CNN-Implementation

April 10, 2023

[1]:
```
import numpy as np
import cv2
from os import listdir
from os.path import isfile, join

import matplotlib.pyplot as plt
from tensorflow.keras.models import Sequential
from tensorflow.keras.applications.resnet50 import ResNet50, preprocess_input,␣
↪decode_predictions
from tensorflow.keras.preprocessing import image
from tensorflow.keras.layers import Dense, Conv2D, MaxPooling2D, Flatten
```

[2]:
```
resnet = ResNet50(weights="imagenet")
```

[3]:
```
total_layers = resnet.layers
print(f'Total Layers: {len(total_layers)} ')
```

```
Total Layers: 177
```

[4]:
```
imageSrc = "pizza.jpg"
photo = plt.imread(imageSrc)
plt.imshow(photo)
plt.show()
```

[5]:
```
img = image.load_img(imageSrc, target_size=(224,224))
x = image.img_to_array(img)
x = np.expand_dims(x, axis=0)
x = preprocess_input(x)
#x
```

[6]:
```
modelPredictions = resnet.predict(x)
#modelPredictions
```

```
1/1 [==============================] - 5s 5s/step
```

[7]:
```
decode = decode_predictions(modelPredictions, top=3)
decode
```

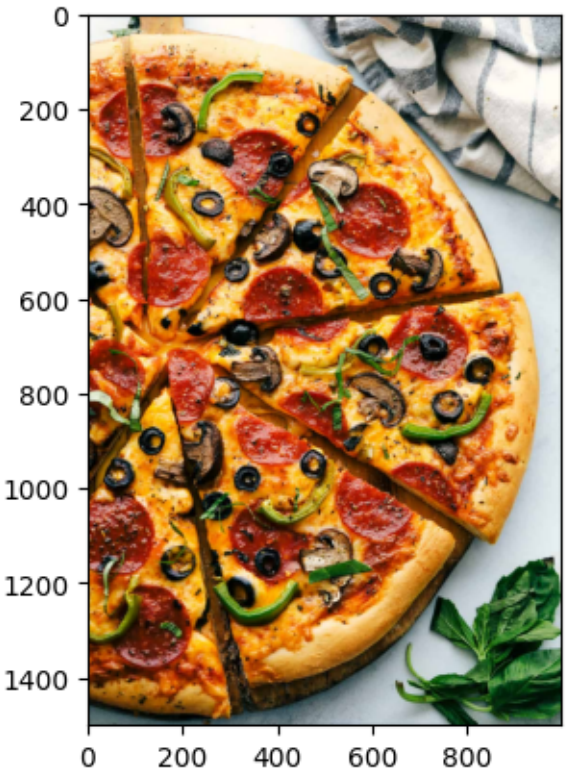
[7]:
```
[[('n07873807', 'pizza', 0.9999845),
  ('n04447861', 'toilet_seat', 1.4075832e-05),
  ('n07875152', 'potpie', 4.285529e-07)]]
```

[8]:
```
_, classname, accuracy = decode_predictions(modelPredictions, top=3)[0][0]
print("Predicted Class: {}\nAccuracy: {:.2f}%".format(classname.replace("_",'␣
↪'), accuracy*100))
```

```
Predicted Class: pizza
```

```
Accuracy: 100.00%
```

[9]:
```
plt.imshow(photo)
plt.show()
print("Predicted Class: {}\nAccuracy: {:.2f}%".format(classname.replace("_",'␣
  ↪'), accuracy*100))
```




```
Predicted Class: pizza
Accuracy: 100.00%
```