

## Affective Attention-Based BILSTM Models for Personality Prediction




Zohreh. Anisi Hemaseh<sup>1</sup>, Mohamad Al.. Afshar Kazemi<sup>2\*</sup>, Ehsan. Mousavi Khanghah<sup>3</sup>

<sup>1</sup> PhD Student, Department of Information Technology Management, Central Tehran Branch, Islamic Azad University, Tehran, Iran

<sup>2</sup> Associate Professor, Department of Industrial Management, Central Tehran Branch, Islamic Azad University, Tehran, Iran

<sup>3</sup> Associate Professor, Department of Computer Engineering, Shahed University, Tehran, Iran

\* Corresponding author email address: dr.mafshar@gmail.com

| E d i t o r   | R e v i e w e r s  |
|---|--|
| Asoke Kumar Saha <br>Professor Department of<br>Psychology, Jagannath University,<br>Dhaka, Bangladesh<br>drasoke@psychology.jnu.ac.bd | <b>Reviewer 1:</b> Azade Abooei <br>Department of Counseling, Faculty of Humanities, University of Science and Art,<br>Yazd, Iran. Email: a.abooei@tea.sau.ac.ir<br><b>Reviewer 2:</b> Roodabeh Hooshmandi <br>Department of Psychology and Counseling, KMAN Research Institute, Richmond<br>Hill, Ontario, Canada. Email: roodhooshmandi@kmanresce.ca |

### 1. Round 1

#### 1.1. Reviewer 1

Reviewer:

In the paragraph starting with "In recent years, with the development of computing technologies," the gap in prior research is mentioned but not detailed enough. Expand on the specific limitations of previous models (e.g., "high time and computational complexities") to better frame the novelty of your approach.

In the preprocessing section, the sentence, "We add syntactic information to each word by leveraging NLTK tools," lacks specifics. Detail how the inclusion of syntactic features improves model performance compared to traditional preprocessing.

The statement, "Its execution time has been reduced to 1/24 of the execution time of complicated models such as BERT," needs further elaboration on the computational setup and metrics used for this measurement (e.g., GPU/CPU type, dataset size).

The paragraph mentioning resistant traits, "Our proposed model improves some dimensions of personality traits, including Extroversion-Introversion and Intuition-Sensing," would benefit from detailing why these traits are particularly challenging and how the model addresses this challenge.

Authors revised and uploaded the document.

## 1.2. Reviewer 2

Reviewer:

The question posed, "how to provide a model with better performance so that the complexity of the previous models not only doesn't increase but also decreases?" could be rephrased as a formal research objective to enhance readability and precision.

The section reviewing Zhao et al.'s work states, "They leveraged BERT to generate sentence-level embedding and then added sentiment information," but does not compare this approach directly to the proposed model. Add a more detailed comparison to highlight distinctions and improvements.

The flowchart is informative but does not include the role of the ensemble model in the final prediction. Include this component to provide a complete picture of the workflow.

The formula, "Eq 4 shows the calculation of three weights for each dimension of VAD space," would benefit from an explanation of why these weights were chosen and how they were validated experimentally.

The bar graph showing the proportion of affective words for each personality type could include error bars or confidence intervals to indicate variability in the data.

In the table comparing baseline methods, highlight specific conditions under which your model outperformed others. This is only briefly mentioned in the text following the table.

Add additional metrics such as precision, recall, and F1-score to complement accuracy, especially since personality prediction is a multi-label classification problem.

The statement, "We propose a novel preprocessing method by using the syntactic role of words," should include a comparison of the proposed method's effectiveness against conventional methods using quantitative results.

The use of accuracy as the sole evaluation metric, mentioned in the methodology, is limiting for multi-label problems. Justify why accuracy was prioritized over other metrics like Hamming loss or macro-average F1.

The practical implications section mentions "personalization and hyper-personalization strategies," but does not detail specific industries or use cases. Expand on this to make the section more actionable.

Authors revised and uploaded the document.

## 2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.