Online Social Voting and Friends Recommendation for E-Commerce

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Abstract - *In a world where people are constantly being overwhelmed with advertisements and sales pitches, building a warm relationship with your clients is one good way to increase sales and earn customers' loyalty. A lot of people nowadays feel comfortable sharing their opinions about the products they purchase on social media. It connects people like on various online sites; we can express our thoughts and share our feelings without any restrictions. And moreover, it is one of the best ways to know about people worldwide. So, in this paper we are implementing the social media recommendation-based voting to provide good product to end user and quality improvement for companies. main benefits of this paper is that who is writing comment and feedback for product is mutual friends of social media so they are very likely to trust them and product as well. We also observe that social and group information is much more valuable to cold users than to heavy users.*
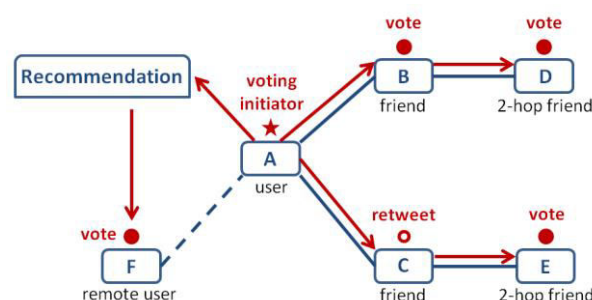
Key Words: (Size 10 & Bold) Social Voting, Friends Recommendation, E-commerce, Product Review.

1. INTRODUCTION

Social media is becoming an integral part of online life as social websites and applications proliferate. In business, it is used to market products, promote brands, and connect to current customers and foster new business**.** It connects people like on various online sites; we can express our thoughts and share our feelings without any restrictions. And moreover, it is one of the best ways to know about people worldwide. I think social media is definitely changing our world. Every second, pictures related to different fields are being posted all the time around the world which we can like, share and comment or screenshot according to our desire. This is a beneficial step in cases where companies have to market their products as more than half of the globe is becoming digitized. Therefore, the strategy to be adopted must be such that it has a social media integration platform to seal the deal with the customers. The increasing popularity of social voting immediately brings forth the "information overload" problem: a user can be easily overwhelmed by various voting's that were initiated, participated, or retweeted by her direct and indirect friends. It is critical and challenging to present the "right voting's" to the "right users" so as to improve user experience and maximize engagement in social voting's. Recommender

systems (RSs) deal with information overload by suggesting to users the items that are potentially of their interests. In this paper, we present our recent effort on developing RSs for online social voting's, i.e., recommending interesting voting campaigns to users. Different from the traditional items for recommendation, such as books and movies, social voting's propagating along social links. A user is more likely to be exposed to a voting if the voting was initialized, participated, or re-tweeted by her friends. A voting's visibility to a user is highly correlated with the voting activities in her social neighborhood. Social propagation also makes social influence more prominent: a user is more likely to participate in a voting if her friends have participated in the voting. Due to social propagation and social influence, a user's voting behavior is strongly correlated with her social friends. Social voting poses unique challenges and opportunities for RSs utilizing social trust information. Furthermore, voting participation data are binary without negative samples. It is, therefore, intriguing to develop RSs for social voting. Toward addressing these challenges, we develop a set of novel RS models, including matrix-factorization (MF)-based models and nearest-neighbor (NN)-based models, to learn user-voting interests by simultaneously mining information on user-voting participation, user–user friendship, and user group affliction. We systematically evaluate and compare the performance of the proposed models using real social voting.

NN algorithms identify the so-called neighbors of a target user. A prediction of item preferences or a list of recommended items for the target user can be produced by combining preferences of the neighbors. Jamal and Ester proposed an approach, namely Trust-CF, to incorporate social network

into NN-based top-*k* RSs.

Social voting as a new social network application has not been studied much in the existing literature. Compared with traditional items for recommendation, the uniqueness of online social voting lays in its social propagation along social links. Also, the purpose of initializing a voting is to engage people to express their opinions. Thus, the topics covered in online social voting's are generally more engaging than other applications in OSNs. Section III presents some interesting statistics of our online social voting data trace.

A timely product recommendation can lead shoppers to choose one product over another. Look to your own experience for proof. Have you ever made a selection at a local store, based on a product recommendation from the owner or a sales clerk? Has a product recommendation from a friend or family member ever been the deciding factor in your choice of which product to purchase? Celebrity endorsements (paid or unpaid), advice given by a current user, "Best 10" lists on blogs – all of these mentions, and more, leverage the power of product recommendations. As an ecommerce manager, though, you don't have to wait for someone else to recommend a product to your customers. You can make product recommendations while the prospect is in the process of shopping on your website. This in-turn can lead to a better online experience and drive increased conversions.

You can even personalize those suggestions and control the conditions for their display to provide impact at the perfect time on the path to purchase.

In this paper, we'll reveal the some of the most effective ways we've found to friend's product recommendations. The information we'll provide here can help to sell more products more often.

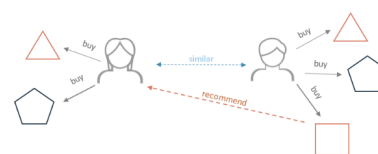**How Do Ecommerce Product Recommendation Engines Work?**

While it's possible to manually implement rudimentary "also-liked" recommendations on your ecommerce site, product recommendations best practices call for the deployment of a 'product recommendations engine'.

There are three basic approaches used to configure the underlying algorithm:

1. **The content-based filtering method** collects data about the likes and dislikes of each visitor (cookies allow tracking over multiple visits), then makes recommendations based on historical choices by that user.
2. **The collaborative-filtering method** incorporates data from users who have made similar choices, and then combines that information to make decisions about recommendations.
3. **A hybrid method** combines the content-based and collaborative-based methods to incorporate group decisions, but focus the output based on attributes of a specific visitor.

collaborative filtering

Are the Benefits of a Product Recommendations Engine?

Is the product recommendations process really worth the trouble? Isn't the incorporation of machine learning a bit beyond the scope of all but the largest ecommerce websites?

Those are the types of questions we often hear from clients. There are times when it seems the high-tech movement is going too far, and machine-learning algorithms are a prime example of that complaint.

Ecommerce sites have a trust problem. More than 80 percent of consumers believe friends and family — not influencers or traditional advertisements — are the most reliable sources of information about products. But try telling that to Amazon, which prioritizes sponsored content and first-party brands in search results. (By some accounts, nearly 8 percent of views on Amazon product pages now come from sponsored links.).

2 Recommended Types of Social Networks

Social Medias about creating meaningful connections with your prospects. Regardless of the social media network that you have chosen to use to reach your customers, you need to strike and keep conversations going. There is no need to keep a serious corporate tone on your social media networks. Users want to know that they are interacting with a human behind your company's Social account. Without engagement, your promotions will convert poorly. Here are some ideas on ways you can keep your audience engaged:

Post photos of your company's day to day activities. Perhaps photos of some of the staff in the office, events you have hosted or attended, etc.

Ask questions, participate in discussions and set up polls for your followers.

Share content (photos, videos, etc) and news stories from external sources. The content you share should provide value to your audience.

2.2 Recommended Items Based on Social Networks

social network diagrams together is a bipartite graph. Figure is an example of a bipartite graph combines social networking and user objects. If a user u produces a behavior for goods i, then there is the edge between two nodes. For example, a user buys objects a and objects e, if user B and are friends, then there will be an edge connecting the two users, the user A in Fig. and the user B, D are friends.
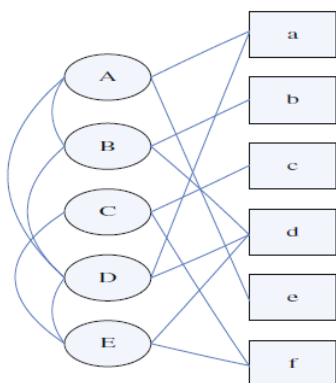

Fig. 1. The combine of social networking and user objects graph The similarity between users also means the weight between users, which can be defined as α. The weight between the user and the items may be defined as the degree of the product user liked, which can be defined as β. The value of α and β are based on the training data. After determining the edge weight, we can use Personal Rank figure sorting algorithms to generate recommendations for each user. In a social network, in addition to the common and directly relationship between the user's social network, there is another relationship which the user belongs to the same group. At this point, the map mode will be simpler. We can model the relationship between the group and the user's friends. Figure 2, adding a node that represents a community, and if the user belongs to a community, there is an edge between the group nodes and the user nodes. Improved Recommendation System Using Friend Relationship in SNS 19.
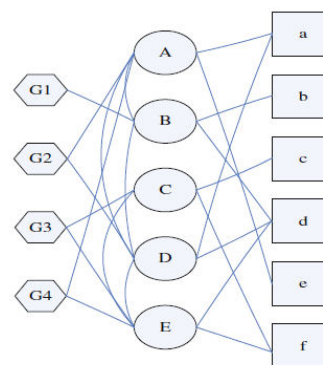

Fig.2. Integration of two social network graph model information

2.3 Recommend of SNS Friends

The relationship of good friends is the important part in the SNS, if the user's friends share very few, it will not be able to realize the benefits of socialization. Therefore, recommending friends is one of the important applications of SNS. The recommended system of friends is to recommend product by friends and the interact daily record of user's behavior, first briefly introduce some simple algorithm, and put forward our own recommendation algorithm of SNS friends. The matching algorithm based on content User content has many types. User Demographics attribute content, which includes age, sex, work, residence, education and so on. b. User interest which is the most important content, including user favorite items and published remarks'. User context, including GPS location, mood, weather, time, etc. Based on the above information, we calculate the similarity between users, and then recommend friends. In fact, these three pieces of information called user context information. In the proposed algorithm, the full use of context information can improve the accuracy of the recommended. Recommendations based on common interest of friends In SNS friends, the users become a friend based on the common interest, they do not care if they knew each other in the real world. Therefore, recommendations based on common interests of friends are needed in sin a micro blogging. User-based collaborative filtering algorithms can be used to calculate the user similarity, the main similarity analysis is based on the same score on the same items, for example, when users commenter forwarding the same micro blogging, then we believe that user likes this micro blogging.

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Summary

Social networking can be the current gold mine. When users have more and more friends in the social network, SNS will be more active, which will bring more profits for social networking. Therefore, recommending friends for users of SNS is also one of the important functions of the SNS. This article applies the time context to the bias model of users and items, and excavates the context of user's activity. We extended matrix decomposition model with the demographic attributes of users and items, and verify the model with the data of Ten Cent micro blogging, at last achieved a good result on recommendation.

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