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Personalizing Information Using Users' Online Social Networks: A Case Study of CiteULike

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Abstract

This paper aims to assess the feasibility of a new and less-focused type of online sociability (the watching network) as a useful information source for personalized recommendations. In this paper, we recommend scientific articles of interests by using the shared interests between target users and their watching connections. Our recommendations are based on one typical social bookmarking system, CiteULike. The watching network-based recommendations, which use a much smaller size of user data, produces suggestions that are as good as the conventional Collaborative Filtering technique. The results demonstrate that the watching network is a useful information source and a feasible foundation for information personalization. Furthermore, the watching network is substitutable for anonymous peers of the Collaborative Filtering recommendations. This study shows the expandability of social network-based recommendations to the new type of online social networks.

Keywords

CiteULike, Homophily, Information Personalization, Online Social Networks, Social Network-based Recommendations

1. Introduction

Due to users' active contributions in this Web 2.0 era, contents available on the Web continue to grow very rapidly [1]. The overwhelming amount makes it hard for users to locate useful information at the right time. Personalized recommendation technologies have emerged as one solution to cope with the information glut problem, and they have proven to be effective in a number of real-life applications, such as Amazon.com, Netflix, and Last.fm. Collaborative Filtering (CF) recommendation technology has especially received a lot of attention from both the world of academia and industry because of its relative simplicity and powerful performance. However, the CF technology is completely reliant upon the tastes of unknown users to make suggestions. Even though target users are the recipients of the recommendations, the ways to generate their CF-based recommendations is a black box, and the recommenders don't enable target users to get involved in and control the process. This lack of user control can directly decrease user satisfaction [2] and can cause a lot of problems, as detailed in Section

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