



A Survey of Face Recognition in Current Techniques

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Abstract— Now-a-days, security is a major fretfulness in the world. Biometrics is very helpful and it’s easy to implement for security purpose. It is classified into two categories: such as, Physiological and Behavioural. Physiological Biometrics’ are Finger Print, Iris, Face, Retina, voice, etc. Behavioural Biometrics’ are signature, gait, etc. In this paper is to represent the survey of some selection techniques are used in Face Recognition.

Keywords— Face Recognition, PCA, LDA

I. INTRODUCTION

Biometrics Technologies are the foundations of widespread array of vastly secure and identification authentication person. Biometrics is the Technology to recognize a person based upon the physiological and behavioural characteristics. In the Biometric system’s face recognition is easily applicable with compared to the other Biometric systems.

Face Recognition is one of the few biometric methods, which possess the merits of both high accuracy and low intrusiveness. It has the truthfulness of physiological approach without being intrusive. For this reason, since the early 70’s [3], face recognition has drawn the attention of researchers in fields from security, psychology, and image processing, to computer vision.

Face recognition results depend highly on features that are extracted to represent the face pattern and classification methods used to distinguish between faces whereas face localization and normalization are the basis for extracting effective features. These problems may be analyzed from the viewpoint of face subspaces or manifolds, as follows [4].

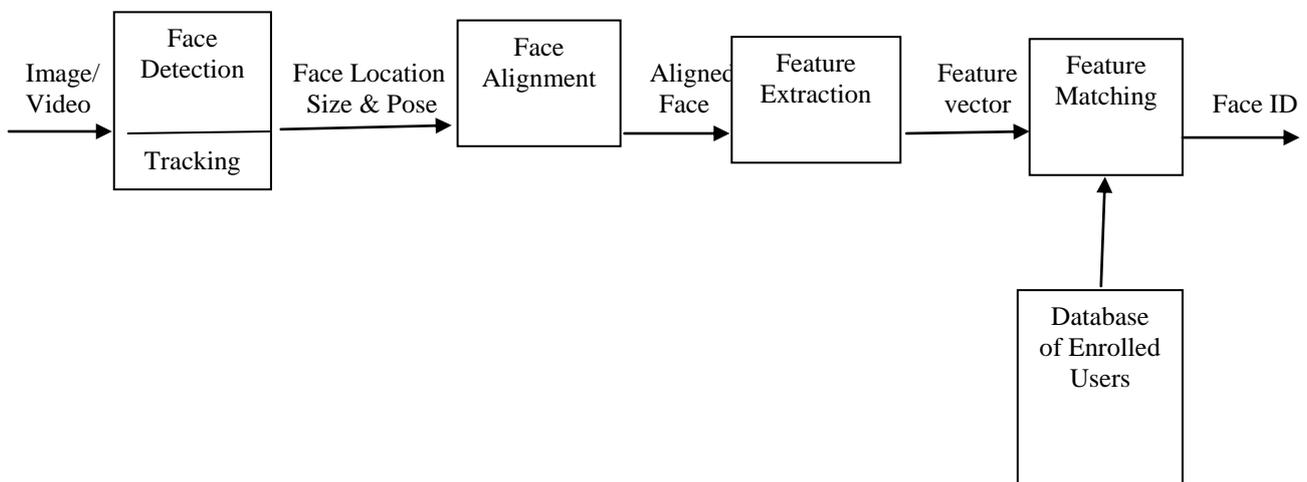


Figure 1: Face Recognition processing flow.

Now, several techniques are available in Face Recognition. The following section represents the comparison of some techniques in Face Recognition.

II. REVIEW OF SOME TECHNIQUES

References [1], [6] describes Eigen face approach of face recognition. It is used Principal Component Analysis to efficiently represent pictures of faces. They argued that any face images could be approximately reconstructed by a small collection of weights for each face and a standard face picture (Eigen picture). The weights describing each face are obtained by projecting the face image onto the Eigen picture.

One of the first Artificial Neural Networks (ANN) techniques used for face recognition is a single layer adaptive network called WISARD which contains a separate network for each stored individual [2]. The way in constructing a neural network structure is crucial for successful recognition. It is very much dependent on the intended application.

Reference [5] presented a dynamic link structure for distortion invariant object recognition which employed elastic graph matching to find the closest stored graph. Dynamic link architecture is an extension to classical artificial neural networks.

Reference [10] applied this method to human face recognition. Faces were intuitively divided into regions such as the eyes, nose, mouth, etc., which can be associated with the states of a hidden Markov model. Since HMMs require a one dimensional observation sequence and images are two-dimensional, the images should be converted into either 1D temporal sequences or 1D spatial sequence. In [9], a spatial 22 observation sequence was extracted from a face image by using a band sampling technique.

Geometrical feature matching techniques are based on the computation of a set of geometrical features from the picture of a face. The fact that face recognition is possible even at coarse resolution as low as 8x6 pixels [7] when the single facial features are hardly revealed in details implies that the overall geometrical configuration of the face features is sufficient for recognition.

A face from a single viewpoint can also be represented by a set of multiple distinctive smaller templates [11], [12]. The face image of gray levels may also be properly processed before matching [8].

TABLE I: TECHNIQUE USED IN THE FACE RECOGNITION

SL.NO.	YEAR	AUTHOR	FACE RECOGNITION TECHNIQUES	ACCURACY RATE
1.	1991	M. Turk & A.Pentland	Eigen Face	96%
2.	1993	F.Samaria & F.Fallside	Hidden Markov Model	95%
3.	1993	R.Bruneli & T.Poggio	Template Matching	100%
4.	1996	L.Wiskott & C.Von der Malsburg	Graph Matching	86.5%
5.	1996	S.Tamura, H.Kawa & H.Mitsumoto	Geometrical Feature Matching	90%
6.	1997	S.Lawrence, et al.	Neural Networks	96.2%

III. DISCUSSION

Above discussion methods are have been proved with practically good accuracy ratio. The ratio marked here is between the different methods and the accuracy level of classification.

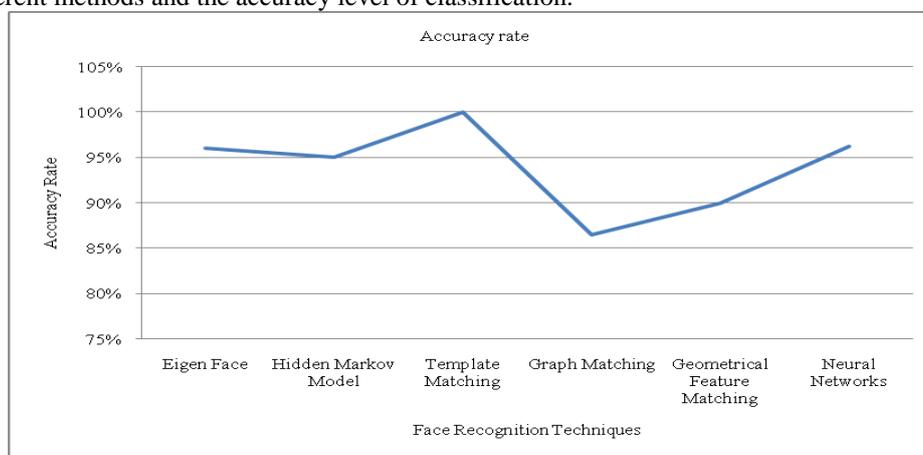


Figure I: Performance Analysis of Various Face Recognition Techniques

Hence, most of the methods are proved with the state-of-the-art performance with more than 95% accuracy; further some researches need to be done in face with the correspondence of different application areas like physiological analysis and psychological analysis.

IV. CONCLUSIONS

The face is unique for every person when all faces are considered. The different functionalities employed in those methods are discussed above and the methods were tested with the database. All those researchers have proved the methods with high accuracy rate.

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