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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
Paper:	 (Feb 13, 04:18 GMT)
Author keywords	<p>sparsity data</p> <p>recommender system</p> <p>matrix factorization</p> <p>e-commerce</p> <p>attention mechanism</p> <p>PMF</p>
Abstract	<p>E-commerce is the most important service in last 2 decade. E-commerce service influence 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 relationship 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</p>

	further research, enhancement of product document context will promising factor to handle sparse data problem in big data issue.
Submitted	Feb 13, 04:18 GMT
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Reviews

Review 1	
<i>Overall evaluation</i>	<p>3: (strong accept)</p> <p>1. Written comment of the Title:</p> <ul style="list-style-type: none"> • Clear <p>2. Written comment on the Abstract and Keywords:</p> <ul style="list-style-type: none"> • Clear <p>3. Written comment on the Introduction</p> <ul style="list-style-type: none"> • Please resize some figures and text sizes (font size), especially figures 3 <p>4. Written comment on the Material and Method</p> <ul style="list-style-type: none"> • Please resize some figures and text sizes (font size), especially figures 5 <p>5. Written comment on the Discussion and Result</p> <ul style="list-style-type: none"> • Clear <p>6. Written comment on the Conclusion</p> <ul style="list-style-type: none"> • Clear <p>7. Written comment on the References</p> <ul style="list-style-type: none"> • Please rechecked references format (https://docs.google.com/document/d/1FenjxAQhzQsvi6u8Zu6e86SajSCgWeVI/edit?rtprof=true&sd=true)

Review 2	
<i>Overall evaluation</i>	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