LewisRebecca_Assignment_6_3

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1 Assignment 6.3

1.1 Using a pretrained convnet

1.1.1 Rebecca Lewis

[1]:
```
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) (1.18.5)
Note: you may need to restart the kernel to use updated packages.
```

[20]:
```
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
gremlin.jpg
foster_lab.JPG
emmetts_new_tooth.jpg
```

```
gecko.jpg
sushi.jpg
.ipynb_checkpoints
trex.jpg
sophie.jpg
```

[21]:
```
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)

        print(name + '\n', decode_predictions(preds, top=3)[0])

        with open('lewisrebecca_assignment_6_3_predictions-txt', 'w') as f:
            f.write(name + '\n', decode_predictions(preds, top=3)[0])
    else:
        pass
```

```
mimosa.jpg
 [('n03443371', 'goblet', 0.6548889), ('n03179701', 'desk', 0.08665115),
('n07932039', 'eggnog', 0.058719847)]
gremlin.jpg
 [('n02123597', 'Siamese_cat', 0.6006967), ('n03887697', 'paper_towel',
0.09552809), ('n02127052', 'lynx', 0.03564134)]
foster_lab.JPG
 [('n02109047', 'Great_Dane', 0.39499673), ('n02099712', 'Labrador_retriever',
0.2845668), ('n02092339', 'Weimaraner', 0.14442298)]
emmetts_new_tooth.jpg
 [('n04447861', 'toilet_seat', 0.5422056), ('n07720875', 'bell_pepper',
0.23937985), ('n03786901', 'mortar', 0.13991134)]
gecko.jpg
 [('n01698640', 'American_alligator', 0.5544625), ('n01580077', 'jay',
0.16758372), ('n04380533', 'table_lamp', 0.04392017)]
sushi.jpg
 [('n03623198', 'knee_pad', 0.08567188), ('n03127747', 'crash_helmet',
0.03893309), ('n03991062', 'pot', 0.028010018)]
trex.jpg
 [('n01704323', 'triceratops', 0.40456372), ('n04296562', 'stage', 0.14650217),
('n01443537', 'goldfish', 0.12602219)]
sophie.jpg
 [('n02091134', 'whippet', 0.35501236), ('n02107312', 'miniature_pinscher',
0.17849797), ('n02088632', 'bluetick', 0.043396235)]
```