

A Survey on Biometric Face Recognition Techniques

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Abstract-Face Recognition has received a lot of attention from scientific community as well as from general public due to the rapid growth of cases of third party attacks and eavesdropping. The threat potential has created terror among the people which has increased the demand for useful security systems.

Keywords-Difference-pair-mapping (DPM), bar chart modification, reversible information concealment (RDH), two-dimensional difference-bar chart, mapping.

I. INTRODUCTION

Biometrics is a revolutionary technology which provides the automatic system to differentiate between a genuine person and a imposter. The main step which is biometric verification deals in automatically verifying a person based on some specific biometric traits derived from his/her physiological and/or behavioral traits. A biometric verification has an upper hand on traditional systems which uses cards and password for successfully distinguishing between an imposter and a genuine person. In biometrics, a person could be recognized on who he/she is rather than what he/she has (ID card) or what he/she knows (password). There are basically two types of biometrics that is the first one, Unimodal Biometrics (biometric system using single biometric feature) and the second one, Multimodal Biometrics (a biometric system using more than one biometric feature). The Unimodal Biometrics will have to contend with lots of problems as only a single feature is taken as the base for the biometric verification which may some time may be not sufficient for distinguishing two samples. Multimodal Biometrics on other hand is more powerful and robust for the verification procedure but the handling of database and traits is bit on the edgy side during execution.

II. LITERATURE REVIEW

A.H.Mir, S.Rubab, Z.A.Jhat[1] in their paper have given a very clear view of the various biometrics which can be used according to the area where it is to be used as well as to the sensitivity of the case being handled. Rachid Aliradi, Naima Bouzera, Dr Abdelkrim Meziane[4], in this paper they focus on a late procedure called the support vector machines (SVM) has been balanced and associated with the issue of

case recognition, for instance, face disclosure. The ideal information of the skin color is used to reduce the search region and the main idea based on SVM is to project the data input space (belonging to two different classes) non-linearly separable in a larger space called feature space so that data are linearly separable. About fusion a non-parametric model is applied for the segmentation of the pixels of skin color. This was last used to reduce area of research within the image. However, the SVMs help us to exactly find the faces in the segmented area. The method succeeds in locating facial features in the facial region precisely and is insensitive to face deformation. The method is executable for reasonably short time scenarios.

Chaoyang Zhang, Zhaoxian Zhou, Hua Sun, and Fan Dong [5] have reported, face recognition has gained a great deal of consideration in biometrics and workstation vision. A lot of face recognition algorithms have been developed during the past decades. This paper reviews three classical methods Principal Component Analysis (PCA), Linear Discriminate

Analysis (LDA), and Elastic Bunch Graph Matching (EBGM). The three algorithms are implemented with MATLAB. The algorithm performance is evaluated on three different databases. Scenarios and performance benchmarking are compared for each of the algorithms in terms of recognition, accuracy, computational cost, and recognition tolerance.

Chen Da-jin/Chen Si-yu/Su Yun-huan, Peng Ming-jing [6], have reported, so as to take care of the issue that Omni-directional confronts, which was in pictures with complex connection, couldn't be discovered, an eye-center based face discovery model was proposed. In order to solve the problem that Omni-directional faces, which was in images with complex context, couldn't be detected, an eye-core based face detection model was proposed. In the proposed model, the technique of HSI based skin detection combined with eye-core detection was used to detect eyes, and then image rotation, features extraction from images and neural network based classification were applied to implement face detection and face confirmation, and obtained the goal that Omni-directional faces could be detected. At last, an experiment was conducted to verify the proposed model with MATLAB, and

the result that detection accuracy was 95% proved that the model was effective.

The objective is to recognize human appearances from avatar faces. Salem Alelyani, Huan Liu [7], Troupe characteristic determination is known for its heartiness and generalization of exceedingly faultless prescient models. In the paper, they utilize distinctive filter-based peculiarity choice systems in a group way to enhance face distinguishment. of uprooting immaterial gimmicks which is known to corrupt taking in execution and model dependability.

III. BIOMETRICS

There many biometrics in use today and some are still in the early stages of development. Hence, we can divide it in mainly two categories: Primarily, the ones which are currently used worldwide and secondarily, the ones which are still in the research realm. Here we present some of the biometrics of both categories:

3.1. Biometrics currently in use:

These basically include Fingerprint, Face, Iris, Hand geometry, Palmprint, Speaker/Voice, Signature of which the Signature biometrics the first one to be used for the purpose. Face biometrics is the easiest and handy one.

3.2. Biometrics still in the research realm:

Earshape, Knuckle crease, Brain/EEG, Hear sound/ECG etc are some of the new traits. The latest being the use of electroencephalogram and electrocardiogram as biometrics which has been found to give highest result of human recognition.

IV. CONCLUSION

The overall summation of the survey led me to have a strong inclination towards Face Biometrics which is a type of Unimodal Biometrics. Since, it is easy to deal with the concept and still has a very high probability of getting the required result. Face Biometrics basically is applicable through a skin detection algorithm which identifies a human skin.

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