Social Network Recommendation Based-on User Context

Introduction

With the development of social networks, the extreme explosion of information makes it increasingly difficult for users to obtain what they want. Therefore, social networks recommendation system becomes an important mechanism for active service. To meet users’ individual requirements, the system should extract content from a lot of information in line with user needs and interests.

Traditional recommendation technologies [1] mainly contain content-based and collaborative filtering recommendation and the hybrid recommendation technology. In social networks, collaborative filtering methods are unable to fully characterize the complex relationship in social networks. For social networks recommendation, the researchers introduced trust-base and influence-base methods to leverage social networks the relationship between users, so that the social networks recommended more precise.

Whether traditional recommendation methods and existing social networks are recommended for the observed user ratings matrix, the user feature matrix, the project features such as two-dimensional matrix matrix processing, resulting in predictable user ratings matrix to describe the user's preference for projects . These two-dimensional recommendation mechanism ignores the context of user behavior, user and project considered only two dimensions, without considering the context of this dimension.

In real life social situations, people and communication in addition to considering the topic itself, will be selected according to the prevailing situation exchange of objects and topics. That is, in a dynamic environment, human impact on people, and people loved degrees of things will change with the context. For example, when a person has trouble or distress, he would choose the same calm or older experienced people exchanges, and exchanges may from his usual favorite sports and other projects into a life philosophy class; And when he is working period, he will turn to the exchange of objects associated with his work colleagues, sharing the contents of work-related; however, during the same work, the time is coming Friday, the day before the weekend, he and his colleagues on the content of the exchanges may be more to do with the weekend activities.

Real social life with similar social networks, the main factors affecting user behavior are shown in Figure 1, three aspects. Figure 1 depicts a social network information selected by the user and filtering the full context. Users according to their context in which the information of the sender and its contents, information on social networks to filter and choose their own context was interested in the content. Therefore, the establishment of a social network user behavior model, it is necessary to take into account (a) the user's personal preferences, to consider (2) the impact between users, taking into account also (3) in which the user context.

Recommendation on social networks in order to improve the accuracy of recommendation, we propose a scenario-based three-dimensional model of social networking recommendations will be introduced into the third dimension of this situation existing user projects a two-dimensional model.

We use existing social networks Sina Weibo experimental data and the recommended model validation. First we crawl Sina microblogging data, and then analyze the data in the context of identifying data, the sender and the project content. Because today's social networking channels for situational awareness and content more limited, mainly situational data including location-aware mobile device data, time data, and the user interface to send by Sina mood mood and expression analysis of user data in the resulting situation. Our experimental data is divided into training and testing sets, using the most commonly recommended metrics MAE mean absolute error as the evaluation criteria.

This paper is organized as follows. Section 2 describes related work. Chapter 3 describes how specific users, projects and contexts to abstract and modeling. Section 4 will be our context-based social networking recommendation model formulation. Chapter 5 describes our experimental design and experimental results. Chapter 6 summary.