We sincerely thank the Editorial Board and the Reviewers for their valuable and useful comments. These comments are not only meaningful to this manuscript, but also extremely useful to our further research.

Here are our answers:

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Reviewer: 1

Prolem 1: Comments to the Author

The paper is well-written and provides an in-depth approach for analyzing and classifying Vietnamese fake news using transformer model, with a particular focus on PhoBERT - aversion of BERT optimized for Vietnamese. The organization is clear, and the related works section effectively outlines the differences between recent research and the study's contributions. It highlights how this work introduces new ideas, explains their significance, and demonstrates the purpose and impact of the study.

=> **Reply**: Thank you for your positive feedback. We are pleased that you found our approach clear and valuable. However, we have made some improvements to certain sections of the paper and would appreciate it if you could review them and continue providing us with your feedback.

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Reviewer: 2

Prolem 1: The authors present a method utilizing Transformer models to detect fake news on social media platforms, with application in Vietnamese. They handled imbalance sampling data, then incorporated the TF-IDF data preprocessing technique, and compared several models.

* Why did you choose TF-IDF in the preprocessing step ? Did you investigate and compare several other methods to deal with the corpora ?

=> **Reply**:

We chose TF-IDF because this method helps supplement information about the frequency of word occurrences, enhancing the ability to distinguish between important and unimportant words. This contributes to improving the accuracy of fake news classification without interrupting the contextual learning process of Transformer models.

We have also added this information in section **"2.2.6 TF-IDF"** to clarify the reason and method for integrating TF-IDF into our model.

After submitting the draft, we also implemented additional combinations with other methods, such as Word2Vec, which yielded good results. We have added the Word2Vec method to our draft to diversify the techniques combined with Transformer, rather than just using TF-IDF.

We have added section **"2.2.7 Word2Vec"** which includes knowledge about Word2Vec, and we also added the evaluation results of PhoBERT + Word2Vec in **"Table 1"** along with corresponding comments in section **"4.3 Results"**.

Prolem 2: Could you please make another table about errors in the discussion section ?
=> **Reply**:

We have added **"Table 3"** for error cases in the discussion section, and adjusted **"Table 2"** to align with **"Table 3"**. Additionally, the discussion content has changed slightly from the original after adding the PhoBERT + Word2Vec model.

Prolem 3:
* The authors need to revise some repetitive terms
For example:
* In the Abstract :
"This project aims to develop ..." => This research ....
"This report outlines ..." => This paper ....

"In the past few years, deep learning is acknowledged as ..." : has been acknowledged
In Part 2 .... => In Chapter 2 ... (Part => Chapter)

however (12 times) => to use another similar word

Our goal is to ... => Our goal aims to ...

* In 3.5, "In The models are trained..." , please remove "In" or rectify the sentence.

"One of the main problems is that the data is not enough and... " => is ... repetitive

* In 4.1, ' The dataset is accessible at: Vietnamese News Dataset.' Please to give an explicite URL in the footnote for example.

"The dataset contains over 1,400 samples, including both real and fake news across various domains. We then randomly split the dataset into an 80/20 training and testing set, resulting in 1,124 samples for training and 282 samples for testing. "

(1) How many labels in the train-test sets are hand-crafted ?

(2) The train-test splitting into 80/20 should be 1,120 for the train set and 280 for the test set. And 1,124 + 282 = 1,406.

In the Table 1, you could take three numbers after the decimal, instead six numbers.

=> **Reply**:

We have revised the sentences and expressions you pointed out in the paper. We are very grateful for your suggestions, which have helped make our paper smoother.

We have also corrected the number of samples in the dataset to 1406 samples in section "**4.1 Corpus"** and provided a URL for accessing our dataset. Additionally, we have added more

information in section "**3.3 Data processing"** to clarify how many samples in the dataset were manually labeled and how we did that.

Finally, we have changed three numbers after the decimal instead of six numbers in **"Table 1"**.