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下期论文摘要预登

基于结构投影非负矩阵分解的协同过滤算法

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摘 要:针对在协同过滤算法中,传统矩阵分解技术在降维过程中会破坏数据相邻结构的问题,提出基于结构投影非负矩阵分解的协同过滤算法(CF-SPNMF).该算法包含离线学习和在线搜索 2 个阶段.在离线学习阶段,通过对用户评分矩阵的投影非负矩阵分解,同时保留用户特征的聚类结构,得到低维的用户潜在兴趣因子.在线搜索阶段,将用户潜在兴趣因子进行余弦相似性匹配,发现目标用户与训练样本用户之间兴趣最相似的邻域集合.在实际数据集上的实验结果表明,提出的 CF-SPNMF 算法与单纯使用矩阵分解和单纯在原评分矩阵上进行用户聚类的推荐算法相比,能够更有效地预测用户实际评分.

关键词:协同过滤;投影非负矩阵分解;相邻结构;聚类