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Recommendations based on User-Shared Images in Social Graphs using Big data

Mahalakshmi.B[1], Saranya.S[2]
Dept. of CSE, K.S.Rangasamy College of Technology, Namakkal,TamilNadu.
[1]maharajan2203@gmail.com, [2]saranyas.sivakumar@gmail.com

***Abstract*—Social media is an online platforms that facilitate global sharing amongst users. Today many users using social websites for communication and image sharing. This form of user data is easily accessible to others due to the nature of online social sharing. user-shared images are proved to be an easier and effective alternative to discover user connections. This work investigated over 300000+ user-shared images from two social networks, Twitter and Facebook, in which 3 million follower/followee relationships are involved. It shows that the shared images from users with a follower/followee relationship show relatively higher similarities. A big data system that uses this mentioned phenomenon is proposed as an alternative to user-generated tags and social graphs for follower/followee recommendations, identification of gender and designation. These are useful information for follower/followee recommendations in any social network with intensifier image sharing, as well as for other concerning personalization applications, particularly when there is no access to those exclusive user social graphs.**

Keywords : Bigdata, Social Media, User-shared images, Recommendations, follower, gender, designation.

I. INTRODUCTION

Nowadays there is a lot of social sites are available. And every one are using social media. In online social networks. User connection information is a most essential one in personalized Applications or services. Such connections can be any type of online social relationship formed from some interactions between users in a social network, such as online friendship, a follower/followee relationship.

In 2014, the social networking site Facebook reported having over 700 million users. Today, that number has grown to over three billion users worldwide. Companies like Twitter and Facebook, have information about user online friendships (i.e., social graphs)to improve their service . Trendy mobile social applications, such as WhatsApp (owned by Facebook from the US) and WeChat (owned by Tencent from China), keep the information of social graphs (SGs) only available to their related business services. users also hide or limit the information from the public in social media for the privacy . Accessing these SGs is getting more difficult and costly in today's online social networks, and fresh applications using SGs become almost impossible to be offered independently by researchers, merchants, third-party practitioners and individuals. However, billions of user shared images are generated by individuals in many social networks daily, and this particular form of user data is very accessible to others because of online image sharing.

users share images about car and user shared an image about a flower. The follower/followee relationship between users A and B can be possibly detected from the higher similarity of

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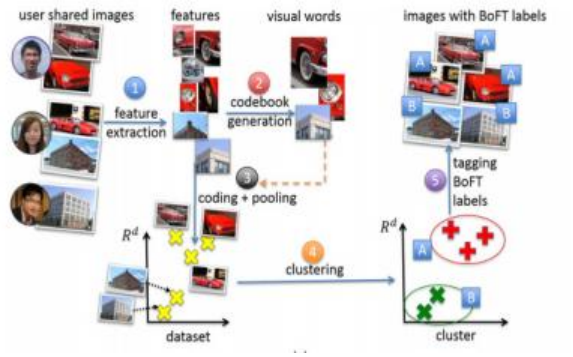
visual features in their shared images. When more shared images from each of users and are accessible for evaluation, the actual follower/followee relationships should become reliably and accurately detectable though becoming challenging to process when the number of shared images and user connections grows bigger and faster every day in social network.

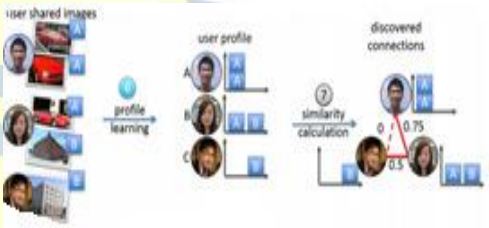
II. RELATED WORK

User behaviors in online social networks have been recently studied through the use of SGs. In social graphs user connections are identified based on user shared images. Connections are recommended based on the existing relationships.

User connection can be therefore discovered and the connection strength can be obtained. Two users
with a higher connection strength (more common related users) are more likely to be related, and the relationships are therefore predicted by their mutuality If Users A,B and C share common information, then the connection can be made among them. While user D is alone means then the follower/followee recommendations can be done based on the user interests and likes. Users A,B and C share the car images, and the connections are recommended based on similarity.



Annotation with BoFT Labels



Similarity based on BoFT label

It uses an effective signal processing technique called "Bag-of-Features" (BoF). For the connected users the identification of gender and designation are found. connections are recommended using BoF Tagging (BoFT) in an following way:1. Scrap datasets for Facebook and Twitter, 2. Measure how the relations are made, 3. verify that the recommendation is useful for gender and designation identification.

III. FOLLOWER RECOMMENDATION

In SGs Connections are recommended based on the image sharing similarity among the users.

Feature Extraction: Feature extraction is a process to obtain the unique local features.

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These unique features can be detected by feature detection.

Codebook Generation: Codebook generation is a clustering process to obtain a set of visual words,
a representative and distinct set of unique visual features. This step starts with clustering extracted visual features into groups by clustering techniques, such as k-means clustering, based on their visual similarity, and the mean vectors of each group are defined as a visual word.

Clustering: Clustering is a grouping process for image. We are using K-means Clustering for the purpose of image similarity.

Feature Coding and Pooling: Feature coding represents each visual feature by the closest visual word. Each image is represented by a feature vector in the feature pooling. Counting an occurrence of unique word in an image.

BoFT applies one of the most popular clustering algorithms, -means, which will first randomly generates cluster centroids. It then iteratively assigns points to their nearest centroids, followed by a recomputing of the centroids until it converges. However, K-means does have its drawbacks in that the points lying far from any of the centers can significantly distort the position of the centroids and the number of centers must be known in advance.

IV. SHARED IMAGES

1. Datasets

Twitter is an western social networking site, it allows users to follow others and exchanging messages. Most of the users from US, India, UK, China and many. Facebook is a social network application from US. Based on user two social sites are unique, it is interesting to survey their characters are similar are not. It has an features like video calling, follow others to receive new notifications, sharing information. The datasets comprise more than 4 follower relationships. All the users were selected randomly from a large set of users collected from follower/followee relationships, in which there
are about 80,000 and 100,000 users collected for the selection on Facebook and Twitter.

2. Characteristics of images

This section describes the follower/followee relationship based on shared images. Some users will share lots of images and some will share only few images occurs in social media, same as follower/followee relationship some have many follower/followee some have only few follower/followee in social media. This observations can be done in SGs. It is concluded the selected users are a good representation of the users in the two social networks.

V. FOLLOWER/FOLLOWEE

There are three Stages of Follower/followee connection

1. Image Sharing 2.BoF 3.Follower/Follower

1. Image Sharing

Collect the images from social media such as Facebook and Twitter. Image can be shared in many forms such as Post, instant message,

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sharing in Timeline. Continuously these images can be collected.

2. BoF

This approach provides label to the images for identification and it is not affected by any languages, it is only for image visualization. The accuracy is unreliable and performance is affected. so it uses a K-means clustering process.

3. Follower/Follower

Popular application in social site is a follower/followee recommendation. This is done based on the connection recommendation. Information's are send to social media when a list of follower/followee recommendation is needed.

VI. GENDER IDENTIFICATION

A profile in social media is an essential one but sometimes it is not available. Gender is an useful information about the user. It is possible with the recommended connection. Flickr is conducted for how the gender is identified. Among the information in profiles, gender is interesting, as it is useful for recommendation. Another showcase using the same. 445 out of the 562 users provide their gender, and of these are 79 females and 366 males.

VII. DESIGNATION IDENTIFICATION

Designation plays an important role in the user profile. Based on the designation we can decide we have to be friend with them or not. Designation such as student, employee, Entrepreneur. Profiles on social media are also important for applications but are not always available.

VIII. CONCLUSION

The user recommendation connections are made based on image sharing similarities. A practical method, BoFT, is discussed to label user shared images with BoFT labels on over 360,000 user shared images. The characteristics of user shared images are then investigated and modeled as exponential distributions based on the analysis of 3million follower/followee relationships from two social networks with different origins, Facebook and Twitter. In the user profile the gender and designation are identified. It is concluded that follower/followee recommendation using discovered connections by user shared images is possible, and the recommendation is 60% better and achieves 25% of the performance , a method used when limited access SGs are available. The discovered connections are also proven to be able to identify user gender. These findings create a potential long term impact and contribution to scientific research and commercial applications, especially when access to SGs is difficult or limited. This work enables the use of social network analysis on any social media with image sharing mechanisms, for which many interesting applications, such as recommending follower and virality prediction and many applications are possible.

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