E-Sketch Drawing of Wanted Terrorist

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Abstract: In this work we introduce sketch drawing using computer system, Most of the Indian police station used physically Hand drawing system. Types of sketch as Composite sketches, and Forensic sketches. Composite sketches: which are generated with a help of some face composite software. the main objectives is Sketches used in forensic Investigation, System drawing faces component match with clustering and k-means algorithm. *K*-means clustering is a type of unsupervised learning, which is used when you have unlabeled data

Keywords: Composite sketches, Forensic sketches, *K*-means, Software, Face.

1.   Introduction

In this work we introduce sketch drawing using computer system. Most of the Indian police station used physically Hand drawing system. Sketch drawing is the only way to identify criminal person with the help of witness. But most of the police station criminal person sketches not match likeness and originality of person. At police station drawing is to find criminal person so drawing is called as victim. the task of drawing likeness remain difficult since large part of it is dependent of memory of eyewitness. Skilled forensic artists are used to draw the sketches of the suspect with verbal description provided by the eyewitness. These sketches play a very important role in investigation process. Prepared sketches are sent to investigation agency to further carry out the investigation and to catch the criminal. There are mainly four kinds of facial sketches used in the sketch matching research. Facial sketches are commonly used in law enforcement to assist in identifying suspects involved in a crime when no facial image of the suspect is available at the crime scene

(1)   Viewed sketches: By directly looking at the person or his/her photo sketches will be created. Viewed sketch quality will be higher when compared to other sketches

(2)   Semi forensic sketches: These kinds of sketches are drawn by sketch artist based on his/her recollection from photo image of a person

(3)   Forensic sketches: which are drawn by obtaining eyewitness's description about the suspect

(4)   Composite sketches: which are generated with a help of some face composite software. This software provides a predefined set of human facial components. Based on witness description of the suspect individual face components are selected and merged together to form a facial image

E-sketch drawing system depends on inputs but sketches are drawn with help of patterns so at time one to up to five sketches draw by using system with patterns matching. System database contains human body parts and its different patterns. Those matches with witness collective features. System patterns include the eye, nose, foreheads , hair patterns , cheeks, chins, mouth,

ears. Witness includes CCTV camera footage, Person, Camera Photo etc. E-sketch drawing system also useful for NCRB (National Crime Records Bureau), System also provides marketing strategy means how to published criminal person sketch.

2.   Objectives

1.   Sketches used in forensic Investigation
2.   There is need for the method that can automatically and quickly match facial sketches to large police database
3.   Comparison of holistic facial representation and component based representation
4.   Systems provides minimum five matching faces
5.   System drawing faces component match with clustering and k-means algorithm
6.   System provides marketing and published strategy

3.   Methodology

K-means clustering is a type of unsupervised learning, which is used when you have unlabeled data (i.e., data without defined categories or groups). The goal of this algorithm is to find groups in the data, with the number of groups represented by the variable *K*. The algorithm works iteratively to assign each data point to one of *K* groups based on the features that are provided. Data points are clustered based on feature similarity. The results of the *K*-means clustering algorithm are:

1.   The centroids of the *K* clusters, which can be used to label new data
2.   Labels for the training data (each data point is assigned to a single cluster)

Each centroid of a cluster is a collection of feature values which define the resulting groups. Examining the centroid feature weights can be used to qualitatively interpret what kind of group each cluster represents. The *K*-means clustering algorithm is used to find groups which have not been explicitly labelled in the data. This can be used to confirm business assumptions about what types of groups exist or to identify unknown groups in complex data sets. Once the algorithm has been run and the groups are defined, any new data can be easily assigned to the correct group

4.   Examples

(a)   (b)

(c)   (d)

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Examples of facial sketches (a, c) used in successfully apprehending the suspects whose mug shots were in the database (b, d). (a, b): A man accused of attempting to kidnap a young girl was captured based on his forensic sketch1. (c, d): A composite sketch created using the software FACES assisted in the capture of a man who brutally attacked and attempted to abduct several young women.
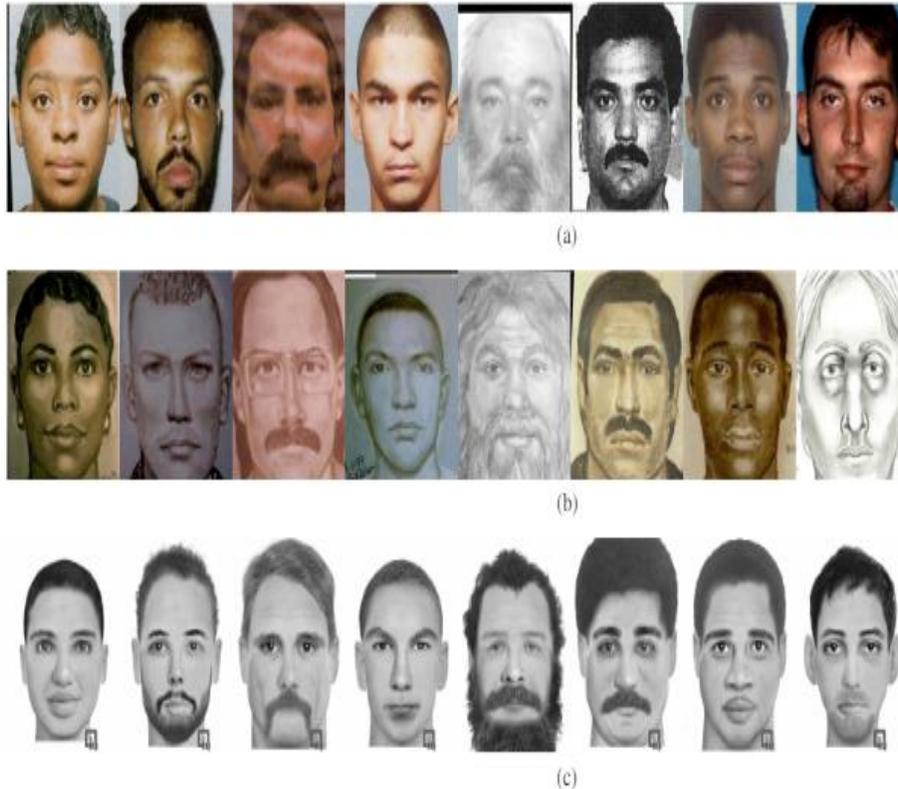
5.   Software Outcome

Fig.1.1

Figure shows that how clustering algorithms works in Component based database. Figure divides in three parts like a,b,c etc.

1] part a represents actual image from CCTV footage /camera witness

2] part b works with face draw by artist

3] part c is system generated image

classic use of the facial composite is the citizen recognizing the face as an acquaintance, there are other ways where a facial composite can prove useful. The facial composite can contribute in law enforcement in a number of ways:

1.   Identifying the suspect in a wanted poster.

2.   Additional evidence against a suspect.

3.   Assisting investigation in checking leads.

4.   Warning vulnerable population against serial offenders.

Facial composites of various types have been used extensively in those television programs which aim to reconstruct major unsolved crimes with a view to gaining information from the members of the public

6.   Conclusion

Terrorist attackers person and the victim person is the input to the composite system. Based on victims inputs software display sketches to search and find terrorist on less time .

7.   References

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