

FORMING OPINION VIA TRUSTED FRIENDS IN E-COMMERCE USING SOCIAL NETWORK

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Abstract— In this dynamic era, online shopping and associated recommendation systems become essential ingredients of web based systems. The global ratings provided by each online portal are not trustworthy, because it is possible to give some level of rating for each product by them. Most of the existing work only considers the ratings at the current time slot. In real life, a user's opinion evolves over time, since he receives the influence of different opinions sequentially. So we are using a social network for connecting the trusted friends such that shopping through this network provide a trusted rating along with the global rating which provided by the portals. That means we will get multiple ratings from multiple user in a single point of view. To reach these ends we propose a new model, FluidRating which uses fluid dynamics theory to reveal the time-evolving formulation process of human opinions. Here we compare the user as container such that several containers are connected through pipes which are influence relations such as "persistence", "persuasiveness" and "forgetting". So the final decision by the user can take from an analysis based on Global rating, Buyer and Non-buyer trusted friends rating through this social network.

Keywords: Fluid dynamics theory, recommendation systems, persistence, persuasiveness, forgetting.

1. INTRODUCTION

A natural behavior of human is that if we are used some good product, recommend to the friends and will give some experience about that product. In this current world time-evolve recommendation is difficult, because nobody likes to go physically and asking friends about the product which he/she wishes to buy. At the same time all are interested in maintaining friendship through some social media like Face book, Whatsapp etc. Then the probability of getting recommendation about online products via a social network is an interested area of research. So that we are proposing a new model by binding these two entities together using a mechanism called FluidRating.

FluidRating which uses fluid dynamics theory to reveal the time-evolving formulation process of human opinions. In this scheme, each user corresponds to a container, and several containers are connected through single directional pipes, corresponding to influence relations. We identify three features of human personality in the opinion formulation and propagation process: "persistence" represents how much one insists on his opinion, "persuasiveness" represents the ability to impact others, and "forgetting" reflects the common truth that people have limited memory. The recommendation (or influence) is modeled as fluid with two dimensions: its temperature is taken as the "opinion/rating," and its height is deemed as the persistence.

The recommendation (or opinion influence) from friends is captured as fluid, which has two dimensions: the temperature is taken as the "opinion/rating," and its height is deemed as the "persistence." The cross-sectional area of a container is used to reflect the "persuasiveness," where a larger area indicates less persuasiveness. In addition, each container has a small plug at its bottom, through which fluid will leak a little, reflecting the forgetting feature. It shows the mapping from features to the resulting fluid dynamics system.

When new opinions emerge, each person refines his opinion through a round of fluid exchange with neighbors. Opinions of multiple rounds are aggregated to gain a final prediction. Experimental evaluation in a real data set validates the feasibility and the effectiveness of the proposed model.

The paper is organized as follows: Section I describes necessities of trusted recommendation system and the mechanism of how it works. Section II describes about the existing techniques studied by other experts. Section III describes the proposed work. Section IV describes the experimental designs. At last results and conclusion described in Section V.

2. RELATED WORK

The existing technique uses recommendation system uncomfortably. Why because there is no system are trustworthy. The scope of using recommendation by our trusted friends is missing. With the dawn of social network and its attractiveness, people are interested to share their experience, such as rating, reviews, etc. which helps to recom-

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mend the items of user interest [1]. So that along with online shopping experience we can share the product review and ratings through the same social network.

Almost all recommend systems display an aggregate statistic (The average/mean or median rating value) for each item. The problem is that at least one high rating of a bad product will give a minimum value for that product. That means the aggregate statistics may produce dazzling results. So that after getting ratings from trusted friends the user themselves has to take a decision to buy or reject the product. The existing scenario uses following recommendation technique for recommendation.

Content-based recommendations: The user will be recommended items similar to the ones the user preferred in the past.

Collaborative recommendations: The user will be recommended items that people with similar tastes and preferences liked in the past.

Hybrid Methodologies: Combining Separate Recommenders:

One way to build hybrid recommender systems is to implement separate collaborative and content-based systems. Then, we can have two different scenarios. First, we can combine the outputs (ratings) obtained from individual recommender systems into one final recommendation using either a linear combination of ratings.

3. PROPOSED SYSTEM

The proposed ratings (opinion) via trusted friends is implemented in four modules. The four modules were listed as follows:

- User Communication
- Trust-based Rating Assignment
- Model the Recommendation
- Sample Aggregation

User Communication:

Here user can make a friend and send request to other also. User can review and comment on the product based on request. User can share the data in the group to the other user who is friend. This module help to make communication based on the user. Here we assume all the user is in ideal node and have good communication to each other.

Trust-based Rating Assignment:

The goal of trust-based Rating assignment is to assign rate capacity to portal and fine defaulter on the product, so that we can know about the product demand and quality feedback. To achieve this goal, we first select some trusted users as seeds, and then propagate the rating capacity to the entire user also.

Model the Recommendation:

We view the time-evolving formulation process of human opinions as follows: each user first receives the influence from directly connected friends, and updates his own opinion accordingly; he then propagates his opinion to other friends. In this way, for each user, the first influence he receives is the direct influence, while the later ones are mixtures of direct and indirect influences. The process can be done iteratively.

The Model: A rating network is modeled as a fluid dynamics system (Algorithm 1): each user corresponds to a container with enough volume so that fluid will never overflow. Containers are connected through single-direction pipes, which correspond to the influence edges in the rating network. Recommendation is modeled as fluids, which originate from raters, and pass through non-raters. The ratings of users are modeled as the fluid temperature, and the persistency of the opinion of the corresponding user is measured as the fluid height. The persuasiveness of a user is reflected by the cross-sectional area b . The total amount of influence (or recommendation) is the volume of the fluid. Both the direct and indirect influences are modeled through fluid exchanges among connecting containers.

Sample Aggregation:

We aggregate the all the rating of a friend, buyer and global users. we are reviewing this analysis on every group based on the total rating, user and product wise. This will help to user to understand the product demand and feedback before next shopping. This will help to take decision either we should buy the product or not.

4. EXPERIMENTAL RESULT

We present a clean-slate computational model, Fluid Rating, based on fluid dynamics theory that can capture many subtle properties in a time-evolving recommendation system. Instead of only considering a static influence at the current time slot, the model takes opinion refinements collected over time into consideration; this clearly reveals the time evolving formulation process of human opinions.

In addition, our model provides two-dimensional information as the final prediction: the fluid temperature (i.e., predicted rating) and volume. So the final decision by the user can take from an analysis based on Global rating, Buyer and Non-buyer trusted friends rating through the social network.

5. CONCLUSION

Recommendation systems aim to predict the opinions of users on a target item, in order to determine whether or not to recommend the item to them. However, existing work focuses on the static rating prediction at the current time,

and the prediction is usually conducted on a single user. To overcome the problems, we identify three features of human personality in forming and propagating recommendation:

persistence, persuasiveness, and forgetting. The first two features can address the two challenges of forming opinions and refining them, respectively. The last feature can reflect the common truth of limited memory. Based on this, we propose a novel time-evolving rating prediction scheme using fluid dynamics theory, FluidRating.

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