**reviewer #1**

1) Although the experiments show effectiveness of proposed model. The methods is too simple, just a combanation of CNN and attention mechanism. I think there are already many studies use these approaches to integrate user and product information for sentiment classification.

Yes, there are previous works that employ NN and attention mechanisms to integrate user and product information for sentiment classification. However, they are mainly based on local texts. On the contrary, in this work, we propose to incorporate speculative similar documents for boosting classification. To achieve this, we need to address how to select speculative similar documents (SSDs), and since the SSDs are selected based on user rating behaviors, we need to model user-item interactions to encode user behaviors into user embeddings.

2) The title of this paper is "...Collaborative Sentiment Classification", but I think the proposed model is not very like traditional collaborative filtering methods, but it is still like a traditional NN based model.

The collaborative sentiment classification (CSC) model is inspired traditional collaborative

3) The motivation of this paper is not very clear, why should the authors use these three components, and what is the major different between the proposed model and the previous studies on using user and product information.

**reviewer #2**

Questions

1. [Summary] Please summarize the main claims/contributions of the paper in your own words.

The authors work on Collaborative Sentiment Classification, given that users with similar previous rating behaviors are more likely to write reviews expressing

similar sentiments toward a product. A neural embedding algorithm is used to learn from user-product interaction, review content, and review similarities, in order to predict the rating.

Compared to state-of-the-art algorithms, the proposed method achieved better performance in terms of Accuracy and RMSE on two benchmark datasets, which are IMDB and Yelp 2013.

Empirical results also show with both user-production interaction and reviews from similar users, the proposed algorithm yields its best performance.

2. [Relevance] Is this paper relevant to an AI audience?

Relevant to researchers in subareas only

3. [Significance] Are the results significant?

Moderately significant

4. [Novelty] Are the problems or approaches novel?

Somewhat novel or somewhat incremental

5. [Soundness] Is the paper technically sound?

Technically sound

6. [Evaluation] Are claims well-supported by theoretical analysis or experimental results?

Sufficient

7. [Clarity] Is the paper well-organized and clearly written?

Satisfactory

8. [Detailed Comments] Please elaborate on your assessments and provide constructive feedback.

The problem of collaborative sentiment classification has been extensively studied in the domain of predicting user ratings of products and recommender systems. The novelty of this paper is limited, given the idea that users with similar rating behaviors are likely providing similar sentiment towards a product is not novel and has been explored in a vast literature.

However, the proposed Speculative Similar Document mechanism is technically sound and efficient. Experimental results and analysis of hyperparameters are sufficient to prove the superiority of the proposed algorithm.

9. [QUESTIONS FOR THE AUTHORS] Please provide questions for authors to address during the author feedback period.

NA

10. [OVERALL SCORE]

5 - Marginally below threshold

**reviewer #3**

Questions

1. [Summary] Please summarize the main claims/contributions of the paper in your own words.

This paper presents a novel method for text-based sentiment classification inspired from the idea of collaborative filtering.

The system includes three components: user-product interaction (UPI), document encoding (DE), and speculative similar document (SSD). The UPI encodes user/product ratings behaviours into user/product embeddings. The DE utilizes learned user/product embeddings to for comprising more accurate document representations. The SSD component aggregates documents written by similar user toward the same product. The three components are integrated into a unified model. The model proves to improve significantly state-of-the-art on two standard datasets: IMDB and Yelp 2013.

2. [Relevance] Is this paper relevant to an AI audience?

Relevant to researchers in subareas only

3. [Significance] Are the results significant?

Moderately significant

4. [Novelty] Are the problems or approaches novel?

Novel

5. [Soundness] Is the paper technically sound?

Has minor errors

6. [Evaluation] Are claims well-supported by theoretical analysis or experimental results?

Somewhat weak

7. [Clarity] Is the paper well-organized and clearly written?

Good

8. [Detailed Comments] Please elaborate on your assessments and provide constructive feedback.

The method proves significant improvement. It would be nice to see the results on more datasets and applications.

9. [QUESTIONS FOR THE AUTHORS] Please provide questions for authors to address during the author feedback period.

The method proves significant improvement. It would be nice to see the results on more datasets and applications.

10. [OVERALL SCORE]

7 - Accept