

## **Abstract**

Book recommender systems often face the challenges of information overload and item cold start due to the dynamics of the evolving book market. This paper proposes Feature Enhanced Neural Collaborative Filtering (FENCF), which is a novel method that combines the interaction between users and items with genre metadata information to address the item cold start problem and improve the accuracy of rating predictions. The uniqueness of FENCF lies in the preprocessing of metadata genres, which is different from typical book recommendation research. Experiments with the Amazon book dataset show the contribution of FENCF, which outperforms NCF by reducing RMSE by 4.04% and MAE by 2.73%. In addition, FENCF is also better able to cope with item cold start, with lower MAE across all testing data scenarios. The advantages of FENCF in improving rating accuracy and overcoming item cold start on complex data are very relevant to the actual condition of book sales in e-commerce, which is dynamic. In real-world applications, FENCF can accurately recommend old and new books according to each user's preference. This not only encourages users to stay with the e-commerce platform in the long run but also has the potential to increase the conversion rate of sales.

## **Keywords**

recommender system, neural collaborative filtering, item cold start, Sentence BERT, K-means