

Review Paper on Real Time Age Rank Estimation with Gender Detection with Image Processing

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Abstract— Face recognition plays very important role in our day today life. And from some years it has been studying by several investigators which have focused on the pose illumination, expression plastic surgery. Face recognition is very important because of the security purpose. Everyone wants their property to be secure so face recognition is the one which is used for security purpose. As it is very relaxed to recognize the face images of the well-known personalities such as stars in various fields such as films, sports, politics, social workers etc. as the label suggest recognizing face images with age and weight factor. The comparison between existing and future algorithm on database shows that proposed algorithm completes significantly.

Index Terms—Face Recognition, Security, Algorithms

I. INTRODUCTION

With growing numbers of face recognition applications in every day to day life has made face recognition very important research topic now a day in recent years face_recognition has received significant consideration from both research groups and the market, but still continued very interesting in real applications. A number of distinctive algorithms are presented, being characterized into appearance based and model-based schemes. As we are human beings there are lots of aspects which bring lots of variations on us. In our facial expressions our body structure etc. This is the natural process and is affected by a number of factors in our day to day life or we can say in our surroundings or our life style. So improving presentation of face recognition with age being combined. Gender recognition is the very graceful thought among people but it is very complex process for the computer. For social life, gender factor undertakes effective role in the communication. Computer based system in which spontaneous gender recognition method is a field of the computer vision. This process is implemented with the facial notifies or any parts of body which ignore such informs. At the process of facial informs, due to the fact that irregular feature of gender such as make-up or beard decrease to comparison ratio, simplify to recognize and increase consistency and robust of system classify. It has been studied that a lot of investigation for gender recognition with computer system [1]. Feature extraction and step of categorize are investigated at such studies. Ultimately, classify process is a separated form of a set data where act to similar task. Usually, we find two kinds of gender classify. One is Global Feature- based and the other is Geometric Feature-based [2]. Mozaffari et al. have combined global and local feature in their study. It has been used Discrete Wavelet Transform (DWT) and Local Binary Pattern (LBP) for extract to Global Feature-based that obtained classify accomplishment by 85%. And concluded that female faces are extended and circular than male faces. Han used to 3D GavabDB for extracts to Geometric Feature-based which is belonging to face. It has been determined that male and female's basic and distinctive feature of faces. Man's eyebrow is straight and thick when it compares to female and female have smaller nose than male.

II. LITERATURE REVIEW

1. Face detection is used in biometrics, frequently as a part of (or together with) a facial recognition structure. Some current digital cameras use face detection for autofocus. Face detection is also beneficial for choosing areas of interest in photo. Face detection is in advance the interest of marketers. A webcam can be integrated into a television and detect any face that walks by. The system then computes the race, gender, and age range of the face. Once the data is composed, a series of announcements can be played that is specific toward the detected race/gender/age. This paper shows prototype or partial application of this type of work. Face detection is also being studied in the area of energy conservation. Procedure for face recognition based on information theory method of coding and decoding the face image is discussed in [Sarala A. Dabhade & Mrunal S. Bewoor, 2012][4]. Proposed methodology is connection of two stages – Face detection using Haar Based Cascade classifier and recognition using Principle Component analysis. Various face detection and recognition methods have been evaluated [Faizan Ahmad et al., 2013] and also solution for image detection and recognition is proposed as an initial step for video surveillance. Implementation of face recognition using principal component analysis using 4 distance classifiers is proposed in [Hussein Rady, 2011].

2. Lanitis et al. [5] proposed the first approach applying AAM to age estimation, which extracts craniofacial growth and skin aging during childhood and adulthood.

1) age-specific estimation, which is based on the assumption that the aging process is identical for everyone; and
 2) appearance-specific estimation, which follows the assumption that people who look similar tend to have similar aging processes. Zhang et al. [6] formulated the inference of each person's age as a warped Gaussian process (WGP) estimation problem, and developed a multi-task extension of WGP to solve the problem. Since different individuals have different aging

processes, personalization is beneficial for age estimation. Previous researches also show that personalization can improve the performance of age estimation.

III. PROPOSED WORK

Problem definition:

Proposed scheme uses age and weight differences and FERET database for face recognition using 4 main techniques, namely

1. Viola Jones

This algorithm's basic principle is to identify the faces from the specific input image. Viola Jones algorithm was the detector's rescale and of several kinds the size of image.

2. CNN classifier

A convolutional neural network is a gathering of deep, feed-forward artificial neural networks, most commonly applied to investigating visual imagery. Convolutional networks were inspired by biological methods. Description of the process as a convolution in neural networks is by convention.

3. Local Binary Patterns (LBP)

LBP is one of the binary patterns which are used for the feature extraction. LBP is used since there are micro patterns which are invariant of monotonic grey scale renovation. Conjoining all this gives the face image.

4. Support Vector Machines (SVM)

In support vector machine is used to analyze the complex data and gives the result. SVM is actually useful in finding patterns which are exact useful and not complex.

Architecture

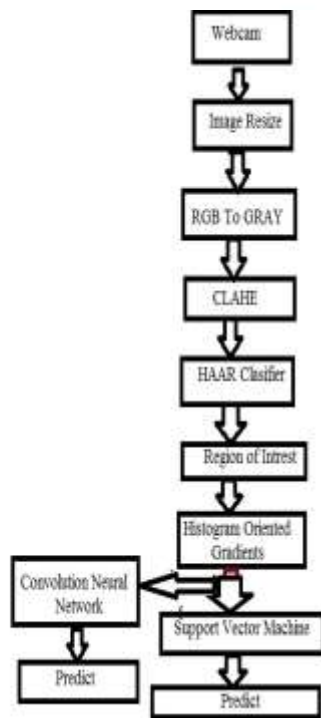


Figure1. Flow Graph Of Architecture

Following are the steps involved in architecture (Figure 1)

1. Webcam and Image Acquisition: Here, read the image from input camera at any given frame rate.
2. Image Resize: Resize the image input image into standard image format.
3. RGB TO GRAY : Converting RGB image to GRAY scale format for efficient image processing in next subsequent steps.
4. CLACHE: CLACHE is algorithm is used for Histogram Equalization to balance the light intensity in the input image.
5. HAAR Classifier: This algorithm is used to detecting the faces from input GRAY scale image which returns face as region of interest.
6. Histogram Oriented Gradients: This algorithm is used for feature extraction purpose and this algorithm focuses on shape and texture of extraction faces. This is used for gender detection.
7. CNN AND SVM: This algorithm is decision making and makes prediction on input images based on pre-trained model. CNN predict the age according to given face image. SVM predict the gender according to shape and texture of face.

IV. LIBRARY AND LANGUAGE USED

• OpenCV Library

OpenCV (*Open Source Computer Vision*) is a library of programming functions mainly designed for real-time computer vision firstly developed by Intel. OpenCV (Open Computer Vision) framework, that licenses its simple usage with Python language. The library is multiplatform and can be used on the GNU/Linux, Mac OS X and Windows operating systems. The library has been planned mainly for processing images in real time.

OpenCV is written in C++ and its main interface is in C++, but it still upholds a less comprehensive though extensive older C interface. There are attachments in Python, Java and MATLAB/OCTAVE. The API for these interfaces can be originate in the online documentation. Packages in other languages such as C#, Perl, Haskell and Ruby have been developed to inspire adoption by an extensive audience. All of the new developments and algorithms in OpenCV are now technologically advanced in the C++ interface. OpenCV runs on the following desktop operating systems: Windows, Linux, macOS, FreeBSD, NetBSD, OpenBSD. OpenCV runs on the following mobile operating systems: Android, iOS, Maemo, BlackBerry 10. OpenCV-Python is a library of Python bindings designed to solve computer vision difficulties.

- **What is Python?**

Python is an object-oriented, high-level programming language with combined dynamic semantics mainly for web and app development. It is very attractive in the field of Rapid Application Development because it deals with dynamic typing and dynamic binding options.

Python is comparatively simple, so it's easy to learn since it needs a distinctive syntax that focuses on readability. Developers can read and interpret Python code much stress-free than other languages. In turn, this decreases the cost of program maintenance and development because it allows teams to work collaboratively without substantial language and experience obstacles. Python supports the use of modules and packages, which mean that programs can be intended in a modular style and code, can be reused across a variety of projects

Python available to almost any person. Python can also be used to process text, display numbers or images, solve scientific equations, and save data.

REFERENCES

- [1] S.Z. Li and A.K. Jain, Eds., *Handbook of Face Recognition, 2nd Edition*, Springer, 2011.
- [2] G. Guo, G. Mu, and K. Ricanek, "Cross-age face recognition on a very large database: The performance versus age intervals and improvement using soft biometric traits," in *20th International Conference on Pattern Recognition*, 2010, pp. 3392–3395.
- [3] G. Mahalingam and C. Kambhamettu, "Age invariant face recognition using graph matching," in *IEEE International Conference on Biometrics: Theory Applications and Systems*, 2010.
- [4] "Verilook, <http://www.neurotechnology.com/verilook.html>,"
- [5] M. Vatsa, R. Singh, S. Bharadwaj, H.S. Bhatt, and A. Noore, "Matching digital and scanned face images with age variation," in *Fourth IEEE International on Biometrics: Theory Applications and Systems*, 2010.
- [6] C. Chen, W. Yang, Y. Wang, S. Shan, and K. Ricanek, "Learning Gabor features for facial"

