SURVEY ON FACE IMAGE RETRIEVAL

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Abstract--Face image retrieval, a technique which searches a set of faces from the large scale database based on user's query. It is an enabling technology used in many recent application such as face verification, crime investigation etc., however it is still a challenging problem because of similarities between images, irrelevant attributes and low level features like pose, texture, and color. This paper deals with study on different methodology used in retrieval system to resolve above issues.

Index Terms--face image retrieval, low level features, face verification, crime investigation, pose, texture and irrelevant attributes

1 INTRODUCTION

To capture the life's moment people can easily take photos with the intensive growth of camera devices, particularly the ones accompanied with friends and family. Most of the face image retrieval system commonly used low level features (pose, color) to represent face images. Hence the requirement is better solution to organize the increasing number of Photos with faces. Multiple types of facial features are used to represent discrimination on large scale human facial image database.

The problem of retrieving images of particular face images from large datasets has recently received increasing attention. We consider the problem of retrieving human faces from using low level features with varying expression and illumination. We survey how the user can give an input, whether and how relevance feedback is possible, investigate different kind of features are used; identify what are all the features of query image matched with data base image's features. Finally, explore the retrieval results which are presented to the user, and describe which indexing data structures are used.

Query formulation and presentation of the result based on the user. There are many ways to retrieving images from the database. First method is browsing the Database one by one. Another method is to specify the images by extracting the image features such as a color histogram or specify in terms of keywords such as curly hair. Yet another method is to provide an image as query or sketch from which features of the same type must be extracted as for the database images, for match these features. Relevance result is based on providing details about the retrieval result, so that the user can able to identify the specific person. Indexing is often used as identifying features within an image. With indexing data structures we here mean structures to speed up the retrieval of features within image collections. Higher level features are increasingly high specific, but it widely used less. However, faces are frequently present in pictures and relatively often used as a feature, so that we tally its use separately.

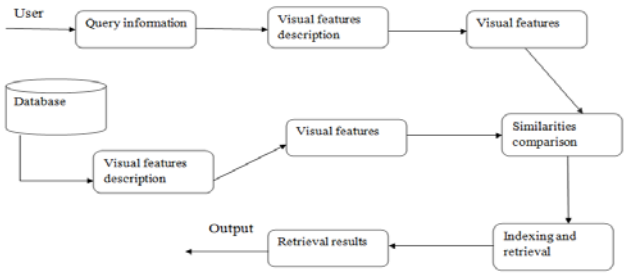

Fig 1.Image retrieval system

2 LITRATURE SURVEY

2.1 Existing face image retrieval system

Face image retrieval has made remarkable progress through decades of researches. To retrieve a face

images, both commercial and research retrieval system supports one or more following options.

- ✓ Search by query (curly hair with Asian)
- ✓ Search by image(Example image)
- ✓ Search by text(sunglass)
- ✓ Search by sketch

Here, we will elect some representation of face image retrieval system and their methodologies.

2.2 Related Work

Bor-Chun Chen [3] have discussed, to improve efficiency of the content based image retrieval system proposed attribute enhanced sparse coding. It automatically constructs sparse code words for the attributes of face image. It used high level attributes such as gender, race, hairstyle and indexing for ranking the result. Attribute-enhanced sparse coding and attribute embedded inverted indexing these are two methods to improve the face retrieval in the offline and online stages. Mean Average Precision (MAP) as performance metric has 43.5% relative improvement comparing with traditional methods. Irrelevant results due to number of attribute are less.

Dayong Wang [1] have presented face annotation scheme. Weak Label Regularized Local Coordinate Coding (WLRLCC) algorithm for the retrieval-based face annotation paradigm. This is based on content based image retrieval and uses their labels as annotation for image. Assign name for particular face image after retrieving from the database. Offline approximation also reduces the face annotation time. To improve scalability and efficiency offline scheme will be speed up to WLRLCC. Computational time saved only if has comparable performance.

Zhimin Cao [7] this paper analyzed face recognition issues. Learning-based (LE) descriptor Extraction and Pose adaptive face matching are used to extract face landmarks and to handle different pose variations. It is aligned nine components based on it and handle pose variation by forming different pose combination such as frontal vs. left, left vs. left. Powerful descriptor is needed for verification.

Matthijs Douze [5] have used fisher vectors and attribute features in order to improve performance of retrieval. Accuracy improved 10% rather than using text because of combining attributes and fisher vectors with text improves 10% rather than using text. Then attribute features are combined with Fisher vectors improve the performance and that combined image features can supplement text features. Performance reduced due to web dataset queries.

Zhong Wu [8] have presented using both global and local features are used to representing face images. Component based local features quantized into visual words. Retrieval is based on these visual words. Hamming signature derived from global features which are used for re-ranking output images. Visual words vocabulary manually constructed

Yan-Ying Chen [2] have discussed effective training images from public photos. Facial attribute detectors used contextual cues (tag, geo-location) and visual cues (sunglass, elder, young) to annotate the training images ranked by annotation quality. Imbalance between the visual and contextual cues due to irrelevant attributes.

Xiaohui Shen [] have presented face detection system. Here, discriminative classifier learned each faces from the database annotated with facial landmark. Voting approach is challenging due to variation in poses and expression. High vote scores got only if most similar faces. Validation is performed for increasing performance by reducing false positives.

Unsang Park [4] have used soft biometrics such as mole, scar. Demographic information (gender, race) and facial marks used to improving performance of retrieval. Laplacian-of-Gaussian blob detection used to detect facial mark candidates. Extending mark detection for off-frontal images by automatic.

2.3 Problem Statement

Relativity was reduced due to limited number of attributes. Irrelevant images because of low level features It is difficult to extract the specific features from the low quality image.

3 CONCLUSIONS

From the literature survey is concluded that a various retrieval algorithm proposed in different papers. Based on user's intention, Features of an image is important. It will display the retrieval images which are

similar to user's interest. Most of the system use low –level features and very few use high-level feature as gender, race, etc. By combining both the features in many areas to improve the performance of the retrieval system and achieve better results in different application.

3.1 Future Work

In future, to overcome above mentioned problems can be solved by increasing number of attributes and principal component analysis can be used for face detection. To improve the efficiency of retrieval can be combining analyzing attributes and indexing based on attribute.

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