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ICAITI 2022 Submission 145

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Submission 145

Title

Enhance Document Contextual using Attention-LSTM to Handle Sparse Rating Matrix For E-Commerce Recommender System

(Feb 13, 04:18 GMT) Paper:

sparsity data

recommender system matrix factorization

Author keywords e-commerce

attention mechanism

PMF

Abstract E-commerce is the most important service in last 2 decade. E-commerce service influnce growth of economy impact in world

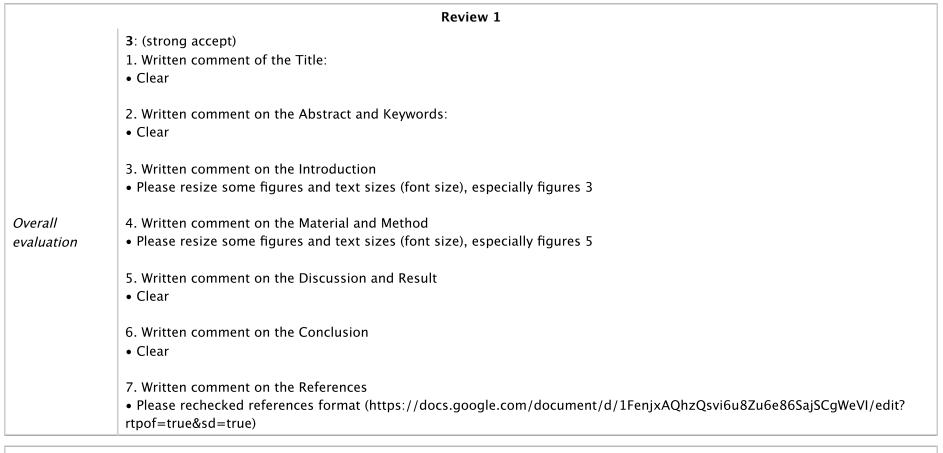
> wide. Recommender system is essential mechanism to calculate product information for e-commerce user. The successfulness in recommender system adoption influence target revenue of e-commerce company. Collaborative filtering (CF) is the most popular algorithm to create recommender system. CF applied matrix factorization mechanism to calculate relathionship between user and product using rating variable as intersection value between user and product. However, number of rating very sparse where the number of rating only less than 4%. Product Document is the product side information representation. The document aims to advance matrix factorization work. This research consider to enhancement document context using LSTM with attention mechanism to capture contextual understanding of product review and incorporate with matrix factorization based on probabilistic matrix factorization (PMF) to produce rating prediction. This study employ real dataset using MovieLens dataset ML.1M, ML.10M and IMDB to observed our model called ATT-PMF. Movielens dataset represent of number sparse rating that only contains below 4% (ML.1M) and below 1% (ML.10M). Our experiment report show that ATT-PMF

> outperform than previous work morethan 2% in average. Moreover, our model also suitable to implement on huge datasets. For

	further research, enhancement of product document context will promising factor to handle sparse data problem in big data issue.
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Reviews



Review 2

Overall evaluation

1: (weak accept)

The recommender system from the sparse dataset is still challenging. A combination of Attention-LSTM and PMF is an interesting idea and may become an alternative solution. The author uses the MovieLes dataset to evaluate the performance of the proposed method. The author claimed that his proposed method outperformed the previous works based on the experiment results. However, the following issues are should be considered in the updated manuscript to improve the quality of the paper:

- Please use a tool to check and prevent the typo(s) and grammatical errors in the manuscript. (ex. influence, relationship, etc)
- Page 3: figure 3 -> is it your original figure? or taken from another source? please cite properly
- Page 4: is it necessary to put the description of a symbol in the table and highlight it with the yellow color?
- Page 4: Fig 4 -> is it your original figure? or taken from another source? please cite properly
- Fig 6, 7, 8, 9, 10, and 11 require a proper legend to explain the color in the chart
- Page 7: The acknowledgment must be written in the proper way. Please find an example of how to write an acknowledgment

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