#### **VIDYA PAYGUDE**

Data Science Intern at LetsGrowMore Virtual Internship Program (APRIL-2022)

MORE ADVANCED LEVEL TASK 10 - ML Facial recognition to detect mood and suggest songs accordingly

## Importing Required libraries

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import os
import warnings
warnings.filterwarnings('ignore')
from mtcnn import MTCNN # helps in detecting faces from image
from tensorflow.keras.models import load_model
```

2021-10-21 12:35:29.281705: W tensorflow/stream\_executor/platform/default/dso\_loader.cc:60] Could not load dynamic library 'libcud art.so.11.0'; dlerror: libcudart.so.11.0: cannot open shared object file: No such file or directory; LD\_LIBRARY\_PATH: /opt/conda/lib

2021-10-21 12:35:29.281849: I tensorflow/stream\_executor/cuda/cudart\_stub.cc:29] Ignore above cudart dlerror if you do not have a GPU set up on your machine.

# **Loading Model**

```
model = load_model('../input/facialemotionrecognition-vgg19/model_optimal.h5')
print('Model Loaded 100%')

2021-10-21 12:35:35.343077: I tensorflow/compiler/jit/xla_cpu_device.cc:41] Not creating XLA devices, tf_xla_enable_xla_devices no
t set
2021-10-21 12:35:35.346294: W tensorflow/stream_executor/platform/default/dso_loader.cc:60] Could not load dynamic library 'libcud
a.so.1'; dlerror: libcuda.so.1: cannot open shared object file: No such file or directory; LD_LIBRARY_PATH: /opt/conda/lib
2021-10-21 12:35:35.346362: W tensorflow/stream_executor/cuda/cuda_driver.cc:326] failed call to cuInit: UNKNOWN ERROR (303)
2021-10-21 12:35:35.346409: I tensorflow/stream_executor/cuda/cuda_diagnostics.cc:156] kernel driver does not appear to be running
on this host (2ad1d29f26a6): /proc/driver/nvidia/version does not exist
2021-10-21 12:35:35.346777: I tensorflow/core/platform/cpu_feature_guard.cc:142] This TensorFlow binary is optimized with oneAPI D
```

eep Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations: AVX2 FMA
To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.
2021-10-21 12:35:35.347187: I tensorflow/compiler/jit/xla\_gpu\_device.cc:99] Not creating XLA devices, tf\_xla\_enable\_xla\_devices no
t set
Model Loaded 100%

## **Test Image**

```
img = 'https://static-bebeautiful-in.unileverservices.com/Unlock-flawless-skin_MobileHomeFeature.jpg'
try:
    image = plt.imread(img)
except SyntaxError:
    image = plt.imread(img, format='jpg')
plt.imshow(image)
```

Out[ ]: <matplotlib.image.AxesImage at 0x7fb1dc5a4cd0>



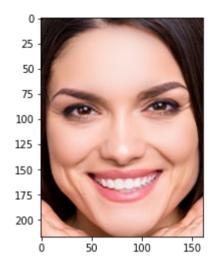
#### **Detecting Face**

```
In []: detect = MTCNN()
    results = detect.detect_faces(image)

x1, y1, width, height = results[0]['box']
    x2, y2 = x1 + width, y1 + height
```

```
face = image[y1:y2, x1:x2]
plt.imshow(face)
```

2021-10-21 12:35:39.121761: I tensorflow/compiler/mlir\_graph\_optimization\_pass.cc:116] None of the MLIR optimization passes a re enabled (registered 2)
2021-10-21 12:35:39.136424: I tensorflow/core/platform/profile\_utils/cpu\_utils.cc:112] CPU Frequency: 2200135000 Hz
Out[ ]:



### **Resizing Image**

```
In [ ]: test_image = np.resize(face, (224,224,1))
```

#### **Prediction**

```
In [ ]:
    label_dict = {0:'Angry',1:'Disgust',2:'Fear',3:'Happy',4:'Neutral',5:'Sad',6:'Surprise'}
    test_img = np.expand_dims(test_image, axis = 0)
    test_img = test_img.reshape(-1,224,224,1)
    result = model.predict(test_img)
    result = list(result[0])

img_index = result.index(max(result))
```

```
emotion = label_dict[img_index]
print(emotion)
```

Нарру

# Song Playing as per mood