

Result paper on Implementation of Face Annotation by Using Efficient Retrieval Based Method

Miss.Pooja M Dhekankar¹ and Prof.Nitin R.Chopde²
^{1,2} G.H.Raisoni college of Engineering & Management Amravati

Abstract- Face annotation is the process of naming a person through his photo or person involved in video chat. Face annotation in images and videos enjoys many potential applications in multimedia information retrieval. Auto face annotation, which aims to detect human faces from photo, images is a fundamental research problem and beneficial to many real-world applications. These databases are prepared using various visual features like colour, texture, shape and spatial layout which are extracted using different techniques. The proposed system is to find the best match of an images captured by camera from the sequence of image (database) using a restored image database. The applications of face detection system are Security system, Criminal-identification, database security, CCTV control and tracking and investigation.

I. INTRODUCTION

As the technology growing throughout the society, the digital images, multimedia files, visual objects are also increasing. This huge amount of images requires novel methods to search and access the images. Advances in medical and other technologies have provided extensive image generation, its storage and transmission capabilities. Due to the increase in the usage of these digital images in various fields, researchers are focusing on new ways by which images can be easily, quickly and accurately retrieved and accessed from large databases. For many years researchers has been working on image retrieval processes. The two methods which are used for image retrieval are Text based image retrieval and content based image retrieval. A new method for image retrieval is needed where the human factor would be relieved from the annotation task and doing it automatically. In these search engines, humans have to enter the keywords manually and it is inefficient and expensive way to find images in a large database. Content-based image retrieval is the modern image retrieval system.

II. RELATED WORK

The proposed algorithm contains weak label with popular and non popular image. Face annotation related to face detection and recognition Recently research interests in mining weakly-labelled facial images on the internet to resolve research challenge in computer vision and image understanding.

- **Retrieval-Based FaceAnnotation**

D. Wang, S.C.H. Hoi, Y. He And J. Zhu the WRLCC algorithm is focused on learning more features for the top retrieved facial images for each query. By weak label regularized local coordinate coding. Retrieval based face annotation is used in mining massive web facial images for automatic face annotation .there are two challenges first is how effectively retrieve most of similar facial images. Second is how to effectively perform annotation. They proposed weak label regularized local coordinate coding (WRLCC) technique. They also proposed the optimization algorithm i.e.WRLCC algorithm .This algorithm boosts the performance of the retrieval based face annotation approach on a large scale web facial image D. Wang, S.C.H. Hoi, and Y. He et al. [9] this proposed system investigated a unifying learning scheme by combining both transductive and

inductive learning technique to mine web facial images for face annotation. They proposed Weak label Laplacian support vector machine (WL-LapSVM) algorithm by adopting WRLCC algorithm.

Figure shows the Database and query, to reduce the computational cost time of the proposed WRLCC algorithm, one straightforward solution is to adopt the PCA dimension reduction techniques over the original high-dimensional feature space. The smaller the new dimension space is, the less time it takes for WRLCC algorithm. The key limitation for the PCA-based approximation is the information loss during dimension reduction may affect the final annotation performance we propose an offline approximation scheme for WRLCC which can both significantly reduce the running time and achieve comparable results. In detail, we first recomputed the local coordinate coding for each facial image in the retrieval database with its own n neighborhoods and save all the coding results. Then, in the annotation step, for each query image we can directly reconstruct the sparse features of its n nearest instances based on the offline coding results without extra computational costs.

III. LITERATURE SURVEY

This chapter describes the literature survey of all the references that are considered for overall preparation of the system.

- **Graph Based Approach for Naming Faces in News Photos**

Introduced a graph based method to track the most similar subset from the array of possible faces associated with the query name, where the most similar subset will correspond to the faces of the queried person. When the similarity of faces is represented in a graph structure, the array of most similar faces will be the densest component in the graph. SIFT descriptors can be used to represent similarity of faces [4]. The matching interest points on two faces can be obtained after the application of two constraints, namely the geometrical constraint and the unique match constraint. For the construction of the similarity graph the average distance of the matching points are used. Greedy densest component algorithm is used to find the most similar set of faces [5].

- **A Face Annotation Framework with Partial Clustering and Interactive Labeling**

Due to the rapid popularization of digital cameras and mobile phone cameras, digital photo albums are growing explosively in both number and size in the last decade [5]. In order to facilitate browsing, manipulation and sharing of photos these large collections require the annotation of meaningful information. In case of a photo, besides the information of when and where, who is in the photo is essential [4]. Therefore, face annotation is becoming an unavoidable part of the management of photos depicting people. Face annotation technology is important for a photo management system.

- **Retrieval- Base Face Annotation by Weak Label Regularized Local Co-Ordinate Coding**

Retrieval-based face annotation is one of the promising methods in mining massive web facial images from the huge image database for automated face annotation. Such an annotation approach usually faces two key challenges. How to efficiently obtain a short list of most similar facial images from facial image databases .How to accurately perform annotation by considering these similar, incomplete and noisy web facial images and their weak labels. This method, mainly focus on finding solution to the second challenge of the retrieval-based face annotation technique.

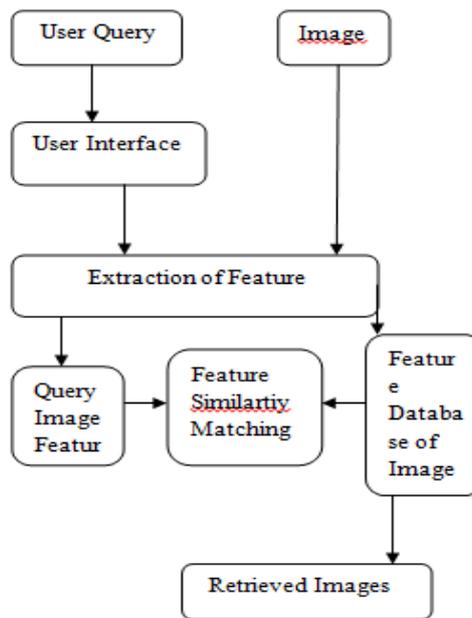


Figure: Image Retrieval Technique

IV. EXPERIMENTAL RESULT AND ANALYSIS

In this section, we first demonstrate the effectiveness of proposed method by comparing it to other state-of-the-art propagation approaches. We also compare proposed method result with previous existing methods to validate our proposed method's performance.

Performance Measures: The Color and Edges of the images are useful for measuring parameters in the face annotation the another different parameter is the image matching percentage with trained image set.

Graphical Representation: The experimental feature extraction result with its graphical representation of the proposed method compare with the parameter of color, edge of the input image.

Image feature Calculation

Table: Image feature calculation

Input image	Color scale	Edge scale	Percent matching
Image1	0.14266	0.14266	87.99
Image2	0.08361	0.08089	86.77
Image3	0.16673	0.10715	90.14
Image4	0.22314	0.15467	99.10
Image5	0.21344	0.14331	80.17
Image6	0.22102	0.14672	82.88
Image7	0.1731	0.1354	85.12

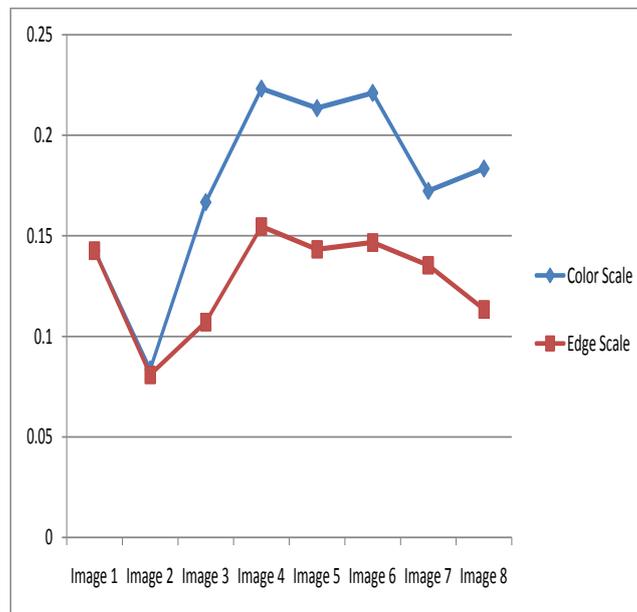


Figure: Performance of Color and edge of input image.

V. ANNOTATION RESULT OF PROPOSED METHOD

The experimental annotation result with its graphical representation of proposed method compare with the result of Weak labels from the database, face annotation on that image.

Table: Annotation Result of Proposed Method

Input Images	Existing System (Hit Rate)	Proposed System (Hit Rate)
Image 1	0.02345	0.02445
Image 2	0.03645	0.03646
Image 3	0.04732	0.04723
Image 4	0.01267	0.01277
Image 5	0.02321	0.02432
Image 6	0.02332	0.02345
Image 7	0.04452	0.04556

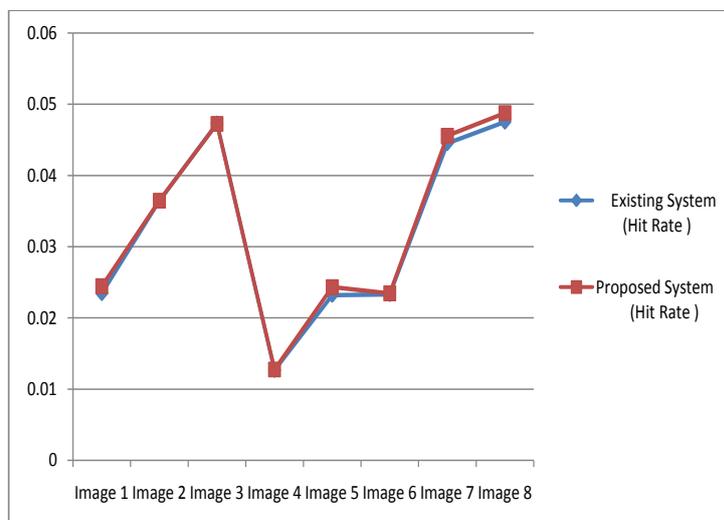


Figure: Performance of Existing and Proposed Hit Rate

VI. APPLICATIONS

There are multiple applications to use this face annotation by using retrieval based method

It can be used in social networks for auto tagging. Security (access control to buildings, airports/seaports, ATM machines and border checkpoints)for security purpose we use face annotation. Computer/ network security like E-mail authentication on multimedia workstations Criminal justice systems (mug-shot/booking systems, post-event analysis, forensics. It plays important role in criminal investigation. Image database investigations (searching image databases of licensed drivers, benefit recipients, missing children, immigrants and police bookings). Online photo album management and news video summarization.

VII. CONCLUSION

In proposed method, We investigate the retrieval-based face annotation problem by implementing unique method so that the output should be more accurate than the other implemented techniques. The main use of annotation is user can search easily interact with friends and famous persons. One of the continuing challenges for the biometric industry is to define the environment in which the technology provides the strongest benefit to individuals and institutions. The facial annotation method explains efficient automated image tagging and text based retrieval for visual identifications. Image retrieval techniques are either based on text or on visual content of the image. But there are many parameters to improve the quality of the retrieval of images. In our system we focused on color, shape, texture & edge of the image. Also we are implementing the annotation on popular as well as non popular images. There are several applications in every fields using different retrieval based image annotation technique to retrieve the accurate image by using facial parameters.

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