

Personalized Diversification for Recommendation of Long-Tail Items Using Multi-Objective Tabu Search Algorithm

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ABSTRACT

In common recommendation algorithms, the main focus is on increasing the accuracy of recommendations. These algorithms may not be able to find all suitable items for recommendation and the items that are rated by a few users, seldom participate in recommendations. These items are called long tail items. One of the solutions of this problem is to pay more attention to other dimensions of recommender systems, like as diversity. Because of different tendency of users to diversity, the recommendations should be diversified according to the user's propensity to diversity. In this paper we propose a solution for long tail recommendation problem using personalized diversification. The proposed method is a multi-objective optimization algorithm based on Tabu search in which two objectives are defined for increasing the recommendation of long tail items and one objective for improving accuracy. Evaluations illustrates that this method is more effective than former methods and it leads to participation of long tail items, while maintaining the accuracy in an acceptable level.

Keywords: Recommender System, Diversity, Long Tail, Multi-Objective Optimization, Tabu Search.