

Post Recommendation Based On Multiple Network Correlation

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ABSTRACT Recommendation System is information filtering system that seeks to predict the rating or preference that a user would give to an item. Recommender systems have become extremely common in recent years, and are utilized in a variety of areas: some popular applications include movies, music, news, books, research articles, search queries, social tags, and products in general. There are also recommender systems for experts, collaborators, jokes, restaurants, garments, financial services, life insurance, and Twitter pages. Recommender systems typically produce a list of recommendations in one of two ways – through collaborative and content-based filtering or the personality-based approach. Collaborative filtering approaches building a model from a user's past behavior (items previously purchased or selected and/or numerical ratings given to those items) as well as similar decisions made by other users. This model is then used to predict items (or ratings for items) that the user may have an interest in. Content-based filtering approaches utilize a series of discrete characteristics of a user in order to recommend that the user may have an interest in. There are many systems that recommend friends to users using some features. This system proposes a method to detect and recommend recent posts that are useful for user by analyzing user's profile and predict their behaviors to recommend posts. The posts may be an image, video, file, etc. It is achieved by select important feature from each network and measure correlation between user's profile and features selected. Finally, it recommends posts based on these features.

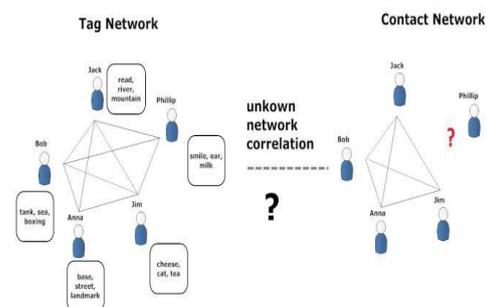
Index Terms—Social Network Alignment, post Recommendation, Feature Selection

I. INTRODUCTION

Social networks have experienced explosive growth in the last decade. Social websites such as Twitter, YouTube and Flickr have billions of users who share opinions, photos and videos

every day. Users make on-line friends through these social networks. One challenging issue is how to help these users to efficiently find new social friends. Post recommendation has therefore become a new research topic and several methods have been proposed to conduct recommendation efficiently post recommendation, other than basing recommendation purely on content similarity matching. Making friends is often based on the following social aspects:

1) Social environment, including where one lives and works 2) Social behaviours and actions, including one's working performance, shopping habits, hobbies, and, importantly, interactions with one another 3) Social status, such as gender, age, position, etc. We summarize all these aspects as an individual's "social role". Here the term "social role" is the part that a person plays as a member of a particular society. "Correlation" between networks means that the topologies of different networks share similar properties. According to these similar properties, we can make inferences from one network to another.



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II. EXISTING SYSTEM

Recommender systems have become extremely common in recent years, and are utilized in a variety of areas: some popular applications include movies, music, news, books, research articles, search queries, social tags, and products in general. But, they tend to use similar structure of networks to find correlation between them. For this some preprocessing of network alignment needed, it may be complex for large networks.

III. DISADVANTAGES

1. These works mostly concentrate on image processing and bio-informatics.
2. Most of the previous works are based on kernels that only apply the similarity information between users
3. Do not consider preserving the network structure for a more precise recommendation.

IV. PROPOSED SYSTEM

The proposed system will work even though the networks' structures are different. So some other techniques are needed to efficiently find correlation between networks. There are many systems for friend recommendation; we propose a system that will recommend useful posts to user based on their behaviors. The posts may be an image, video, file, etc.

V. ADVANTAGES

4. We propose a new post recommendation method, based on network correlation, by considering the effect of different social roles.
5. To model the correlation between different networks, we develop a method that even networks structures are different.
6. We also consider preserving the network structure for a more precise recommendation.

VI. MODULES

1. SOCIAL NETWORK IMPLEMENTATION
2. FEATURE SELECTION FROM USER ACTIVITIES
3. ANALYSING POSTS
4. FEATURE

MATCHING MODULE DESCRIPTION

SOCIAL NETWORK IMPLEMENTATION

The communication over social network such as Facebook and Twitter is gaining importance in daily life to communicate over the different people across worldwide. This module implement the features of member enrolment activation, member post etc.

FEATURE SELECTION FROM USER ACTIVITIES

This system first determine users interest by analysing each user's profile, user's past activities, by which it extracts features that reflect user's behaviours. It uses natural language processing to obtain features from users past actions. These features are used to extract post that user may want or interested in. If the user is new to social network, then it selects most common behaviours of other users as feature.

ANALYSING POSTS

When a new post is come, it extracts features of new post from tag information of post. If the post is already recommended then it will be omitted. Otherwise it will be added to recommendation list.

FEATURE MATCHING

Extracted features from user behaviour are compared to features of post stored in recommendation list to find, if there is any correlation between user and post. If so that particular post is recommended to that specific user. Recommendations based on user's behaviour increases quality of recommendation system and user experience.

VII. SYSTEM MODEL AND FRAMEWORK

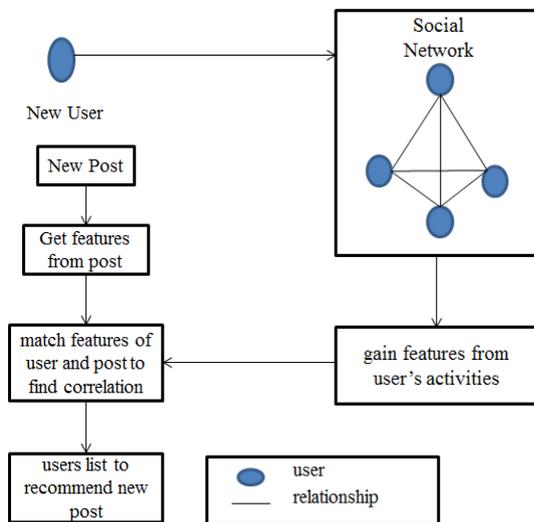
A. Problem Statement and Notations

In NC-based SFR, there are two networks including a contact network, and a tag network (taking a real world example, stands for the contact network and for the tag similarity matrix on Flickr). and have exactly the same nodes but different topologies. As mentioned in the Introduction, the social roles of individuals are related to one another. shows an individual's interests and shows the friendship, so it is reasonable to assume that the topologies of tag and contact networks are correlated. In this paper, we propose a method to make more

precise post recommendations based on the correlations of different networks through their alignments.

When a new node comes into network, we know its links with other nodes in, but we do not know its links in network

. Our research seeks to predict its links in. A real world example for this scenario is that when a new user comes into a social network, he/she may provide interesting keywords. The system should make friend recommendations for the new user, but traditional content similarity recommendation methods do not take the different aspects of social roles into account. In our approach, the alignment between social role networks is considered and thus a more comprehensive friend recommendation is obtained. We expect better performance using our algorithm.



B. Our Framework

To make a prediction of network links according to the analysis in the Introduction, we will apply feature selection techniques to find the alignment of different networks that have the same nodes and different topologies. we show the framework of our whole system. When we have the original tag and contact network as we first project the contact network to its eigenspace and extract tag features In our case, features are the tag words provided by photo uploaders. Then we align the tag network to the eigen-representation of the contact network by considering network correlation and structure preservation. In the last step, we select a number of important word features from the whole feature set. These important tag features illustrate the correlations between the tag and contact networks. In other words, these features make the tag network more similar to the contact network.

When a new user with tags comes into the network, we can map him/her to the existing contact network based on how his/her tag features match the pool of those important features that have

been selected previously. We can then see which users are closer to the new user, and these closer users are more likely to be his/her friends.

VIII. RELATED WORK:

Make New Friends, but Keep the Old” – Recommending People on Social Networking Sites

This paper studies people recommendations designed to help users find known, offline contacts and discover new friends on social networking sites. We evaluated four recommender algorithms in an enterprise social networking site using a personalized survey of 500 users and a field study of 3,000 users. We found all algorithms effective in expanding users’ friend lists. Algorithms based on social network information were able to produce better-received recommendations and find more known contacts for users, while algorithms using similarity of user-created content were stronger in discovering new friends. We also collected qualitative feedback from our survey users and draw several meaningful design implications.

SOREC: Social recommendation using probabilistic matrix factorization

Data sparsity, scalability and prediction quality have been recognized as the three most crucial challenges that every collaborative filtering algorithm or recommender system confronts. Many existing approaches to recommender systems can neither handle very large datasets nor easily deal with users who have made very few ratings or even none at all. Moreover, traditional recommender systems assume that all the users are independent and identically distributed; this assumption ignores the social interactions or connections among users. In view of the exponential growth of information generated by online social networks, social network analysis is becoming important for many Web applications. Following the intuition that a person’s social network will affect personal behaviors on the Web, this paper proposes a factor analysis approach based on probabilistic matrix factorization to solve the data sparsity and poor prediction accuracy problems by employing both users’ social network information and rating records. The complexity analysis indicates that our approach

can be applied to very large datasets since it scales linearly with the number of observations, while the experimental results shows that our method performs much better than the state-of-the-art approaches, especially in the circumstance that users have made few or no ratings.

IX. DATASET STATISTICS

Users	10000
Groups	2000
Photos	543,754 photos from 10000 users
Contact	145,684 friend links among users
Tags	35,574 words after filtering

X. CONCLUSION

In this paper, we study the post recommendation problem from the viewpoint of network correlation. Recommendation systems are used to filter information according to user preference. Both network alignment and social network structure preservation play an important role in our task. In future, we will further develop our algorithm in the following aspects: 1) In this paper, we consider different social networks to have similar structures and we handle them using similar methods. In experiments we align only two networks. We will extend the idea of network alignment to many networks, and consider the individual properties of these networks to make better recommendations.

2) We will apply the idea of network correlation for applications other than friend recommendation. In this system content based filtering is used to extract contents of posted file or image, and compared with user’s profile data and this system also seeks users history to know the users desire and filter posts based on these data, it is known as collaborative filtering. Overall, this system recommends posts to users based on their profile data and behaviors.

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