International Journal of Advance Research in Science and Engineering
Volume No.07, Special Issue No.(02), March 2018
www.ijarse.com
IJARSE
ISSN: 2319-8354

ANEFFICIENT EAR AND NOSE RECOGNITION SYSTEM IN E-PASSPORT

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ABSTARCT

As a promising biometrics, ear and nose recognition is attracting increasing research interests among researchers in recent years. It has a wide range of civilian and law-enforcement applications. Ear and nose Biometrics identification is rapidly growing in current biometric industry because of its unique features, stableness and passive of human involvement. Ear and nose biometric system better suits for automatic identification of individual or human. We propose a pixel based feature extraction approach for Ear biometric model. The DWT may decompose an ear and nose image into a set of basis function.

I.INTRODUCTION

In different organizations like financial services, e-commerce, telecommunication, government, traffic, health care the security issues are more and more important. The security issues are arisen quickly after some crude abuses. For these reason, organizations are interested in taking automated identity authentication systems, which will improve customer satisfaction and operating efficiency. The authentication systems will also save costs and be more accurate that a human being.Using ear in person identification has been interesting at least 100 years.The ear structure is quite complex,but the question is, if it is unique for all individuals. At present ear recognition technology has been developed from the initial feasible research to the stage of how to enhance ear recognition performance further, for instance, 3D ear recognition [10], [11], ear recognition with occlusion [12], and multi-pose ear recognition etc. Multi-pose ear recognition is referred to when the angle between the ear and the camera changes, the shape of the ear will be distorted, resulting in the decrease of the recognition performance and Nose recognition has become one of the most important problems of computer vision and pattern recognition. The main group of applications that has fueled intense efforts on face recognition research in security applications, ranging from authentication tasks.In addition to security applications, human identification is one of the most crucial building blocks for smart interaction applications.

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II. EXPRIMENTAL SETUP

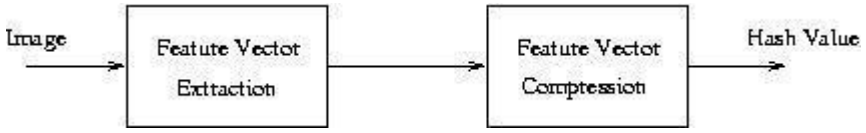
IMAGE HASHING

Image hashing may be defined as the mapping of an image into binary strings. A good hash function generates same hash values for perceptually similar images; images appearing identical to each other should have a high probability of same hash value whereas different images should have different hash values. An image hash function can be used to search and sort an image database, or to select an image from the given database.

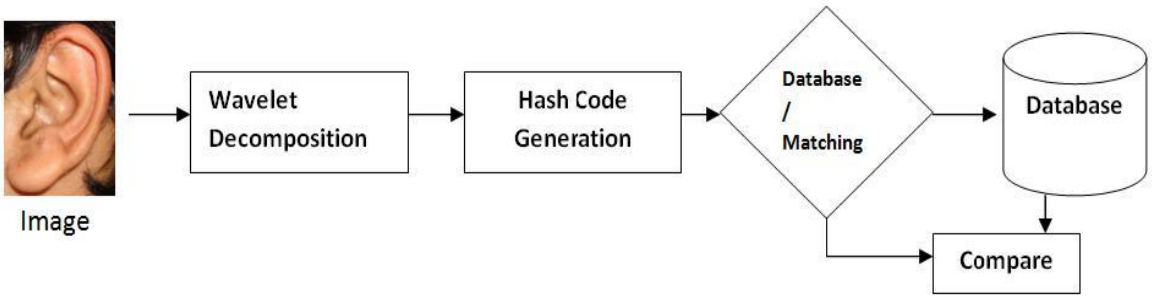
We consider the problem of mapping an image to a short binary string, known as image hashing. The image hash function should have the properties that perceptually identical images should have the same hash value with high probability, while perceptually different images should have independent hash values. In addition, the hash function should be secure, so that an attacker cannot predict the hash value of a known image. An image hash function can be used to search and sort an image database, or to select frames in a video sequence for watermark embedding etc.

Here we propose a two stage image hash function. We construct an image hash function by splitting it into two stages. In first step we decompose the input into image into three levels using DWT as given in Section. Further a hash vector, which should capture the important perceptual aspects.

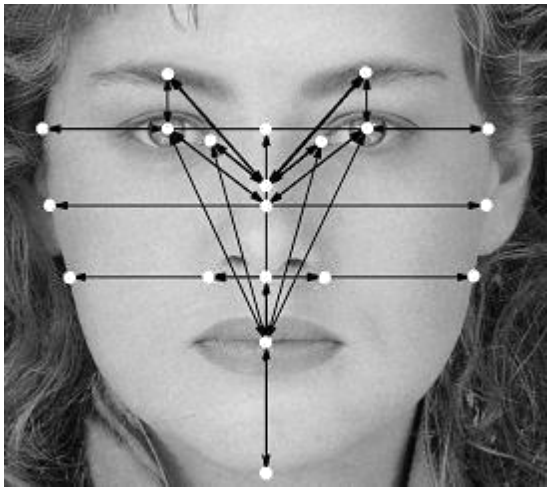
III. BLOCK DIAGRAM



Block diagram of image hash function



Diagrammatic Representation of the Proposed System

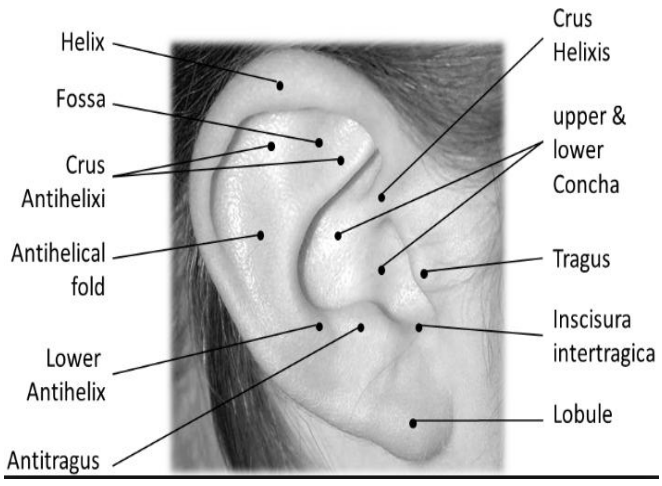


Generation of Hash Code

In this step, image hashing quantization of pseudo random statistics of wavelet coefficients are computed. The image is divided into random rectangles (50 for this system).Inner product of the pseudo random weights generated for the image and the DC sub-band of the wavelet decomposition obtained in the above step of each rectangle generates the hash code.

At first, the image is resized to a square image. The size of the image is reduced by a factor of 8(for level 3 decomposition).The dimensions of the rectangle are obtained randomly. This is necessary to ensure that at each iteration, the sizes of the rectangles are random. Then a linear transform matrix is initialized to zero and uniform weights are assigned to it. The transformmatrix is then multiplied by the approximation matrix obtained by the decomposition of the image in the above step. This matrix is quantized to obtain the final hash code.

Facial points and distances between them are used in nose recognition



Ear lobe image

IV.SAMPLEPROGRAM

```
%read the image
        %input_image1=imread(uigetfile);
        %display input image
        %add noise
        input_image=(I);
        figure;
        imshow(input_image);
        %give the number of decomposition level which must be integer and should not exceed 3
        n=input('enter the decomposition level');

        %**************************************************************************
        [Lo_D,Hi_D,Lo_R,Hi_R] = wfilters('haar');
        % computes four filters associated with the orthogonal or biorthogonal
        %  wavelet named in the string 'wname'.
        %    The four output filters are:
        %       LO_D, the decomposition low-pass filter
        %       HI_D, the decomposition high-pass filter
         %      LO_R, the reconstruction low-pass filter
          %     HI_R, the reconstruction high-pass filter
          % Available wavelet names 'wname' are:
          % Daubechies: 'db1' or 'haar', 'db2', ... ,'db45'
```

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%Coiflets : 'coif1', ... , 'coif5'

IMAGE ABOVE 10 YEAR IMAGEBELOW 10 YEAR

NOSE IMAGE ABOVE 10 YEARS NOSE IMAGGE BELOW 10 YEARS

V.OUTPUT

AGE/YEARS	NOSE PARAMETER	EAR PARAMETER
Less than 5 years	Access denied	Access granted
Less than 10 years	Access granted	Access granted
Less than 20 years	Access granted	Access granted
Less than 30 years	Access granted	Access granted

Less than 40 years	Access granted	Access granted
Less than 50 years	Access granted	Access granted
Greater than 60 years	Access granted	Access granted

VI. RESULT

The proposed recognition technique based on Discrete Wavelet Transform is an efficient scheme in compare with other authentication such as iris,palm print ,fingerprint,face recognition,DNA etc.

VII. CONCLUSION

Also, we introduce a novel image hashing scheme that is invariant to change in illumination, occlusions and other morphological factors. We use Discrete Wavelet Transform to generate a unique hash code from an image which makes the matching of images with another more robust. There is a scope to further improve upon the generation of robust image hashing techniques.

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