VRANJAN_Week6.3

April 26, 2021

[1]:
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# Course DSC 650 - Data Mining
# Name - Vikas Ranjan
# Assignment - Assignment 6.3 - Load the ResNet50 model and classify the images␣
 ↪found in the data/raw/images directory.
```

[2]:
```
pip install opencv-python
```

```
Requirement already satisfied: opencv-python in /opt/conda/lib/python3.8/site-
packages (4.5.1.48)
Requirement already satisfied: numpy>=1.17.3 in /opt/conda/lib/python3.8/site-
packages (from opencv-python) (1.19.5)
Note: you may need to restart the kernel to use updated packages.
```

[3]:
```
# Import packages
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
```

[4]:
```
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)
```

```
cross-walk.jpeg
a-lion-in-the-zoo.jpeg
Street.jpg
```

```
Healthy food.jpg
flower_yellow_flower_hibiscus_214197.jpg
service-dog-family.jpeg
Dogs.jpeg
car.jpg
```

[5]:
```
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
```

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Downloading data from https://storage.googleapis.com/download.tensorflow.org/dat
a/imagenet_class_index.json
40960/35363 [==================================] - 0s 1us/step
('cross-walk.jpeg', [('n06794110', 'street_sign', 0.622432), ('n06874185',
'traffic_light', 0.36133772), ('n03891332', 'parking_meter', 0.008185358)])
('a-lion-in-the-zoo.jpeg', [('n02480855', 'gorilla', 0.8113156), ('n02481823',
'chimpanzee', 0.07166232), ('n02129165', 'lion', 0.033852145)])
('Street.jpg', [('n04335435', 'streetcar', 0.3832514), ('n03032252', 'cinema',
0.08315232), ('n04487081', 'trolleybus', 0.068156555)])
('Healthy food.jpg', [('n03461385', 'grocery_store', 0.34389782), ('n09256479',
'coral_reef', 0.1990421), ('n07720875', 'bell_pepper', 0.07563602)])
('flower_yellow_flower_hibiscus_214197.jpg', [('n11939491', 'daisy',
0.11788389), ('n01910747', 'jellyfish', 0.09735081), ('n03944341', 'pinwheel',
0.09339539)])
('service-dog-family.jpeg', [('n02088238', 'basset', 0.59930974), ('n02113799',
'standard_poodle', 0.067067385), ('n02090622', 'borzoi', 0.03832849)])
('Dogs.jpeg', [('n02088094', 'Afghan_hound', 0.40192497), ('n02113799',
'standard_poodle', 0.39927933), ('n02093647', 'Bedlington_terrier',
0.036186423)])
('car.jpg', [('n03930630', 'pickup', 0.15080787), ('n03770679', 'minivan',
0.1217774), ('n04461696', 'tow_truck', 0.09992757)])
```

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