融合用户信任和用户兴趣漂移的协同过滤算法

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摘 要：针对现有的协同过滤算法推荐质量不高，提出了融合用户信任和用户兴趣的协同过滤算法 CF-BI.首先根据用户历史评分矩阵，充分考虑用户偏好相似性、用户影响力和打分专业性等影响因子，提出综合用户偏好相似度和用户信誉度的信任模型；然后采用融入艾宾浩斯遗忘函数的 Pearson 相关系数计算用户间的兴趣相似度，通过加权融合获取用户信任与用户兴趣间的关联关系，以获取更加准确的最近邻居，并对目标用户采用 Top-N 算法进行推荐.在真实数据集 MovieLens 上的仿真实验结果表明，该算法的平均绝对误差比传统的协同过滤算法提升了 16.98%，有效提高了推荐质量.

关键词：推荐系统；协同过滤；用户信任；遗忘函数；用户兴趣

Collaborative filtering algorithm based on

user trust and interest drift detecting

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Abstract：To solve this problem, the collaborative filtering algorithm based on user trust and user interest CF - BI was proposed. Firstly, according to the user's history score matrix, the trust model of the comprehensive user preference similarity and user credibility was proposed, which took full account of user preference similarity, user influence and scoring professional and other influencing factors; and then the similarity of users' interests was calculated by Pearson correlation coefficient of Ebbinghaus forgetting function, and the similarity degree and interest similarity degree between users were adjusted by the weighting coefficient, which made the selection of the nearest neighbor more accurate, and recommends the Top-N algorithm to the target users. Experimental results on the MovieLens dataset show that the average absolute error of the algorithm is 16.98% than that of the traditional collaborative filtering algorithm, which improves the quality of recommendation effectively.

Key words：recommender systems; collaborative filtering; user trust; forgetting function; user interest

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