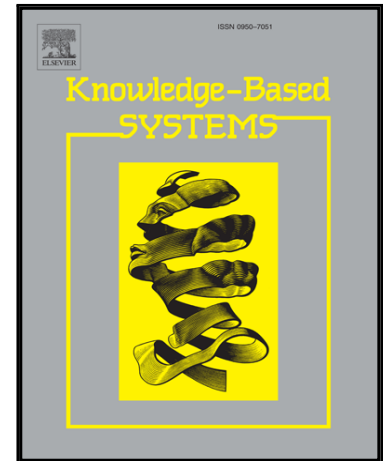


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Improving User Recommendation by Extracting Social Topics and Interest Topics of Users in Uni-Directional Social Networks

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Abstract

With the rapid growth of population on social networks, people are confronted with information overload problem. This clearly makes filtering the targeted users a demanding and key research task. Uni-directional social networks are the scenarios where users provide limited *follow or not* binary features. Related works prefer to utilize these *follower-followee* relations for recommendation. However, a major problem of these methods is that they assume every *follower-followee* user pairs are equally likely, and this leads to the coarse user following preferences inferring. Intuitively, a user's adoption of others as followees may be motivated by her interests as well as social connections, hence a good recommender should be able to separate the two situations and take both factors into account for better recommendation results. In this regard, we propose a new user recommendation framework namely *UIS-MF* in this work. *UIS-MF* can well capture user preferences by involving both interest and social factors in prediction, and targeted to recommend Top-*N* followees who have similar interest and close social connection relevant to a target user. Specifically, we first present a unified probabilistic topic model on *follower-followee* relations, namely *UIS-LDA*, and it employs Generalized Pólya Urn (GPU) models on *mutual-following* relations for discovering interest topics and social topics of users. Next we propose a community-based method for user

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This work is an extended work of Ref. [1].

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