International Journal of Engineering Research-Online
A Peer Reviewed International Journal
Articles available online http://www.ijoer.in

Vol.3., Issue.2, 2015

RESEARCH ARTICLE

ISSN: 2321-7758

EFFICIENT SEARCH BASED FACE ANNOTATION FOR LARGE WEAKLY DATABASE USING ULR

S.PADMAPRIYA[1], S.PREETHI[2],R.REVATHI[2],V.PRIYANGA[2],J.KANIMOZHI[2]

[1]Associate professor, Dept. of IT,

[2]Scholars, Dept. of B.Tech(I.T), A.V.C College of Engineering

Article Received: 17/03/2015 | Article Revised on:01/04/2015 | Article Accepted on:04/04/2015

ABSTRACT

As one of the most successful applications of image analysis, face recognition has recently received significant attention, especially during the past several years. The current machine recognition systems have reached a certain level of maturity; their success is limited by the conditions imposed by many real applications. New Effective unsupervised label refinement (ULR) approaches refining the labels of web facial images using machine learning techniques. To further speed up the proposed scheme, propose a clustering-based approximation algorithm which improve the efficiency . We have conducted an extensive set of empirical studies on a large-scale web facial image test bed, in which encouraging results showed that the proposed ULR algorithms can significantly boost the performance of the promising SBFA scheme and also implement for facial annotation mechanism .

Index Terms—Face annotation, content-based image retrieval, machine learning, label refinement, web facial images, weakly label.

1 INTRODUCTION

Due to the recognition of varied digital cameras and therefore the rapid growth of social media tools for internet-based photo sharing [1], recent years have witnessed associate degree explosion of the amount of digital photos captured and keep by consumers.

An oversized portion of photos shared by users on the Internet area unit human facial pictures. a number of these facial images area unit labeled with names, however several of them aren't tagged properly. This has impelled the study of motorcar face annotation, a very important technique that aims to annotate facial pictures mechanically.

Auto face annotation may be helpful to several real world applications. as an example, with automobile face annotation techniques, on-line photo-sharing sites (e.g., Facebook) will automatically annotate users' uploaded photos to facilitate online picture search and management. Besides, face annotation can also be applied in news

video domain to find important persons appeared within the videos to facilitate news video retrieval and report tasks [2].

Classical face annotation approaches are usually treated as an extended face recognition downside, wherever totally different classification models are trained from a group of weakly-labeled facial pictures by using the supervised or semi-supervised machine learning techniques [2], [4]. However, the "model-based face annotation" techniques are restricted in many aspects. First, it's sometimes time-consuming and costly to gather an outsized quantity of human-labeled coaching facial pictures. Second, it's sometimes difficult to generalize the models once new coaching knowledge or new persons are more, during which an intensive training process is typically needed. Last however not least, the annotation/recognition performance usually scales poorly when the quantity of persons/classes is incredibly massive.

One challenge faced by such SBFA paradigm is the way to effectively exploit the listing of candidate facial pictures and their weak labels for the face name annotation task. To tackle the higher than downside, we tend to investigate and develop a search-based face annotation theme. specially, we tend to propose a unique unsupervised label refinement (URL)scheme by exploring machine learning techniques to enhance the labels strictly from the frail labeled knowledge while not human manual efforts. We tend to conjointly propose a clustering-based approximation (CBA) rule to boost the efficiency and quantifiable. As an outline, the important contributions of this paper embody the following:

The promising search based face annotation theme by mining massive amount of weakly labeled facial pictures freely offered on the World Wide Web it propose a unique ULR theme for enhancing label quality via a graph based and low-rank learning approach. it propose a economical clustering-based approximation rule for large-scale label refinement problem. The conducted an intensive set of experiments, within which encouraging results were obtained.

The paper has been significantly extended by including a substantial amount of new content. the remainder of the paper is organized as follows:section 2 reviews the related work. section 3 gives an overview of the architecture.section 4 presents an proposed system.section 5 gives an explanation about alogrithm.section 6 discusses the limitations.section 7 concludes the paper

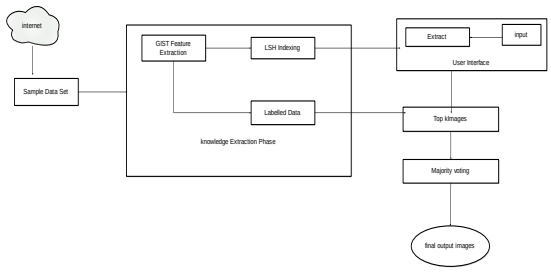
2 RELATED WORKS

In this section, we overview the accompanying works. We focus on the abstract of Scalable Face Image Retrieval with Identity-Based Quantization and Multireference Reranking. The authors[9] discussed about the retrieval of images containing faces of the same person appearing in the query image from a web-scale image database containing tens of millions face images. A straightforward approach is to use the bag-of-visual words representation that has been used in state-of-the-art scalable image retrieval systems. However, the performance of such a system degrades significantly when applying on face images. In the framework of scalable face image retrieval with identity based quantization and multireference model to design a supervised learning algorithm to automate this process to further improve the visual word vocabulary for face. Our system is highly scalable, and we plan to apply it on a web-scale image database using a computer cluster.

In this section we overview the accompanying works. We focus on the abstract of Retrieval Magnets for Facial Duplication by Search Based Face Annotation. The author [10] discussed about the recognition of assorted digital cameras and therefore the rapid growth of social media tools for internet-based photo sharing, recent years have witnessed associate explosion of the quantity of digital photos captured and hold on by consumers. However some of these facial images are tagged with names properly, but many of them are not tagged properly. This problem has motivated to study a new technique called as "auto face annotation" or 'machine face annotation', which aims to annotate facial images mechanically. The issue in the paper is the "model-based face annotation" techniques square measure restricted in many aspects. First, it's sometimes time-consuming and costly to gather an oversized quantity of human-labeled coaching facial pictures. Second, it's sometimes difficult to generalize the models once new coaching knowledge or new persons square measure side, during which associate intensive grooming process is sometimes

needed. The annotation performance usually scales poorly when the quantity of persons/classes is extremely massive.

3 ARCHITECTURE:



4 PROPOSED SYSTEM:

Investigate and implement a promising search based face annotation scheme by mining large amount of weakly labeled facial images freely available on the WWW. A novel method is proposed to enhance the label quality via a graph-based and low-rank learning approach. An efficient clustering-based approximation algorithm for large-scale label refinement problem is defined. Conducted an extensive set of experiments, in which encouraging results were obtained.

The system flow of the planned framework of search-based face annotation, that consists of the subsequent steps:

1. Facial image data collection;
2. Face detection and facial feature extraction;
3. High-dimensional facial feature indexing;
4. Learning to refine weakly labeled data;
5. Similar face retrieval
6. Face annotation by majority voting on the similar faces with the refined labels.

The first step is that the information assortment of facial pictures, during which crawled a group of facial pictures from the WWW by an existing internet programme (i.e., Google) in line with a reputation list that contains the names of persons to be collected. The process output of this retrieval process, shall get a group of facial pictures, every of them is related to some human names.

The second step is to pre-process internet facial pictures to extract face-related data, together with face detection and alignment, facial region extraction, and facial feature illustration. The GIST feature extraction to represent the extracted faces. As a result, every face is diagrammatic by a d-dimensional feature vector.

The third step is to index the extracted options of the faces by applying some economical high-dimensional assortment technique to facilitate the task of comparable face retrieval within the succeeding step. In our approach, adopt the neighborhood sensitive hashing (LSH), a awfully well-liked and effective high-dimensional assortment technique.

The process of face annotation could take a look at part for the given question facial image for annotation, initial conduct the same face retrieval method to look for a set of most similar faces (typically prime K similar face examples) from the antecedently indexed facial information.

The set of prime K similar face examples retrieved from the information, subsequent step is to annotate the facial image with a label (or a set of labels) by using a majority choice approach that mixes the set of labels related to these prime K similar face examples.

Focus our attention on one key step of the higher than framework, i.e., the unsupervised learning method to refine labels of the weak labeled facial pictures.

6 ALGORITHMS:

a) Clustering Based Approximation:

We propose clustering-based approximation algorithms to speed up the solutions for large-scale problems. Clustering strategy could be applied in two different levels:

The **"image-level,"** which can be used to directly separate all the n facial images into a set of clusters. The other is on **"name-level,"** which can be used to First separate the m names into a set of clusters, then to further split the retrieval database into different subsets according to the name-label clusters. The clustering algorithm i.e., the sizes of different clusters should be similar, which aims to avoid the undesired case where one cluster significantly dominate the others.

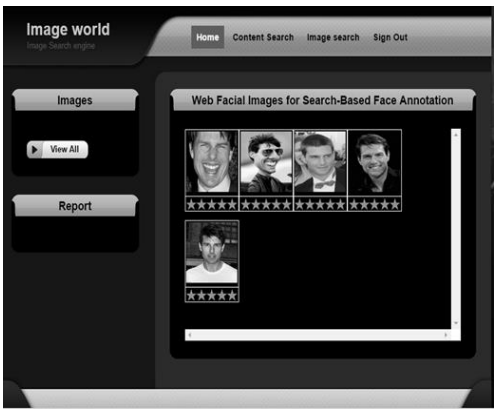
b) Locality Sensitive Hashing:

Index the extracted features of the faces by applying some efficient high-dimensional indexing technique to facilitate the task of similar face retrieval in the subsequent step. Indexing is done using LSH functions and by building several hash tables to increase the probability of collision for

close points. At query time, the KNN search is performed by hashing the query point to one bucket per hash table and then to rank all discovered objects by their distance to the query point. The closest K points are returned as the final result.

7 RESULTS

A good approximation is expected to achieve a high reduction in running time with a small loss in annotation performance. This take advantages of the power of parallel computation when solving a very large-scale problem.



8 CONCLUSION

Our paper focused on search based face annotation using ULR algorithm. Also the clustering based approximation algorithm speed up the work for large data sets. From an extensive set of collections, this work provides good results. In future the process will implement in mobile environment and access a weakly face data base and verify the correct image at annotation process.

9 REFERENCES

[1].Social Media Modeling and Computing, S.C.H. Hoi, J. Luo, S. Boll,D. Xu, and R. Jin, eds. Springer, 2011.

[2].S. Satoh, Y. Nakamura, and T. Kanade, "Name-It: Naming and Detecting Faces in News Videos," IEEE MultiMedia, vol. 6, no. 1,pp. 22-35, Jan.-Mar. 1999.

[3].P.T. Pham, T. Tuytelaars, and M.-F. Moens, "Naming People in News Videos with Label Propagation," IEEE Multimedia, vol. 18,no. 3, pp. 44-55, Mar. 2011.

[4] L. Zhang, L. Chen, M. Li, and H. Zhang, "Automated Annotation of Human Faces in Family Albums," Proc. 11th ACM Int'l Conf.Multimedia (Multimedia), 2003.

[5] T.L. Berg, A.C. Berg, J. Edwards, M. Maire, R. White, Y.W. Teh,E.G. Learned-Miller, and D.A. Forsyth, "Names and Faces in the News," Proc. IEEE CS Conf. Computer Vision and Pattern Recognition (CVPR), pp. 848-854, 2004.

[6] J. Yang and A.G. Hauptmann, "Naming Every Individual in NewsVideo Monologues," Proc. 12th Ann. ACM Int'l Conf. Multimedia(Multimedia), pp. 580-587. 2004.

[7] J. Zhu, S.C.H. Hoi, and M.R. Lyu, "Face Annotation UsingTransductive Kernel Fisher Discriminant," IEEE Trans. Multimedia,vol. 10, no. 1, pp. 86-96, Jan. 2008.

[8] 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.

[9] Z. Wu, Q. Ke, J. Sun, and H.-Y. Shum, "Scalable Face Image Retrieval with Identity-Based Quantization and Multi-ReferenceRe-Ranking," Proc. IEEEConf. Computer Vision and Pattern Recognition (CVPR), pp. 3469-3476, 2010.

[10] 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.

10 AUTHORS BIOGRAPHY

S.Preethi recived B.Tech degree in Information Technology from A.V.C College of Engineering&Technology, Mayiladuthurai and Her area of interest includes Datamining, DBMS and ASP.NET.

R.Revathi recieved B.Tech degree in Information Technology from A.V.C College of Engineering & Technology, Mayiladuthurai and Her area of interest includes Datawarehouse and Java.

V.Priyanga recieved B.Tech degree in Information Technology from A.V.C College of Engineering&Technology, Mayiladuthurai and Her area of interest includes Datamining and ASP.NET

J.Kanimozhi recieved B.Tech degree in Information Technology from A.V.C College of Engineering&Technology, Mayiladuthurai and Her area of interest includes Datamining and Image Processings