Thank the EAC reviewers very much for the insightful comments on the potential ethical issues and the suggestions on improving this paper. Our responses are as follows.

- **Comment in EAC meta-review**: Due to the sensitive nature of the topic of your paper, an ethics statement is needed to discuss the potential consequences of this work. While we do not expect you to be able to offer remedies, you should provide meaningful reflection on the possible risks and harms of such a system and whether there are ways to mitigate them.

- **Response**: Thank the EAC meta-reviewer very much for the great suggestion. We have added an ethics statement to our paper to discuss the possible consequences and risks of our work, and the potential solutions to them. More details can be found at the Ethics and Impact Statement Section of our paper.

- **Comment 1 in Ethics Review #4**: How does the system promote filter bubbles/echo chambers?

- **Response**: Filter bubbles and echo chambers are the common problem for many recommender systems. Improving the diversity of the recommendation results is very important for handling the problem of filter bubbles and echo chambers. In Section 4.5 of our paper, we show through experiments that the proposed HieRec method can outperform many baseline recommendation methods in term of recommendation diversity. Thus, compared with existing personalized news recommendation methods, HieRec can better alleviate the filter bubble problem. Besides, we can combine HieRec with some existing methods like DPP [1] to further improve the diversity of recommendations and handle the filter bubbles/echo chambers problem. We also add these discussions to the Ethics and Impact Statement Section of our paper.

- **Comment 2 in Ethics Review #4**: Could the system amplify dangerous news articles?

- **Response**: There may be some dangerous news articles like fake news and clickbait in some online news platforms. In order to handle the negative social impact and the user experience harm brought by these fake news and clickbait, we can combine the proposed HieRec method with many existing fake news detection methods and clickbait detection methods such as [2] and [3] to filter these kinds of news articles before using HieRec for personalized recommendation.

- **Comment 3 in Ethics Review #4**: The potential harms when system is giving incorrect results.

- **Response**: In news recommendation systems, if the system is giving incorrect results, it usually means the system is recommending news articles that the users have no interest in. Users usually just ignore them and will not click them to read. The user experience may be harmed and users may use the online news service less in the future, or turn to other online news platforms.
Comment 4 in Ethics Review #4: It should consider the potential misuse of the system. (e.g. election manipulation, covert manipulation of users)

Response: Great comment. The proposed HieRec method works in a data-driven way. It trains the model from the user logs and makes personalized recommendations to users based on their interest inferred from their clicked news. In order to avoid the potential misuse, the usage of HieRec should comply with regulations and laws, and intentional manipulation should be prohibited.

Comment 5 in Ethics Review #4: What are possible harms likely to fall disproportionately on populations that already experience marginalization or are otherwise vulnerable?

Response: The possible harms in this scenario can be a specific group of users may not be able to receive accurate and diverse enough news information that is most suitable for them, and the recommendation results may be more suitable for some major populations.

Comment 6 in Ethics Review #4: What approaches could be used to mitigate such harms for marginalized populations?

Response: Recently, some fairness-aware news recommendation methods like FairRec [4] have been proposed to eliminate bias and unfairness in recommender systems. The proposed HieRec method can be combined with these methods to improve the fairness of the recommendation results and mitigate such harms for marginalized populations.

References: