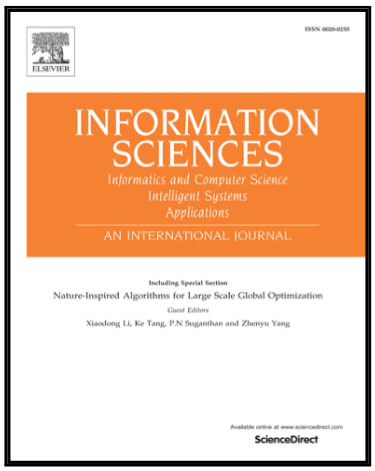

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Multi-Sided Recommendation based on Social Tensor Factorization

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Abstract

Tensor factorization has been applied in recommender systems to discover latent factors between multidimensional data such as time, place, and social context. However, tensor-based recommender systems still encounter with several problems such as sparsity, cold-start, and so on. In this paper, we introduce the new model *social tensor* to propose a tensor-based recommendation with a social relationship to deal with the existing problems. In addition, an adaptive method is presented to adjust the range of the social network for an active user. To evaluate our method, we conducted several experiments in the movie domain. The results indicate the ability of our method to improve the recommendation performance, even in the case of a new user. Particularly, the proposed method conducts the regeneration and factorization of the tensor in real time. Furthermore, our approach recommends not only a single item, but also the multi-factors for the item such as social, temporal, and spatial contexts.

Keywords: Tensor factorization, Context-based recommendation, Social-based recommendation, Social tensor, Multi-sided recommendation.

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