FACE RECOGNITION AND DETECTION USING OPENCV AND CNN PROJECT REPORT

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BONAFIDE

This is to certify that **18CSE390T – COMPUTER VISION project report** titled Face recognition and Detection Using OpenCv And CNN"is the bonafide work of Sarthak Mittal (RA2011026010031) who undertook the task of completing the project within the allotted time.

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ABSTRACT

Intel's OpenCV is a free and open-access image and video processing library. It is linked to computer vision, like feature and object recognition and machine learning. This paper presents the main OpenCV modules, features, and OpenCV based on Python. The paper also presents common OpenCV applications and classifiers used in these applications like image processing, face detection, face recognition, and object detection. Finally, we discuss some literary reviews of OpenCV applications in the fields of computer vision such as face detection and age of a Person.

MODULE DESCRIPTION

In this section, we shall implement face recognition using OpenCV and Python. First, let us see the libraries we will need and how to install them:

OpenCV

Face_recognition

OpenCV is an image and video processing library and is used for image and video analysis, like facial detection, license plate reading, photo editing, advanced robotic vision, optical character recognition, and a whole lot more.

The face_recognition library, created by Adam Geitgey, wraps around dlib's facial recognition functionality, and this library is super easy to work with and we will be using this in our code. Remember to install dlib library first before you install face_recognition.

To install OpenCV, type in command prompt

Pip install opencv-python

I have tried various ways to install dlib on Windows but the easiest of all of them is via Anaconda. First, install Anaconda (here is a guide to install it) and then use this command in your command prompt:

Conda install -c conda-forge dlib

Next to install face_recognition, type in command prompt

Pip install face_recognition

Now that we have all the dependencies installed, let us start coding. We will have to create three files, one will take our dataset and extract face embedding for each face using dlib. Next, we will save these embedding in a file.

In the next file we will compare the faces with the existing the recognise faces in images and next we will do the same but recognise faces in live webcam feed

System Architecture with Explanation

The Face Detection And Recognition Using OpenCv deals with the recognizing the Face and detection of its Feature Points at the first .This Project first import all required Modules And Files like Cv2 And Face Recognition at first and also provides storage of the item of Detecting and recognition for the User's face Features Points in row -format.Initially After Importing The modules,there is a loading of the dataset images are done using face recognition Module and also the encoding of the each dataset with help of the Cv2 Module.After loading all the datasets,we specify the location Points of the datasets using cv2 module.The matching and finding the similarity for the feature Points of the datsets comes into play with help of the user define function in which it runs till the user gives the dataset points and also gives the datasets encoding points in a container structure.The show face detection function enables the webcam feature with help of cv2 module and also it provides a green match box after detecting and matching the feature Points of the face.it also enables the

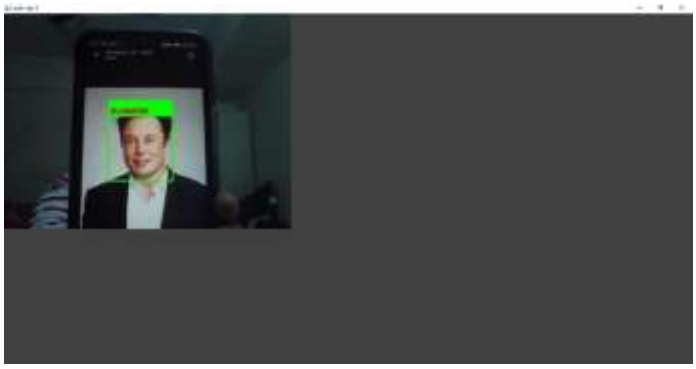
Name Display of the User in Text Format by defining the Person's Name in Class/Label Structure.In Name Class ,if the Persons Name get easily detected and Matched then it falls into the Class with help of CNN.

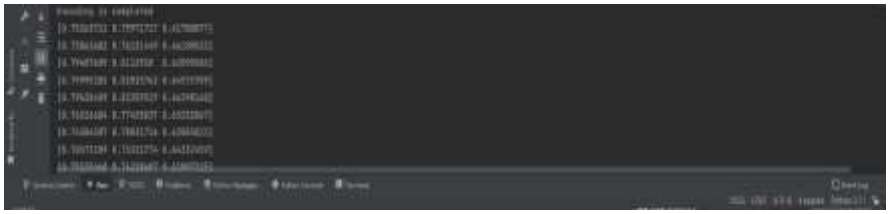
Dataset Description

The datasets are then conditioned using facial landmarks and categorized according to the eight emotions using the SVM, a machine learning algorithm. They obtained an accuracy of about 93.7 percent using SVM. These facial landmarks may be tweaked to improve precision.

On tall seperate datasets, the system achieves a precision of up to95.77 percent and 94.58 percent, respectively. They investigate optimized parameter values for the Serial CNN model to properly detect the existence of masks without triggering over-fitting

Results





Conclusion

Conclusion of Artificial Intelligence, where computers the important features from the images or videos. Open Computer Vision(OpenCV), a python library written in C++, provides various functionalities for computer vision applications. Applications of computer vision are object detection, face recognition ,medical diagnosis, etc. Inthispaper, weem phasize the important role of OpenCV in-face-detection and face recognition. We illustrate the popular algorithms in OpenCV that are used for face detection and face-recognition.Then state the OpenCV modules and explain OpenCV based on Python and mention the applications for OpenCV. Finally, we assessment and compared recent literature reviews that use OpenCV to detect and recognize the human face in a variety of fields in order to improve human life.

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