HYBRID MATRIX FACTORIZATION FOR RECOMMENDER SYSTEMS IN SOCIAL NETWORKS

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Abstract: Recommender systems have been well studied and applied both in the academia and industry recently. However, traditional recommender systems assume that all the users and items are independent and identically distributed. This assumption ignores the correlation of explicit attributes of both users and items. Aiming at modeling recommender systems more realistically and interpretably, we propose a novel and efficient hybrid matrix factorization method which combines implicit and explicit attributes, and can be used to solve the problem of cold start and recommender interpretation. Based on the MovieLens datasets, the experimental analysis shows our method is promising and efficient.

Key words: *recommender system, matrix factorization, hybrid factors, recommended interpretation*

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1. Introduction

As an important service provided through the Internet, the social network has become an important tool for users to participate in social activities and get information. A large number of data information, such as demographic characteristics, clicking, friends linking, login information and attributes of items concerned by users, exist in social networks and can be used for recommender systems, by which social network sites can provide personalized service, improve the adhesion from users, and users can improve the efficiency of getting personalized preference information. At present, personalized recommender systems have become an important application integrated by online social networks.

The precision of rating prediction is one of evaluation indexes in personalized recommendation systems. Studies have shown that the precision is related to both recommendation data and methods. In general, recommendation data sets are very sparse because of users' reluctance to offer their preference and the restriction of

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