ISSN(Online): 2320-9801
ISSN (Print) : 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 2, February 2016

A Modern Approach of Discovering Friends in Social Networks Based on Friend Matching Graph

P.Abirami, B.Moohambigai

PG Scholar, Dept. of Computer Science and Engineering, Arunai Engineering College, Thiruvanamalai, India

Assistant Professor, Dept. of Computer Science and Engineering, Arunai Engineering College, Thiruvanamalai, India

ABSTRACT: SNS is a platform to construct social networks or social relations among people based on their social graph It is not satisfied to user's preference on friend selection in real life. Mean while in proposed system, we recommend friend by used semantic-based (or) user based on their lifestyle. By taking merits of sensor-rich Smartphone's, Friend matching graph find out something life styles of people from user-centric sensor data, action to achieve something the similarity of life styles between users, and to advise someone to users if their life styles have most similarity. An extra ordinary quality by data mining, a user's daily life documents are extracted by using the Hierarchical dirichlet algorithm. Past a certain point, a similar metric to measure the similarity of life styles between users and enumerate the recommend user's the action of one object coming forcibly into contact with another. When receiving a request, it returns a list of social network user with highest recommendation scores to the query user. At last, Friend matching graph combine with another to form a whole the feedback mechanism to further improve the recommendation user accurate. We implemented on the Android-based Smartphone's, and its routine on both small-scale experiments and large-scale simulations. The results show that the recommendations defect reflects the preferences of users in choosing friends in social network.

KEYWORDS: Social networks, everyday life, friend matching graph.

I. INTRODUCTION

For that time, user typically made friends with others who work close to themselves. User recommends friends made through this following fashion, which stands for geographical location-based links because they are affect by the geographical distances between each other. Result in sociology and psychology fields indicate that human beings tend to associate and bond with similar others, so called homophile. Due to the stable and long-lasting social bindings, people are more prepared to share their personal opinions with their friends, and classically trust recommendations from their friends more than individuals from strangers and vendors. The incredibly popular online social networks, such as Face book, twitter, and YouTube supply novel ways for people to communicate and build virtual communities.

Online social networks not merely make it easier for users to split their opinions with each other, but also serve as a platform for increasing quantitative online recommendation algorithms to mechanize the otherwise manual and anecdotal recommendations in genuine life social networks. This paper presents an effort to expand a Bayesian inference-based recommendation algorithm for online social networks.

One common type of analysis is the classification of communities of users with similar interests. An additional research direction is the identification of content that could be of potential interest, whether this is a product review, a blog, or a peep. Collaborative filtering is the most broadly adopted technique used to predict future item ratings based other user's past behaviour as well as ratings of other similar users. It has been shown that incorporating social network relationships and respective opinions/ratings improve the prediction, and consequently the recommendation process. A similar line of job focuses on content ranking, which is consequently employed to counsel the top-ranked items (reviews, blogs, comments, tweet, etc.) to users. This is particularly important since the fast increase in terms of content and users of social media shift the problem of information search to that of information discovery. The largest body of job in this area generates overall rankings and only recently there have been some efforts in personalizing the ranking and if different rankings depending on the scope under which the network is examined.

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II. RELATED WORK

The examination of content and links in social networks has gained a lot of momentum, resulting in an increase of research in the related fields. We examine related work in the areas covered by our system, namely trust and trust transmission, time dynamics and negative trust, with an importance on the works that generate user recommendations. Even though the repute mechanism is an integral part of our system, due to space limitations, we omit a discussion on the related work since our main centre of attention is on the system's characteristics mentioned previously. Trust can be defined as "suspense of a cause to be capable to rely on some other agent's recommendations". The user faces the problem of evaluating trustworthiness of a user in the OSNs. Opinions, reputations, recommendations and actions that a user performs in the OSNs influence his trustworthiness. Shows block diagram of how calculation of Trust depends on reputation, identity and profile of a user.

When a user creates an account/profile on an OSN site, he/she enters his/her personal information to create a profile page. User has the choice to select which part of the information can be in public domain and which part of information has to be in private domain. After creating an account, user's home page shows details of other users and groups connected to them. Reputation means various activities performed by a user on OSN. At the end, Trust of a user is calculated based on information feed in the profile page, user's personal details, groups, events and applications to whom the user is connected and various actions performed by the user on the site.

The need for weighted modelling of links between users caused different research to deal with measurement and prediction of users' relationship strength in recent years. The idea of link strength and its importance was first suggested by Granovetter. He realized that weak links are good sources of information because the other side node of these links has access to clusters and groups which can present useful information. Some years later, Constant et al proposed the role of weak ties in reaching the suitable suggestion and answer. They pointed out when the strong Links could not present useful answers due to shortage of Information, weak links could compensate for it provided with motivation.

Clustered peers having semantically similar information into communities, and found the small world property from the clustering, this can be leveraged to enhance the efficiency of intra- and inter-cluster querying. Chen et al. Built a search protocol, routing through users having common interests to improve searching performance. Proposed a social based P2P assisted video sharing system from side to side friends and acquaintances, which can alleviate the traffic of servers and share videos efficiently. Constructed a P2P overlay by clustering common-interest users to carry efficient short video sharing. Grouped users by interests for efficient file querying and used the relevant judgment of a file to a query to facilitate subsequent same queries. Proposed a multi-attribute range query method with locality-awareness for efficient file searching.

III. SYSTEM ARCHITECTURE

Movement recognition serves as the basis for extracting high-level daily routines (in close correlation with life styles) from low-level sensor information, which has been widely, studied using various types of wearable sensors. Zheng et al. used GPS information to understand the transportation mode of users used data from wearable sensors to recognize activities based on the Hidden Markov Model (HMM). Recognized static postures and dynamic transitions by using accelerometers and gyroscopes. The move ahead of Smartphone's enables activity.

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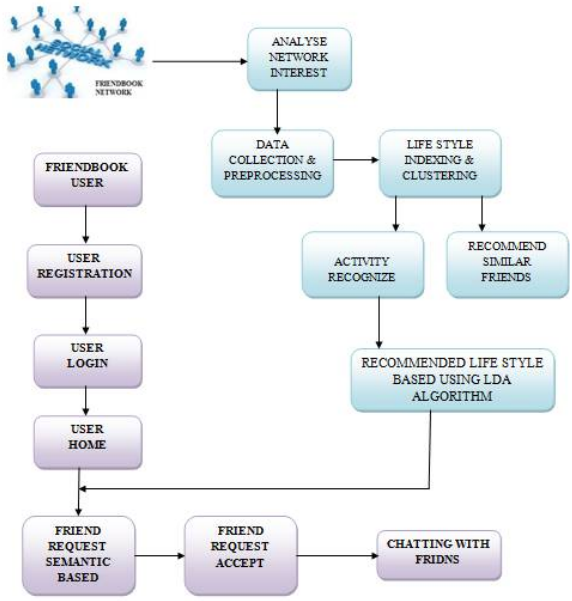

Figure 1: System Architecture

A. Life Style:

The probabilistic area model could discover the probabilities of underlying "topics". Therefore, we adopt the probabilistic topic model to discover the probabilities of secreted "lifestyle" from the "life documents". In probabilistic topic models, the frequency of vocabulary is mainly important, as different frequency of words denotes their information entropy variances. Following this observation, we propose the "bag-of-activity" mode to replace the original sequences of activities recognized.

B. Activity Recognition:

The number of activities involved in the analysis is unpredictable and it is difficult to collect a large set of ground truth information for each activity, which makes supervised learning algorithms unsuitable for our system. so, we use unsupervised learning approaches to recognize activities. Here, we adopt the popular K-means clustering algorithm to group information into clusters, where each cluster represents an activity. Note that activity recognition is not the main unease of our paper. Other more complicated clustering algorithms can certainly be used. We choose K-means for its simplicity and success.

C. Life Style Extraction Using LDA:

The Expectation-Maximization (EM) method to explain the LDA decomposition, where the E-step is used to estimate the free variational Dirichlet parameter and multinomial parameter F in the standard LDA model and the Missteps used to maximize the log likelihood of the actions under these parameters. After the EM algorithm converges, we are able to calculate the decomposed activity-topic matrix. Readers are referred to for more details of the LDA algorithm and alternative decomposition approaches. It is value noting that the matrix decomposition process can be implemented more efficiently through incremental.

D. Friend-Matching Graph Construction

Friend-Matching graph also uses GPS location information to help users find friends within some detachment. In order to protect the privacy of users, a region surrounding the accurate location will be uploaded to the system. When a user uses Friend-matching book, he/she can specify the distance of friends before recommendation. In this way, merely friends having similarity with the user within the specified distance can be recommended as friends.

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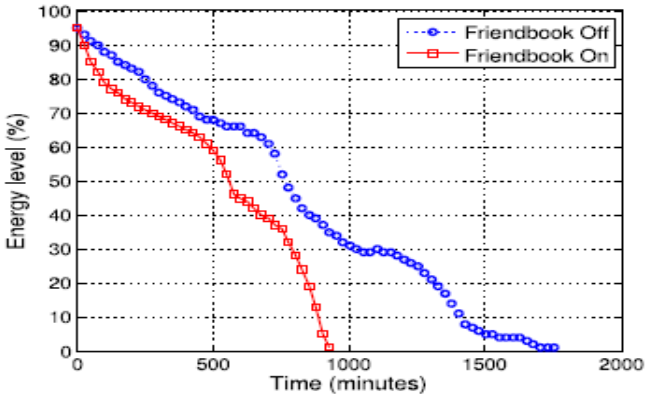

Figure 2: Energy consumption comparison.

IV. SIMULATION RESULT

The existence style vector contains the probability of each life style that sum to 1, each entry of the life style vector is accidentally generated between 0 and 1, and normalized to guarantee the sum of the values in the vector is equal to 1. For each user, the similarity between itself and all the other users can be calculated based on the similarity metric in and the 100 most similar users are chosen as its true friends denoted as Gi for user i. After the life style is uploaded to the system, a friend-matching graph can be constructed and each customer has an impact. We then let every user query the system and obtain its friend recommendation results. Let Fi denote the set of recommended friends.

Users may prefer impact to similarity and our metrics cannot reflect the suggestion accuracy on impact. To better characterize the recommendation results. the metric achieves its maximum when b is around 0:3. Although the recommended friends have high impact when b is small, the similarity between them and the query user is low. In contrast, the similarity between the recommended acquaintances and the query user is high, but their popularity is low. Therefore, in order to well balance the similarity and popularity, b should be carefully selected.

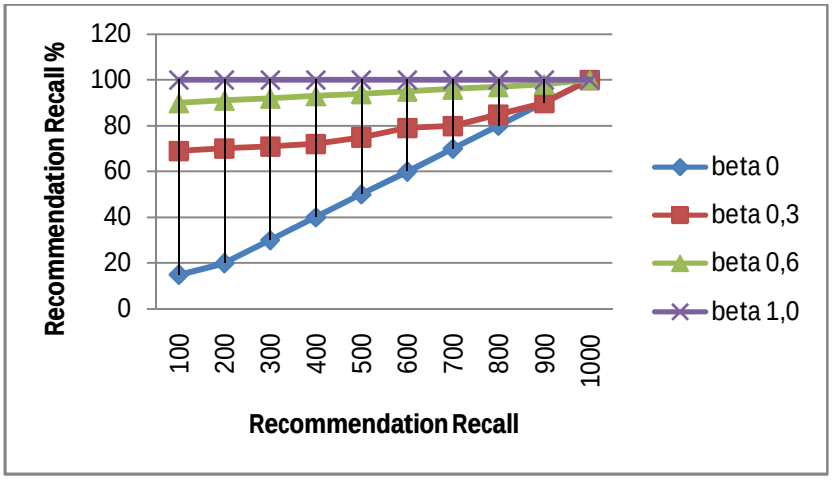

Figure 3: Simulation result 1

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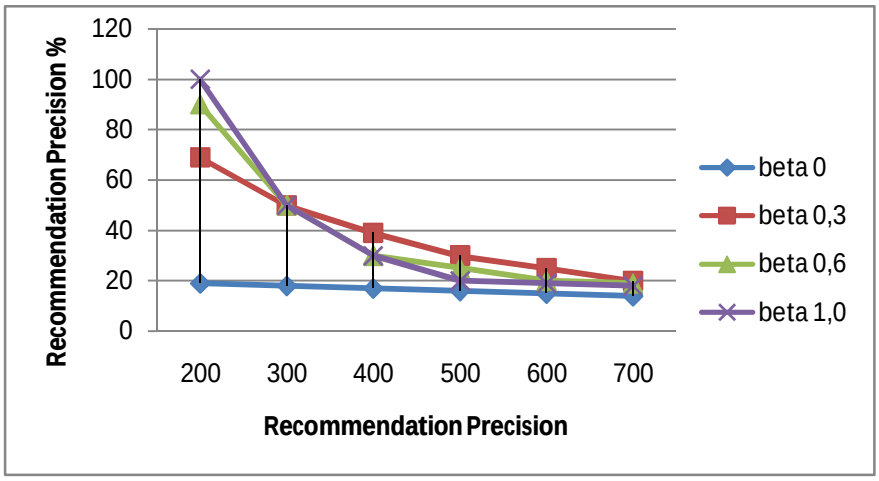

Figure 4: Simulation result 2

V. CONCLUSION

In this paper, the design and implementation of Friend-matching book, a semantic-based friend recommendation system for social networks. Dissimilar from the friend recommendation mechanisms relying on social graphs in existing social networking services, Friend-matching book extracted life styles from user-centric data collected from sensors on the smart phone and recommended probable friends to users if they share similar life styles. We implemented Friend-matching book on the Android-based elegant phones, and evaluated its performance on both small-scale experiments and large-scale simulations. The results showed that the recommendations accurately reflect the preferences of users in choosing friends.

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