Review Paper on "FAnn!!! Search-Based Face Annotation"

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Abstract - ***In this we are going to perform Face Annotation which means naming the image by the person's in the image. In Face annotation we are going to detect, verify and naming the images. Nowadays people are interested in collecting large number of images, pictures from social networking sites, satellite images etc. Some of these images are tagged but many a times many of them are not tagged properly or correctly, so the auto face annotation is been introduced. Here we are using Edge Histogram Distribution (EHD) algorithm to annotate the facial images of peoples from large databases of images which has being the biggest challenging part. Auto face annotation is important technique to assign the human faces with their corresponding and correct human names without any manual efforts using few of the machine learning techniques. This paper focuses on online photo album management or photo record management used in forensics.***

Key Words: *Face Annotation, Web Facial Images, Weakly Labeled Data, Label Refinement, Search Based Face Annotation, Machine Learning*.

1. INTRODUCTION

Large numbers of photos/ videos are shared on social media websites etc. If we see a person's photo on internet or TV or anywhere else may be on any social media sites as there are many of sites nowadays, might be a reason, we are not able to recognize that person if next time we see the same person by his name. This is due to ignorant or having no knowledge about that person. We sometimes just see the person's image, and forget or many a times avoid reading the names. It's such a good thing just imagine we get to the person's name along with that his/her photos on Internet, it becomes so easy to get to know the person by his name. The digital world is growing so faster and it has a large database for storing images of people's images all around the world. Some images are proper in terms of resolution or size, sometimes they are blur images, some images are not properly aligned and many more others.

This may be one of the reason that make the internet users to not recognize the person with his name. Just to help in recognizing any person by his name or his photo, it is important to label the image (i.e. annotate image) of that person or any person by the use of Internet. There are various socials website in which Auto tag suggestion features are provided, which annotates the photos uploaded by the users for maintaining online photo album such social media sites are Face book, Flicker etc.. This paper reviews a framework of search-based face annotation (SBFA) by mining weakly labeled facial images that are freely available on the World Wide Web (WWW). The biggest objection in SBFA is how to find or achieve the images of people having similar faces.

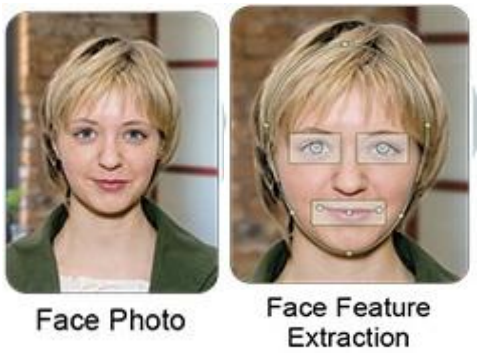

Fig -1: Feature Extraction

2. ARCHITECTURAL DESIGN:

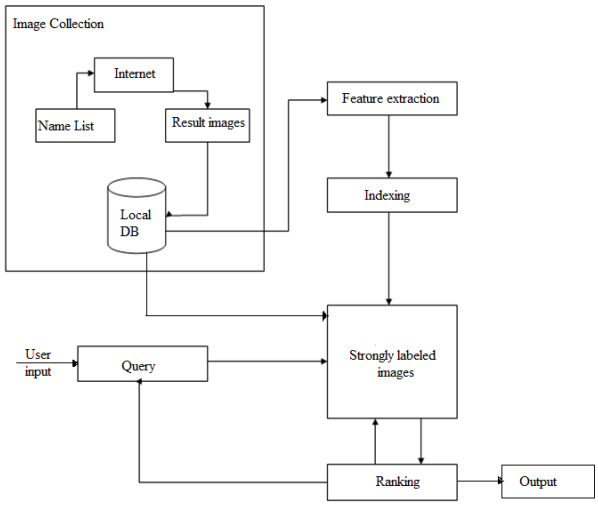

Fig -2: Architecture

1. Image Collection
2. Face Detection And Facial Feature Extraction
3. Facial Feature Indexing
4. Learning To Refine Weakly Labeled Images
5. Face Retrieval
6. Face Annotation

Our first step is data collection i.e. Images of various faces from WWW or we can say Images freely available on Internet or web and The output will be the Facial Images according to the specified name and count by user. But by searching process, the images we get are sometimes noisy and disturb and it is not always correspond to correct human.

Second step is Pre-processing. In this step , we will collect facial information by extracting facial features and the information can be as follows :

1. Face Detection
2. Face's proper alignment
3. Face's region extraction
4. Representation of features

Third step is Indexing. In this, by applying some high dimensional indexing algorithm we will index the images according to the extracted features of specified images and then retrieve the similar images in further steps.

Face annotation takes place at the time of Test phase. First, we perform face retrieval process, in which we fire a query to search a facial Image for extracting similar images (top N similar Images) from our indexed.

3. GOALS AND OBJECTIVES*:*

1. The main objective of FAnn is to assign correct name labels to a given query facial image.

2. To solve the problems of content based system by using search based system.

3. Pre-processing of available facial images on internet to extract face-related information including face detection, face alignment, face annotation etc.

4. LITERATURE SURVEY:

Different techniques are used in retrieving facial images based on search query:

4.1 Classic Model Of Face Annotation

In this model, they used to compare the input Image with the Images available on Internet or their trained Database. Which was time consuming and also not used to produce accurate result as per requirement.
This system was challenging because of following factors:

1. Illumination
2. Lighting
3. Camera Quality
4. Different Alignment of faces etc.

4.2 Repetitive Framework For Face Annotation

It works recursive manner for face annotation. Here user gives input as Image and the proposed system labels it according to features and stored it in database if it new and next time when same images given as input then system will check local database and the matched results are displayed to the user. And the above process continues recursively until we get better results.

4.3 Pose Adaptive Face Matching

In this method, the system compares the images to find out identical features based on following factors:

1. Illumination
2. Lighting
3. Camera Quality
4. Different Alignment of faces etc.

This gives efficient way of matching. Hence the results are proper and a wide range Images are available as Labeled Faces on the internet. In this, the face

micro pattern encoding is done but the problem with this is pattern sampling sis done manually.

4.4 Graph Based Approach

Here the system had considered the nodes and edges as features of the image for considering likeliness of the images. The graph become heavy if the same face of the person occurred frequently and if not the graph becomes sparse. A graph can be represented as G= (V, E),

Where, V is the faces,

E is facial features

And weight is according to the similarity. They develop this system to find similar subset of faces with the query of the person's name. They use greedy algorithm afterwards.

4.5 Retrieval Based Face Annotation

This system was proposed to assigned label to weakly labeled images available on internet. It is also called as retrieved based face annotation. It labels the images by properly learning all the features of the image.
It uses graph-based weak label regularization principle to improve the weak labels of similar kind of faces.

This method has many advantages to improve the quality of labeling:

1. It efficiently retrieves the similar images and annotates them.
2. It increases the performance of the system because it make use optimized algorithm.

4.6 Content Based Image Retrieval

This system was proposed to search image from large database. It can be used in computer Vision. It make use of contents of the Images for searching same kind of Images. It improves the performance by its content searching method from an image according to the contents of an image. It make use of Support Vector Machine (SVM). SVM is type of supervised learning hence content based retrieval framework will make use of supervised learning, which analyze the data and learns different patterns.

This approach having lots of disadvantages , for e.g. If the query is like "yellow bag with blue balls" in this yellow and blue are the contents which may be present on internet and the output of such system may be incorrect.

5. APPLICATIONS*:*

Face annotation is having many advantages and used in various applications fields are as follows :

1. Identity verification (electoral registration, passports, driver's licenses, twins identification , employee IDs)
2. Forensics
3. Wild landmark face annotation
4. Online photo album management, and Social media sites like Facebook (for e.g. Facebook face annotation called as "tagging a photo".)

5. CONCLUSIONS

Through this paper, we have described a promising search-based face annotation by mining weakly labeled facial images that are freely available on the World Wide Web (WWW).We focused on tackling the critical problem of enhancing the label quality and proposed a EHD algorithm. We formulate the learning problem as a convex optimization and develop effective optimization algorithms to solve the large-scale learning task efficiently.

REFERENCES

[1] X.-J.Wang, L. Zhang, F. Jing, and W.-Y.Ma, AnnoSearch: Image Auto-Annotation by Search, Proc. IEEE CS Conf. Computer Vision and Pattern Recognition (CVPR),pp. 1483- 1490, 2006.

[2] D. Wang, S.C.H. Hoi, Y. He, and J. Zhu, Retrieval-Based Face Annotation by Weak Label Regularized Local Coordinate Coding, Proc. 19th ACM Intl Conf. Multimedia (Multimedia), pp. 353-362, 2011.

[3] A.W.M. Smeulders, M. Worring, S. Santini, A. Gupta, and R. Jain, Content-Based Image Retrieval at the End of the Early Years, IEEE Trans. Pattern Analysis and Machine Intelligence, vol. 22, no. 12, pp. 1349-1380, Dec. 2000.

[4] Dayong Wang, Steven C.H. Hoi, Ying He, and Jianke Zhu, Mining Weakly Labeled Web Facial Images for Search-Based Face Annotation IEEE Transactions on Knowledge and Data Engineering, vol. 26, no. 1, January 2014

[5] W. Dong, Z. Wang, W. Josephson, M. Charikar, and K. Li, Modeling LSH for Performance Tuning, Proc. 17th ACM Conf. Information and Knowledge Management (CIKM), pp. 669-678, 2008.

[6] C. Siagian and L. Itti, Rapid Biologically-Inspired Scene Classification Using Features Shared with

Visual Attention,IEEE Trans. Pattern Analysis and Machine Intelligence, vol.29, no. 2,pp. 300-312, Feb. 2007.

[7] Y. Tian, W. Liu, R. Xiao, F. Wen, and X. Tang, A Face Annotation Framework with Partial Clustering and Interactive Labeling, Proc. IEEE Conf. Computer Vision and Patter n Recognition (CVPR), 2007.

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