International Journal on Applications in Information and Communication Engineering
Volume 1: Issue 4: April 2015, pp 39-42. www.aetsjournal.com ISSN (Online) : 2394-6237

An Emergence Of New Technology For Scandalous And Dupeidentification With Saliency Map Algorithm

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Abstract— Identifying Scandalous and Dupe is always an important task in police investigation and forensic evaluation. Finger marks, blood samples, DNA, dental records, tattoos, face images and face sketches are used regularly by law enforcement agents all around the world. For identifying criminal, in the existing they use the Gabor filters to compute orientation fields of androgenic hair Patterns, histograms on a dynamic grid system to describe their local orientation fields, and the block wise Chi-square distance to measure the dissimilarity between two patterns. But this system does not providing the accurate result. For providing accurate result and also improve the performance of the system in our concept we propose the Saliency map algorithm in the eyebrow. In this algorithm first step is that the edge detection. For this process we use the canny edge detection algorithm. After that the binarization and pattern recognition process are performed. For pattern recognition we use the Sailency map algorithm. Further pattern mach process is done for matching the images with the data sets. Finally we draw the accuracy graph for the images.

Keywords— Hair pattern identification, Scandalous and Dupe identification, Soft biometrics, skin marks.

I. INTRODUCTION

The Scandalous analysis process begins with collecting and managing data, actual analysis of a crime pattern begins with its initial identification. That the analyst strives to be the one to identify all scandalous patterns. If the analyst waits for the rest of the department to notify him of the pattern's existence—or waits for the media to notify everyone—then any brilliant analysis that follows is clouded by the fact that the analyst has allowed the pattern to continue long past its point of identifiability (see below). That the analyst attempt to identify 100% of identifiable patterns, in all crimes and calls for serve that fall within the analyst's scope of responsibility. That the analysts identify each pattern once it reaches its point of identifiability. The point of identifiability describes the moment, after *n* incidents, when the analyst can confidently assert that a pattern exists. The actual number of incidents can vary greatly depending on the types of crimes and the strengths of their commonalities. Some patterns will be identifiable after the second incidents; others will require a dozen or more. The idea is simply to identify the pattern as soon as possible, so that the agency can intercede as soon as possible, so that as few people as possible need become dupes.

We present an algorithm for identity verification using only information from the hair. Face recognition in the wild (i.e., unconstrained settings) is highly useful in a variety of applications, but performance suffers due to many factors, e.g., obscured face, lighting variation, extreme pose angle, and expression.We propose a learned hair matcher using shape, color, and texture features derived from localized patches through an AdaBoost technique with abstaining weak classifiers when features are not present in the given location. The proposed hair matcher achieves 71.53% accuracy on the LFW View dataset. Hair also reduces the error of a Commercial Off-The-Shelf (COTS) face matcher through simple score-level fusion by 5.7%.

Human hair has a significant potential in forensic anthropology and has been extensively used in forensic investigations. Investigators believe that their presence can associate a suspect to a victim or a suspect/victim to a crime scene primarily because hairs can be transferred from the suspect to the victim and/or vice-versa during physical contact. The types of hair recovered, the condition and number of hairs found in the scene of crime all have great relevance as evidences in criminal investigations. The forensic anthropologist routinely compares the morphological characteristics of the hair samples in question to known hair samples to determine a transfer.

Human hair has also been successfully used to assess drug and substance abuse as drugs of abuse cannot be often detected in body fluids. Hairs may be defined as slender filamentous outgrowths of the skin and are primarily composed of keratin. It differs from one animal species to another in the basis of length,color, shape,root appearance andmorphological characteristics.

Soft biometrics are human characteristics providing categorical information about people such as age, beard, gender, glasses, ethnicity, eye/hair color, length of arms and legs, height, weight, skin/hair color, gait and gestures, accent, ear shape, etc. In contrast to "hard" biometrics, which include face, fingerprint, retina, iris, voice etc., and are generally unique and permanent personal characteristics, soft biometrics provide some vague physical or behavioral information which is not necessarily permanent or distinctive. Soft biometrics can also be used in a multitude of applications, including human-machine interaction, content based image/video retrieval, person re-identification, etc

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II. LITERATURE SURVEY

A. Low Resolution Androgenic Hair Patterns

It is discussed about that to investigate the effectiveness of local appearance features extracted from the periocular region images for soft biometric classification. We present an algorithm for identity verification using only information from the hair. Face recognition in the wild (i.e., unconstrained settings) is highly useful in a variety of applications, but performance suffers due to many factors, e.g., obscured face, lighting variation, extreme pose angle, and expression. It is well known that humans utilize hair for identification under many of these scenarios due to either the consistent hair appearance of the same subject or obvious hair discrepancy of different subjects. Hairs may be defined as slender filamentous outgrowths of the skin and are primarily composed of keratin. It differs from one animal species to another in the basis of length, color, shape, root appearance &morphological characteristics.

B. Mitochondrial DNA Sequencing Of Shed Hairs And Saliva On Robbery Caps

Sensitivity and matching probabilitiesIt discussed about to identify the human based on teeth and skeletal remains. In this paper, DNA extraction, nested mtDNA amplification and mtDNA control region sequencing are used. The paper puts forward a new graphical representation of DNA sequences -- H curve, gives the definition of H curve and the relationship between H curves and represents mitochondrial DNAsequences by H curve for the first time. Through calculating the distance of H curve compressed to get the distance matrix of mitochondrial DNA of eight species, then use Kruskal algorithm to construct theDNA sequence phylogenetic tree.While the k-tuple distance is easy to compute and has been used in phylogenetic tree reconstruction.However,k-tuple distance is not effective for analysing identical sequences. Considering the occurrences of k-tuples and the sequence structure which may contain k-tuple locations as well as the order relation among them, The experimental results show that the new approach is capable of efficiently building phylogenetic treeHigh confidence visual recognition of persons by a test of statistical independence**.**

C. High Confidence Visual Recognition Of Persons By A Test Of Statistical Independence

In this method rapid visual recognition of personal identity is described, based on the failure of astatistical test of independence. The most unique phenotypic feature visible in a person's face is the detailed texture of each eye's iris. The visible texture of a person's iris in a real-time video image is encoded into a compact sequence of multi-scale quadrature 2-D Gabor wavelet coefficients, whose most-significant bits comprise a 256-byte "iris code". Statistical decision theory generates identification decisions from Exclusive-OR comparisons of complete iris codes at the rate of 4000 per second, including calculation of decision confidence levels. One of the most important problems in random testing is the measurement of test confidence after a sequence of test vectors has been applied. Sequential statistical analysis is employed to determine the better random test confidence than conventional approaches.

D. Gray Scale And Rotation Invariant Texture Classification With Local Binary Patterns

To use very simple and efficient approach In this paper, local binary pattern and nonparametric discrimination is used for gray scale and rotation invariant texture classification. Aiming at the human face detection in color images under complex background, a face detection method based on the combination of skin color model in YCgCr and AdaBoost algorithm is proposed in this article. and then further verifies the face region by the Adaboost algorithm with the added new feature. Experimental results show that the method can effectively improve the human face detection efficiency in complex background and significantly reduce the false detection rate. In this method, HS channels of HSV color space are logically combined for skin-color region extraction, then a blob-contour-property based filtering is used to indicate the optimum ROI (regions of interest) on the original image and finally Adaboost is given the face candidates ROI for face presence confirmation if any. Our experiment has shown that the processing time is reduced around ten times compared to Adaboost used alone in which the whole image needs to be scanned.

E. Histograms Of Oriented Gradients For Human Detection.

HOG is used to detect the human.Here the detection is sensitive when gradient is computed. The main objective of this paper is to achieve better performance and accurate result. We study the question of feature sets for robust visual object recognition; adopting linear SVM basedhuman detection as a test case. After reviewing existing edge and gradient based descriptors, we show experimentally that grids of histograms of oriented gradient

(HOG) descriptors significantly outperform existing feature sets for human detection. We study the influence of each stage of the computation on performance, concluding that fine-scale gradients, fine orientation binning, relatively coarse spatial binning, and high-quality local contrast normalization in overlapping descriptor blocks are all important for good results. The new approach gives near-perfect separation on the original MIT pedestrian database, so we introduce a more challenging dataset containinover 1800 annotated human images with a large range of pose variations and backgrounds. In our system, we use the integral image representation and a rejection cascade which significantly speed up the computation.

III. EXISTING SYSTEM

In the existing system they used androgenic hair pattern algorithm for identify the person using their androgenic hair.

This algorithm has three important computational components they are preprocessing, feature extraction and matching. This algorithm takes the color leg image as input. The first process of this algorithm is segmentation and normalization. In segmentation process, the irrelevant information is removed. In normalization, the common region is identified.

Then the gobar filter algorithm is applied to the preprocessed image which is used to calculate the gobar magnitudes. These algorithms are mainly used for low resolution image. To identify the androgenic hair it first resized the image and then it performs the process. But the image resizing will decrease the accuracy of result hence we go for proposed system to achieve accuracy. In the existing system we cannot obtain the close up images with backs, chests and thighs of criminals.

IV. PROPOSED SYSTEM

In the proposed system we are going to use the gray scale conversion, canny edge detection, adaptive or morphological method and filtering algorithm for identification of the crime. Gray scale conversion method which is used for covert the color image into the gray scale image. Since, the color images are not providing the accurate result. For this reason we used the gray scale conversion. Canny edge detection is used to detect the edges of images that are used to identify the eyebrow. Here we used adaptive or morphological method for binary conversion. It converts the gray scale image into binary images. In our proposed system we used saliency map filtering algorithm which is used for removing the noise from the image.

The block wise Chi-square distance is used to measure the dissimilarity between two patterns. The experimental results shows that the proposed system is effective when compared to the existing methods. Finally, the proposed Gabor orientation histograms are compared with other well-known texture recognition methods, including local binary patterns, local Gabor binary patterns, and histograms of oriented gradients.

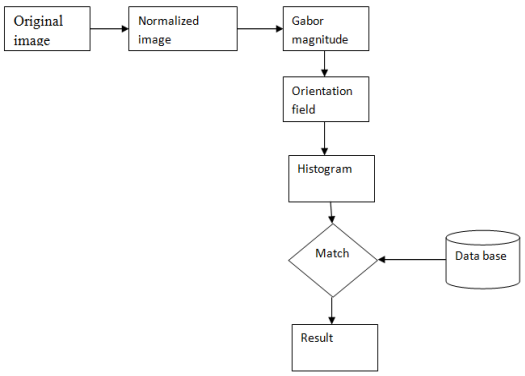


Fig.4.1.System Architecture

A. GRAY SCALE CONVERSION

The gray scale conversion is the first module of our proposed system. Here we collect the eyebrow related data sets for gray scale conversion process. Each data set contains the training and testing data set which are used for mapping. Then we load the training data set which is used to perform identification. After the data set loads and then we perform the gray scale conversion. Gray scale conversion is used to converts the color image into gray scale image.

Color images are not providing the accurate results. Hence we used gray scale conversion in our proposed system. After gray scale conversion then we detect the edges of images using the canny edge detection method. The below diagram is shows the gray scale conversion module of our proposed system.

B. EDGE DETECTION

The edge detection is the second module of our proposed system. After obtained the gray scale image we are going to perform the edge detection process. In that process we are going to use the canny algorithm. This canny algorithm is used to detect the edges of the images in our proposed system. After the completion of the edge detection we have to perform the binary image conversion process.

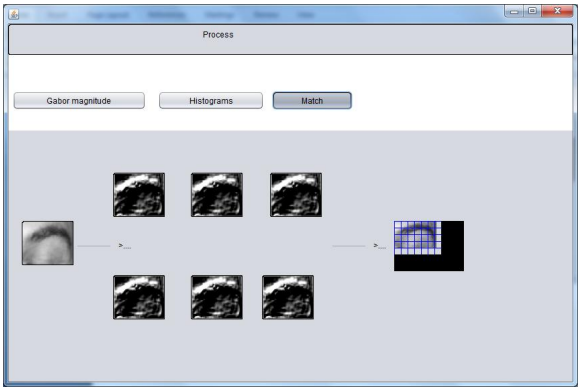


Fig 4.2 Grayscale Conversion and Edge Detection

C. BINARY IMAGE CONVERSION

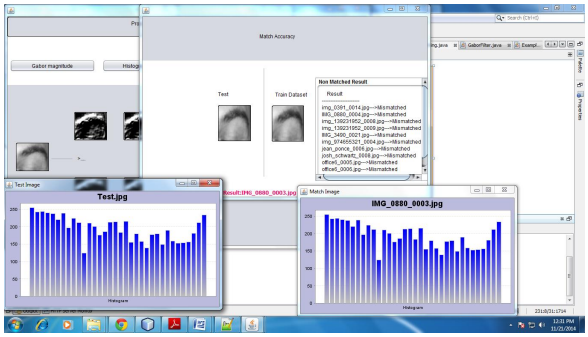
The binary image conversion is the third phase of our proposed system. In that binary image conversion process the gray scale image is converted into the binary image. The binary image conversion is done by the morphological operator. This process is named as morphological method. The gray scale image is converted into the machine readable form that is in 0's and 1's. After the completion of the binary image conversion the noise removal phase is takes place.

D. NOISE REMOVAL

In that phase the unwanted noises are removed from the image. In our proposed system we are using the saliency map filtering algorithm. This saliency map filtering algorithm is used to remove and filter the unwanted noise from the image. This is the final module of our proposed system. From this noise removal stage we can get the clear image for identifying the theft and criminals.

V. IMPLEMENTATION &RESULTS

Saliency estimation has become a valuable tool in image processing. Yet, existing approaches exhibit considerable variation in methodology, and it is often difficult to attribute improvements in result quality to specific algorithm properties. In this paper we reconsider some of the design choices of previous methods and propose a conceptually clear and intuitive algorithm for contrast-based saliency estimation. Our algorithm consists of four basic steps. First, our method decomposes a given image into compact, perceptually homogeneous elements that abstract unnecessary detail. Based on this abstraction we compute two measures of contrast that rate the uniqueness and the spatial distribution of these elements. From the element contrast we then derive a saliency measure that produces a pixel-accurate saliency map which uniformly covers the objects of interest and consistently separates fore- and background. We show that the complete contrast and saliency estimation can be formulated in a unified way using high- dimensional Gaussian filters. This contributes to the conceptual simplicity of our method and lends itself to a highly efficient implementation with linear complexity. In a detailed experimental evaluation we analyze the contribution of each individual feature and show that our method outperforms all state-of-the-art approaches.These results are obtained from the noise removal phase for our proposed system. In that process if the resultant image is matching with the trained image means we can get the criminals easily.



VI. CONCLUSION

In the proposed system we are identifying the Scandalous and Dupe in images which describing the Scandalous-scene specimen is a challenging task. Especially, when neither faces nor tattoos are observable. We can easily identify the Scandalous using their hair patterns. For this purpose we use the two different algorithms. Such as canny edge detection and saliency map. It provides efficient result when compared to the existing methods. Our proposed work introduces the androgenic hair patterns in images. This method is suitable for the low resolution images can be used as a biometric trait for Scandalous and Dupe identification. Our proposed algorithm enhance the performance of the proposed system.

VII. FUTURE ENHANCEMENT

Identifying Scandalous and Dupe in images describing crime-scene specimen is a challenging task, especially when neither faces nor tattoos are observable. Though blood vessel patterns and skin mark patterns have been proposed to address this problem, they demand high resolution images to visualize hidden blood vessels and accurately detect skin marks. We first provides a list of medical studies and images to justify that androgenic hair patterns are a stable biometric trait. Though hairs collected in crime scenes are regularly used for forensic analysis, according to our best knowledge, androgenic hair patterns in images were never studied for Scandalous and Dupe identification. For matching androgenic hair patterns, we propose an algorithm based on a dynamic grid system and Gabor orientation histograms. A list of medical studies and images are given to justify that androgenic hair is a stable biometric trait. In Androgenic Hair pattern, Gabor filters to compute orientation fields of androgenic hair patterns, histograms on a dynamic grid system to describe their local orientation fields, and the block wise Chi-square distance to measure the dissimilarity between two patterns. It require perfect match, if slight changes in histogram it will declare as mismatch of image. In future we are going to use canning Edge detection and sailency map filter algorithm by taking the hair pattern of eye-brow and leg the patches produce accurate histogram with input image pattern. It produces high accuracy and it is also more efficient than the proposed system. A large-scale study for determining the permanence of androgenic hair is still demanded. Since each hair has its own rhythm and hair shafts fall out at different time, how these issues impact matching accuracy should also be further studied

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