',
'crash_helmet', 0.03893309), ('n03991062', 'pot', 0.028010018)])
('emmetts_new_tooth.jpg', [('n04447861', 'toilet_seat', 0.5422055),
('n07720875', 'bell_pepper', 0.23937982), ('n03786901', 'mortar', 0.13991132)])
('gremlin.jpg', [('n02123597', 'Siamese_cat', 0.60069674), ('n03887697',
'paper_towel', 0.095528096), ('n02127052', 'lynx', 0.035641342)])
('sophie.jpg', [('n02091134', 'whippet', 0.35501242), ('n02107312',
'miniature_pinscher', 0.178498), ('n02088632', 'bluetick', 0.043396242)])
('foster_lab.jpg', [('n02109047', 'Great_Dane', 0.39499676), ('n02099712',
'Labrador_retriever', 0.28456682), ('n02092339', 'Weimaraner', 0.14442298)])
```

```
('gecko.jpg', [('n01698640', 'American_alligator', 0.5544625), ('n01580077',
'jay', 0.16758372), ('n04380533', 'table_lamp', 0.04392017)])
```

[ ]: