CELEBRITY FACE RECOGNITION

Urshita Kataria*1, Dr. Neha Agrawal*2, Mrs. Meenu Garg*3

*1,2,3Maharaja Agrasen Institute Of Technology, India.

ABSTRACT

The challenge in our research is to identify a specific person from a vast image dataset. We concentrate on patterns and faces of individuals. Faces from all across the world have a lot in common. We need to look at any potential variances, though. It is our responsibility to identify the right person and deliver accurate information about them. Deep Learning has become a very popular research area in computer vision during the past few years. It is a branch of Artificial Intelligence and a sub-field of Machine Learning [1]. On a range of image and pattern recognition issues, including image recognition, speech recognition, etc., it can produce extremely noteworthy results.

Keywords: Python, Image Processing, OpenCV, Face Detection, Face Recognition, Numpy.

I.   INTRODUCTION

Image recognition is one of the most interesting and challenging research fields of computer vision nowadays. The ability of our brains to recognise and comprehend images is astounding. but it's very hard to solve this problem through a computer. Machine learning and deep learning have made such great strides to address this issue over the past few decades.. Detecting and recognizing prominent individuals from a randomly uploaded captured image is one of the popular problems in the field of image recognition. Nevertheless, there are numerous fascinating applications for this problem in the field of celebrity face recognition. for example, We use it to identify, assess, and contrast faces for a range of purposes, including as user authentication, population estimation, classification, and public safety. This project aims to recognize renowned individuals who are well-known in their professional field by utilizing a deep learning-based API that is easy to use.

It is capable of producing very noteworthy results on a range of image and pattern recognition issues, including image recognition, speech recognition, etc.

## II.   RESEARCH METHODOLOGY

1. OpenCV

A video and image processing framework called OpenCV is used for a variety of tasks in image and video analysis, including facial recognition, reading licence plates, photo retouching, and advanced robotic vision.

The most powerful and widely used library for computer vision is OpenCV. It supports several different languages, including Python, C/C++, Java, etc.

In SimpleCV we have printed the image in a matrix format. Now with the help of OpenCV, we will print the actual image and it is done by the imshow() method.

```
import cv2
img=cv2.imread("comp.jpg",1)
resize=cv2.resize(img,(int(img.shape[1]/4),int(img.shape[0]/4)))
cv2.imshow("source",resize)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

The above program will display the image 4 times smaller than its original size. Imshow() method is used for displaying your image. waitKey() method is used for displaying the image for specified milliseconds. The moment you write 0 press any key it will destroy that window. The frame image will be displayed for 25 milliseconds if you enter 25, at which point the window will be deleted using the destroyAllWindows() method.
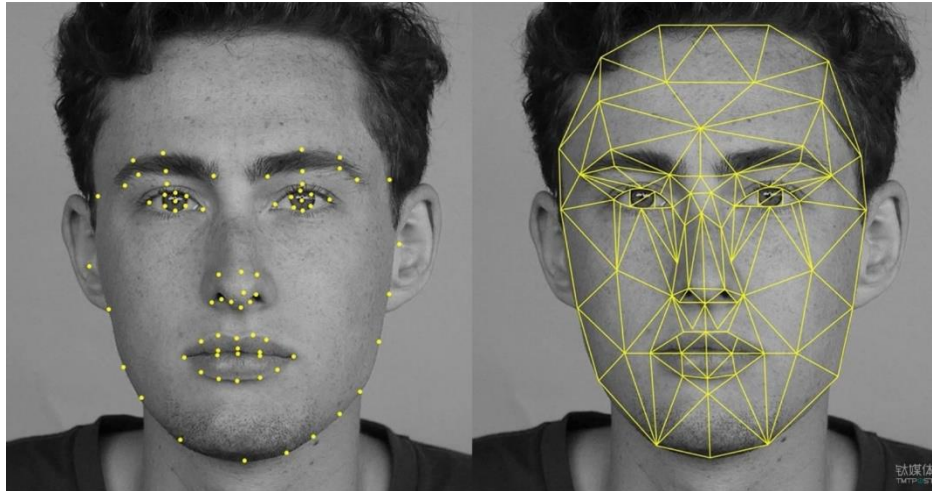
2. dlib library contains our implementation of 'deep metric learning' which is used to construct our face embeddings used for the actual recognition process.

3. Face Recognition is a further stage in which the detected face image is compared to pictures in the face database. The face detector incorporated within the openCV framework can recognise faces 90–95% of the time in photos with good clarity.

4. NumPy is the essential package for scientific computing in Python that offers a multidimensional array object. Other mathematical operations can be carried out using this, but generally speaking we only require it to transform our image data into an array so that we can save the trained model.

To install the library you can type a simple line of code in your command shell: pip install numpy
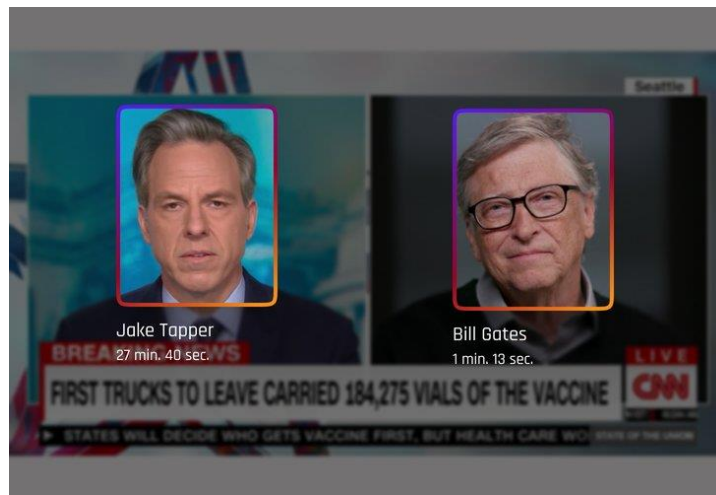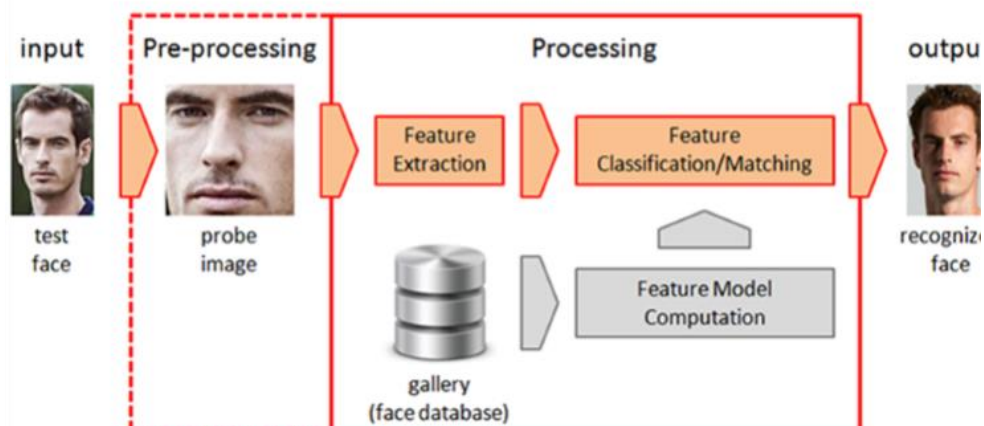
Real-time image capturing from a Web cam using OpenCV

In conventional systems, the pre-saved disc pictures are used to recognise the feature points of the photos and computer vision files. Using OpenCV, this method can be improved further when the real-time video can be annotated with the feature points or important areas of the picture frame in a moving live video. Here is the OpenCV source code that is used to run OpenCV in the Python environment. It can be used to achieve real-time feature point recognition from a video taken using a webcam.


**Dataset:**

Algorithm for face Recognition

Adding the image to the database

1. Get the image.

2. Get the FaceDetector object.

3. Apply the FaceDetector object to the image to extract the features of detected face.

4. Add the image to the database.

evaluating the input image against the image database

1. Get the image.

2. Get the FaceDetector object.

3. Extract the characteristics from an image using the FaceDetector object.

4. Compare the image with the database.
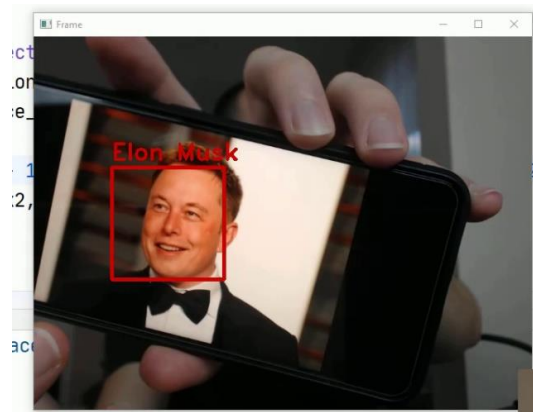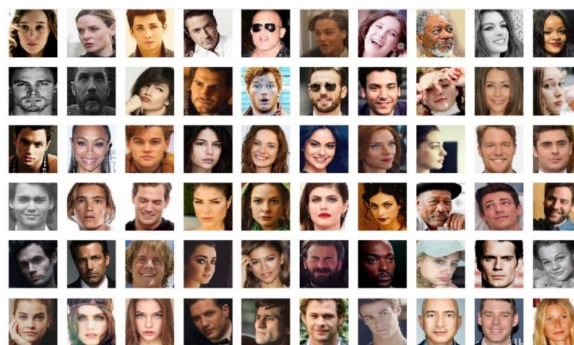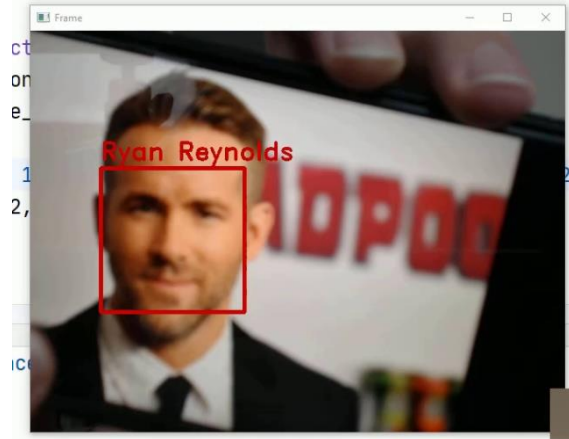
III.   CONCLUSION

Image recognition is one of the most interesting and challenging research fields of computer vision nowadays. The ability of our brains to recognise and comprehend images is astounding. but it's very hard to solve this problem through a computer. The challenge in our research is to identify a specific person from a vast image dataset. We concentrate on patterns and faces of individuals. To sum up, the main idea of this research paper is to make a celebrity face recognition in real-time using a web cam and the facial features are analysed with the dataset and the name is displayed.

IV.   REFERENCES

[1]   Face Detection and Recognition using OpenCV, Article by Shervin Emami, 2010

[2]   Seeing with OpenCV Article,
http://www. Cognotics.com/opencv/servo_2007_series/part_1/index.html Published by Robin Hewitt, 2010

[3]   Ammar Anuar, Khairul Muzzammil Saipullah, Nurul Atiqah Ismail,Yewguan Soo "OpenCV Based Real-Time Video Processing Using Android Smartphone" , IJCTEE, Volume 1, Issue 3

[4]   C. Zhang, and Z. Zhang, "Improving multiview face detection with multi-task deep convolutional neural networks," IEEE Winter Conference on Applications of Computer Vision, 2014, pp. 1036-1041.

[5]   M. Kafai, L. An, and B. Bhanu, "Reference face graph for face recognition," IEEE Trans. Inf. Forensics Secur., vol. 9, no. 12, pp. 2132–2143, 2014.

[6]   https://www.researchgate.net/publication/362381867Celebrity_Face_Recognition_using_AWS_Rekognition

[7]   Face Detection & Recognition from Images & Videos Based on CNN & Raspberry Pi by Muhammad Zamir

[8]   S. Yang, P. Luo, C. C. Loy, and X. Tang, "From facial parts responses to face detection: A deep learning approach," in IEEE International Conference on Computer Vision, 2015, pp. 3676-3684

[9]   G.Thomson, "Facial Recognition," Encyclopedia, 2005. [Online]. Available:
https://www.encyclopedia.com/science/encyclopedias-almanacs-transcripts-and-maps/facialrecognition. [Accessed: 11-Oct-2018].