CS274-01 Project Proposal

A Social Curiosity Inspired Recommendation Model to Improve Precision, Coverage and Density and by Combining Collaborative Filtering

Student: Ravee Khandagale (011028654)

Project Advisor and Mentor: Dr. Teng Moh

Problem

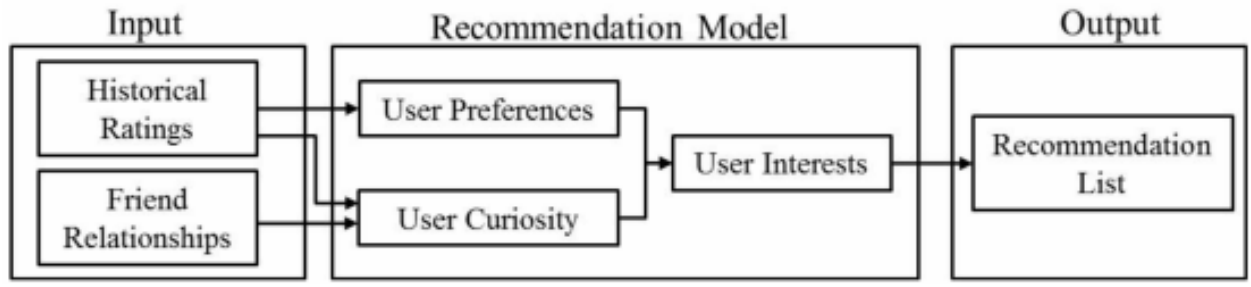
The aim is to design a recommendation system that is not only dependent on the user's historical content, but also on his/ her friend's activity that might be a surprise element to the user which will elevate his/her curiosity and will compel the user to explore more about that recommendation. In doing so, I attempt to combine this with collaborative filtering in order to further improve accuracy of the recommendation.

Importance

Traditional recommendation systems consider user-item information for recommendation systems. However, they overlook the social connections and the effect of social recommendations on the particular user's curiosity. For example, a user who does not like horror movies will have less suggestions about horror movies. Her friend might also not like horror movies, but her friend likes or watches a horror movie. This piques the user's interest and curiosity in the horror movie as well, even if she does not like the movie. Recommending such out-of-context, yet curiosity arousing items can be appreciated by the user and can increase the usability of the system. Furthermore, we can also perform collaborative filtering to search for users whose interests are similar to the subject user. Any surprise action or item accessed/ seen by the similar users may also interest our subject user.

Current Solution

The user's content and historical data is used in combination with the user's friend's curiosity arousing activity-data and forms a hybrid model for the system. This together forms the user's interest and result in the user recommendation list. This is shown to improve the accuracy of the system, not only in terms of mathematical accuracy, but in terms of practical user preferences and measures beyond accuracy which are influenced by curiosity. Below figure shows this:



Source: http://ieeexplore.ieee.org.libaccess.sjlibrary.org/document/7817059/

Proposed Approach

The proposed approach combines the existing approach with collaborative filtering. This not only takes into account surprise element items from the user's social-groups and friends but also the surprise elements from the users which are similar to the subject user. I believe that this will further improve the quality of recommendations and will be aa contributing factor in ranking recommendations for a particular user.

Input:

Historical Ratings + Friend relationships+ Similar Users' Surprise element→ Interests→ Recom List

References

1) http://ieeexplore.ieee.org.libaccess.sjlibrary.org/document/7817059/
2) http://www.mmds.org - Recommendation Systems and Hyrbid Models
3) http://dl.acm.org/citation.cfm?id=2843948 - The Netflix recommendation system