Face and Emotion Recognition

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We are doing face and emotion recognition separately.

Face Recognition:

We are using OpenCV for face detection and its recognition. We are using the Haar Cascade classifier for training which internally uses Viola-Jones-Algorithm. 'LBPHFaceRecognizer' from 'cv2.face' library is being used for recognition.

I/O:

We give the location of an image as an argument to 'test.py' and output is the image with face detected and labeled (if able to recognize with confidence <= 120)

Observations:

The Haar classifier is a weak classifier and it requires thousands of images to train. In our case, we are using 2 types of images with around 100 images of each type and it is working fine. But if we introduce a third-fourth ones, it is not able to recognize it correctly.

Python libraries used:-

-cv2 (OpenCV)

-numpy

Training dataset:

We are using our own dataset which contains 2/3/4 types(Dhoni,Modi--Dhoni,Modi,Kiran-- Dhoni,Modi,Kiran,Rahul) of images with around 100 images of each type

References:

https://en.wikipedia.org/wiki/Viola%E2%80%93Jones_object_detection_framework
https://www.superdatascience.com/blogs/opencv-face-recognition
https://docs.opencv.org/2.4/modules/contrib/doc/facerec/facerec_tutorial.html#fisherfaces-in-opencv
https://towardsdatascience.com/face-recognition-using-artificial-intelligence-fffa3b20ad5f

Emotion Recognition

Aim:
Our Human face is having a mixed emotion so we are to demonstrate the probabilities of these emotions that we have.
Emotion recognition is a technique used in software that allows a program to read the emotions on a human face using advanced image processing. We are trying to understand more about what an image or of a person's face tells us about how he/she is feeling and the probabilities of mixed emotions a face could have using sophisticates algorithms available.

Python Libraries required:
-numpy

-Keras

-imutils

-cv2

-pandas

Training dataset:
https://www.kaggle.com/c/3364/download-all

Usage:
The program will create a window to display the image and a window representing the probabilities of detected emotions.

References:

https://towardsdatascience.com/face-detection-recognition-and-emotion-detection-in-8-lines-of-code-b2ce32d4d5de