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**A SURVEY PAPER ON HUMAN GAIT RECOGNITION USING PCA & NEURAL
NETWORK**
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ABSTRACT

In today's world, there is a growing need to authenticate and identify individuals automatically. The securing personal privacy and deterring identity theft are national priority. The biometrics is a technology that makes use of the physiological or behavioral characteristics of people to authenticate their identity analysis. It can accurately identify or verify individuals based upon their unique physical or behavioral characteristics. In this paper is a brief report about gait recognition techniques. Gait recognition is one kind of biometric technology that can be used to monitor people without their cooperation. In the controlled environments such as military installations, even airports need to be able to quickly detect threats and provide differing levels of access to different user groups.

KEYWORDS: Biometric, Gait recognition, PCA, LVQ, neural network ensemble, majority voting fusion method, etc.

INTRODUCTION

Recognition of an individual is an important task to identify people. In the identification through biometric is a better way because it associate with individual not with information passing from one place to another place. Biometrics is a physiological or behavioral characteristic, it can be used to identify and verify the identity of an individual process. There are numerous biometric measures which can be used to help derive an individual identity.

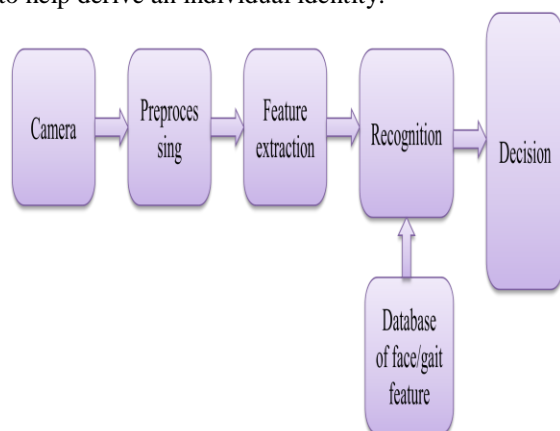


Fig: 1 Biometric gait recognition system

Vision based human identification at a distance is in higher demand in computer vision community. This demand is strongly driven by the need for automated person identification systems for visual surveillance

and monitoring applications. The art and science of biometrics is all about coming up with an all-purpose personal identifier. The biometric authentication is the "automatic", "non-forensic", "real-time", subset of the broader field of human identification. They have humans recognize each other according to their various characteristics. For example, people recognize others by their face when they meet them and by their voice as they speak to each other option. Identity verification in computer systems has traditionally been based on something that one has or one knows.

A biometric system is essentially a pattern recognition system that establishes a person's identity by comparing the binary code of a uniquely specific biological or physical characteristic to the binary code of the stored characteristic. For accomplished by acquiring a live sample from an individual who is requesting entrance. The system then applies a complex and specialized algorithm to the live sample and converts it into a binary code and then compares it to the reference sample to determine the individual's access status. A profile or template containing the biometrical properties of a person is stored in the system data, by recording his characteristics. These characteristics are scanned several times during enrolment in order to get a

profile that corresponds most with reality. It is scan of the biometrics of a person is made and compared with the characteristics that are stored in the profile

LITERATURE REVIEW

HAN SU [1], the study in this paper, the gait recognition is one of biometric technologies which can be identified at a distance or at low resolution. Proposes method a gait recognition method using PCA based on L1-norm maximization and LDA. L1-PCA is adopted to represent these features and LDA is used to analyze and classify the features extraction. L1-PCA tries to find projections through maximizing L1-norm and LDA tries to find the projective direction which minimize the within-class scatter of examples and maximize between-class distributed techniques. L1-PCA and LDA can keep gait feature and reduce the dimension of the feature. The performance of our approach was tested on the gait database process. The result of experiment proves that our method is effective for the recognition of gait sequence which is lower image resolution and noisy data. In this paper, we analyze the existing problem of real condition of gait recognize, in try to apply gait to real condition gradually. The according to the existing problem of noise, and low-quality and other issues in real condition, use the periodic sequence width image to describe gait features, L1-PCA and LDA are used to analyze and classify the features.

Soumia Benbakreti [2], et.all. In this paper, a human identification at a distance has recently gained growing interest from computer vision researchers. This paper presents an automatic gait recognition system that recognizes a person by the way they walk. Each image sequence, background subtraction is used to extract moving silhouettes of the walker. The gait signature is obtained based on the angle and the contour of the silhouette. The silhouette is divided using three parameters: the perimeter of the contour of the silhouette, and area of the silhouette and the angle between right leg and left leg. In principal component analysis (PCA) was then applied to this dataset in order to reduce the dimensionality. This paper applies dynamic time warping to distinguish between the different gaits of human. The performance of the proposed method is tested using CASIA database B. Recognition results show this approach is efficient. The proposed a method based on fusion of based and holistic body biometrics for gait recognition. The method for human identification by gait is sample because we use PCA and DTW method. In this work has been proven to be an encouraging progress to gait-based human identification.

Neda Kordjazi [3], in this paper, the gait is a dynamic feature of humans which has been proven to have strong recognition abilities. There are requiring no cooperation from the observed individual, and using non-expensive low resolution cameras, functionality from distance, are the benefits that have been dragging enormous attention to gait biometric process. This natural variability process, which is absent in other biometrics being used for identification, fingerprint and iris, decreases the reliability of recognition. A mixture of experts, in form of an LVQNN ensemble was employed to improve recognition rate and accuracy. Majority voting fusion method was used to combine the results of LVQNNs. The first, local motion silhouette images (LMSIs) were generated from silhouette walking frame sequences. Then using PCA (Principal Component Analysis), lower dimensional features were extracted from LMSIs, were fed to classifiers as inputs. The experiments were carried out using the silhouette dataset A of CASIA gait database; the effectiveness of the proposed method is demonstrated. The all experiments were carried out using the silhouette dataset A of CASIA gait database system. Also a comparison is provided between the proposed classifier, through some other gait recognition schemes in the lateral view.

Ning Suo [4], this paper presents a novel approach for human identification at a distance using gait recognition. The proposed work introduces nonlinear machine learning, the Kernel Principal Component Analysis (KPCA), and K nearest neighbor classification (KNN) classifier for gait recognition. The Kernel Principal Component Analysis (KPCA) is first applied to 1-dimension signals derived from a sequence of silhouette images to reduce its dimensionality. In that case, in performed K nearest neighbor classification (KNN) for gait recognition process. The experimental results show the KPCA and KNN based gait recognition algorithm is better than that based on principal component analysis. This paper introduces a new gait recognition algorithm based on KPCA and KNN. The result of experiment shows that the gait recognition algorithm of KPCA and KNN are better than that of principal component analysis (PCA). After the analysis and comparison of experiment result, the method of this paper has achieved satisfied recognition result.

OBSERVATION

The study of various papers in observe problem. Analyze the existing problem of real condition of gait recognition, try to apply gait to real condition gradually. According to the existing problem of noise

and other issues in real condition, better performer of PCA method for another method.

CONCLUSION

The various papers and literature has been studied for Gait Recognition and neural network. The comparisons of the methods have been given in the form of observation results in show. The Principl component analysis (PCA) perform better in the recognition but required higher computation time. In feature, the neural network with various other feature extraction techniques may be useful.

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