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Face Detection across Non-Uniform Motion Blur, Illumination, and Pose

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ABSTRACT—*Existing methods for performing face recognition in the presence of blur are based on the convolution model and cannot handle non-uniform blurring situations that frequently arise from tilts and rotations in hand-held cameras. In this paper, we propose a methodology for face recognition in the presence of space-varying motion blur comprising of arbitrarily-shaped kernels. We model the blurred face as a convex combination of geometrically transformed instances of the focused gallery face, and show that the set of all images obtained by non-uniformly blurring a given image forms a convex set.*

Keywords— Local Binary Pattern, Principle Component Analysis,Discrete Wavelet Transform, Discrete Cosine Transform ,Euclidean Distance

1, INTRODUCTION

Smart automatic digital systems development is posed to varying constraints with time. The man machine interface decides the smartness of any designs, depending on the percentage of human intervention required in any application. Biometrics is one such area providing smarter solutions to real time problems. The human organs with or without traits are considered as parameters of authentication and or verification purpose. The different biometric parameters include fingerprint, palm print, iris, DNA, typing rhythm, speech, face and others. Recent additions to the list are brain, age, gender, height, veins, lip motion, smile teeth, gesture, emotion, race, attitude and open for add-ons. The real time situations cannot be predicted and depicted, since humans also make false decisions. The development of efficient and accurate systems design has culminated with confined environments. The robust and efficient system requirement in all respects is always persistent. Better results are achieved with multiple biometric parameters for complex systems such as dealing with huge and quality less input data. Many systems accept image as input data

2, SCOPE:Automotive sector:

In developing advanced drivers assist for semi-autonomous cars and also heavily used in autonomous/driver-less cars

2.1 Image enhancing:

The camera apps on smartphones and digital cameras using image processing to enhance the image quality, video stabilization and noise removal etc.

2.2 Human machine interface:

Machines are made smart by adding gestural interface, or human action response interfaces, which decodes the actions of the human user to perform certain tasks.Camera simulates the eyes of a human being, which is one of the main sensors of the human body using which brain takes decisions. The camera is relatively cheap and decoding the image from it can give an enormous amount of information which can be used to perform certain actions/tasks. So Image processing is one of the emerging and is a future tool, so it has a lot of scope.

3, SYSTEM ANALYSIS

3.1 Existing System

In existing scheme feature extraction, based on morphological or textual attributes are elicited, which uniquely represents the input image. Some of the tools used for feature extraction are Principal Component Analysis (PCA), Discrete Cosine Transform (DCT) ,Discrete Wavelet Transform(DWT).

4, PROPOSED SYSTEM

The applications using face biometric has proved its reliability in last decade. In this paper, we propose LBP based Face Recognition. Database images are scanned to get from camera different poses illumination and blur images .The Local Binary Pattern (LBP) is applied on image.

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The Euclidian distance measure is used to compare the features of test image and database images. The LBP extracts the relation between given pixel with its neighboring pixel.

5, IMPLEMENTATION

5.1 MODULE I: Blur Creation:

First we capture images from the camera. Then apply Face Detection technique using Viola Jones to that face image to crop the face without any background information. Then, this face image is taken to apply different types of blur like motion, Gaussian blur.

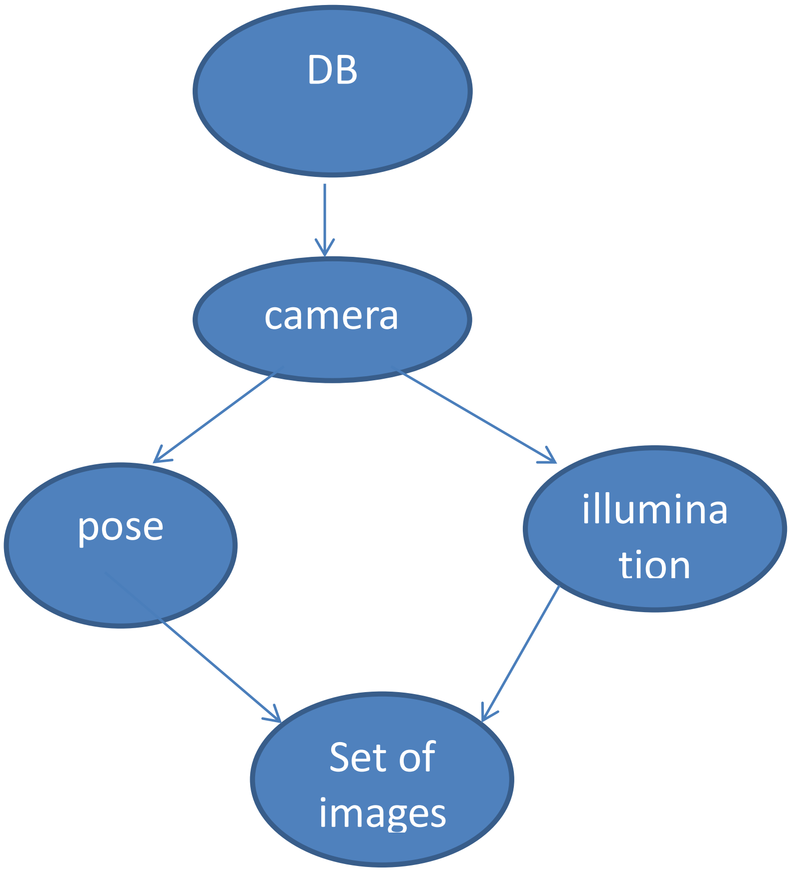

FIG 5.1:BLUR CREATION

5.2 MODULE II: Database Creation:

In this process different set of images are taken by camera, like pose, illumination. These all images are used to created databases. Different persons set of images are used in database.

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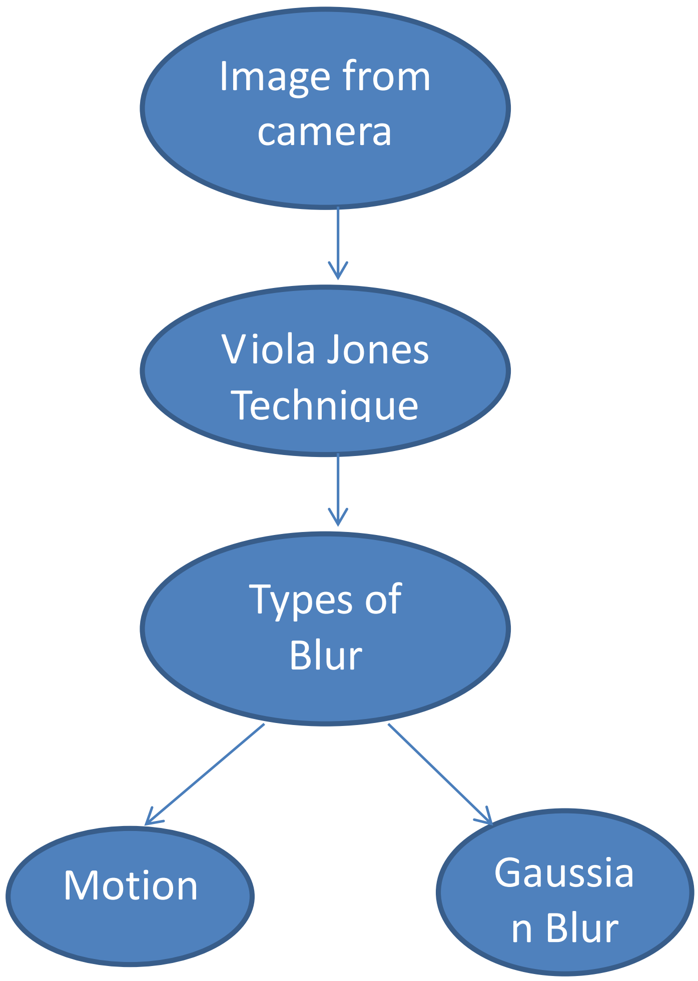

FIG 5.2:DATABASE CREATION

5.3 MODULE III: LBP and Matching

Local Binary Pattern(LBP) algorithm are used to find the feature extraction, for database and test images. Then find Euclidean Distance (ED) between database and test image features. ED is used to verify whether the person is in database or not.

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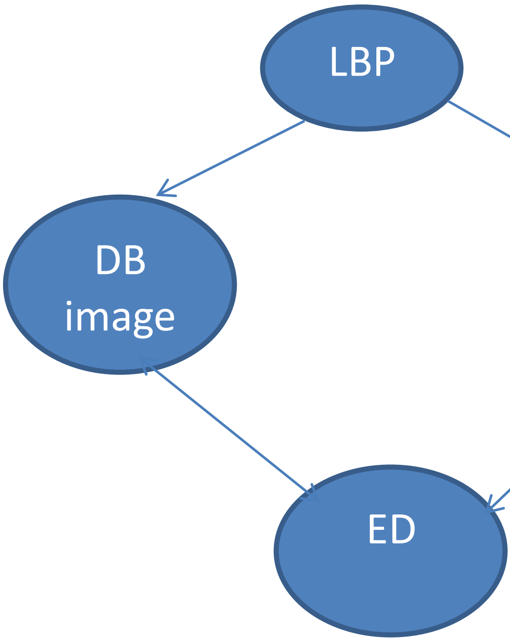

FIG5.3:LBP AND MATCHING

6, ARCHITECTURE OF FACE DETECTION

6.1 Steps

The detected image will be stored in database and the image should be normalized, blurred such as Guassian and Motion blur. The Local Binary Pattern (LBP) is applied on image. Then the image can be constrastly stretched by applying LOCAL BINARY PATTERN algorithm. The LBP extracts the relation between given pixel with its neighboring pixels.

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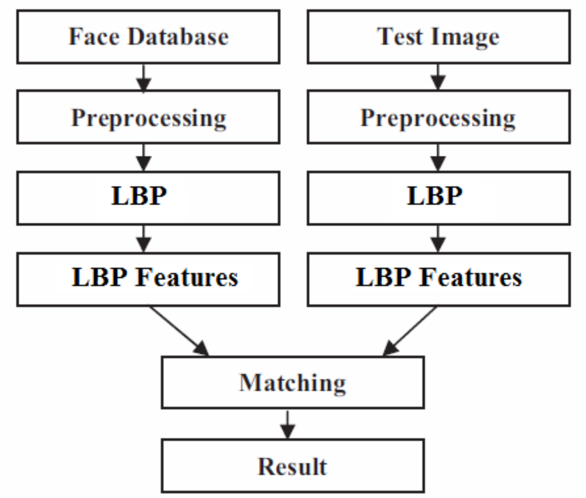

FIG 6.1:ARCHITECTURE DIAGRAM

7. CONCULSION AND FUTUREWORK

We proposed a methodology to perform face recognition under the combined effects of non-uniform blur, illumination, and pose.We showed that the set of all images obtained by non-uniformly blurring a given image using the TSF model is a convex set given by the convex hull of warped versions of the image. Capitalizing on this result, we initially proposed a non-uniform motion blur-robust face recognition algorithm. We then showed that the set of all images obtained from a given image by non-uniform blurring and changes in illumination forms a bi-convex set, and used this result to develop our non-uniform motion blur and illumination-robust algorithm MOBIL. We then extended the capability of MOBIL to handle even non-frontal faces by transforming the gallery to a new pose. We established the superiority of this method called MOBILAP over contemporary techniques. Extensive experiments were given on synthetic as well as real face data. The future enhancement of our approach is to recognize faces across non-uniform (i.e., space-variant) blur, and varying illumination and pose.

REFERENCES

[1] B. Zitová and J. Flusser, "Image registration methods: A survey," Image Vis. Comput., vol. 21, no. 11, pp. 977–1000, Oct. 2003.

[2] X. Dai and S. Khorram, "The effects of image misregistration on the accuracy of remotely sensed change detection," IEEE Trans. Geosci. Remote Sen., vol. 36, no. 5, pp. 1566–1577, Sep. 1998.

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[3] H. Gonçalves, J. A. Gonçalves, and L. Corte-Real, "HAIRIS: A method for automatic image registration through histogram-based image segmentation," IEEE Trans. Image Process., vol. 20, no. 3, pp. 776–789, Mar. 2011.

[4] C. Xing and P. Qiu, "Intensity-based image registration by nonparametric local smoothing," IEEE Trans. Pattern Anal. Mach. Intell., vol. 33, no. 10, pp. 2081–2092, Oct. 2011.

[5] M. Debella-Gilo and A. Kääb, "Sub-pixel precision image matching for measuring surface displacements on mass movements using normalized cross-correlation," Remote Sens. Environ., vol. 115, no. 1, pp. 130–142, Jan. 2011.