

View Reviews

Paper ID	63
Paper Title	Psychiatric Scale Guided Risky Post Screening for Early Depression Detection

Reviewer #1

Questions

1. Please briefly summarize the main contributions of the paper in your own words. (Please do not include your evaluation of the paper here).

This paper proposes to firstly devise depression templates to screen risky posts, then use the HAN model to enhance the explainability of the depression detection, and finally boost inference efficiency with an online algorithm based on evolving queue of risky posts.

2. What are the main strengths of the paper? Please focus on novelty, soundness, significance and impact, relevance to AI, clarity of exposition, and credibility with regard to reproducibility (as specified in our reproducibility guidelines).

The proposed method is clearly described. The psychiatry-guided risky post screening can significantly reduce the data size, which is essential for real-time processing. Combined with the HAN model, convincing depression detection results are obtained. Apart from the comparison to other related methods, the authors also verify the impacts of components of the proposed method in the ablation study.

3. What opportunities are there to improve the paper?

The paper is well written and the results are promising. There is not much more need for improvement.

5. Overall assessment.

Clear Accept. Interesting. A very good submission. I learned a lot from this paper. I vote and argue for acceptance.

5. Justify your score in a few lines. Please focus on novelty, soundness, significance, expected impact, relevance to AI, impact on SDGs, clarity of exposition, and reproducibility.

The proposed pipeline is clear. Results, including the comparison with other works and ablation studies for different method components, show promising potentials for the depression detection.

7. Are the results in this paper easily reproducible ?

CREDIBLE: I believe that the obtained results can, in principle, be reproduced. Even though key resources (e.g., proofs, code, data) are unavailable at this point, the key details (e.g., proof sketches, experimental setup) are sufficiently well described for an expert to confidently reproduce the main results, if given access to the missing resources.

8. Independent of your judgement of the quality of the work, are there any ethical concerns with regard to responsible research or potential negative societal impacts of this submission that must be considered by IJCAI-ECAI 2022 before the paper can be accepted? Papers with a yes here will undergo additional ethical screening by track chairs of the program committee. In case of glaring violations of well accepted ethical principles, IJCAI-ECAI 2022 reserves the right to reject the submission. Please check our Ethics Policy in the Call for papers for more details.

Questions

1. Please briefly summarize the main contributions of the paper in your own words. (Please do not include your evaluation of the paper here).

The authors propose a psychiatric scale guided risky post screening method for early depression detection. The proposed method achieves SOTA performance in both conventional and ERD settings, advances explainable predictions and significantly reduces the number of model inferences to boost efficiency.

2. What are the main strengths of the paper? Please focus on novelty, soundness, significance and impact, relevance to AI, clarity of exposition, and credibility with regard to reproducibility (as specified in our reproducibility guidelines).

The proposed method not only achieves SOTA performance in both conventional and ERD settings, but also significantly reduces the number of model inferences to boost efficiency, resulting in a more efficient ERD solution than simple logistic regression models. The proposed method also provides symptom-based interpretations, which is a vital property for depression detection.

3. What opportunities are there to improve the paper?

1. As claimed by the authors, current sentence representations have difficulty in capturing such nuanced differences of depression measures. Please clarify the impact of different templates (i.e, well-constructed vs original sentences)? Will combining multiple depression measures (BDI-II, PHQ-9, HDRS, etc) be helpful for depression detection?
2. Early depression prediction is a tradeoff between accuracy and earliness, with t as small as possible, but there is a lack of ablation study with various t values.
3. Risky post queue is the key to boost model efficiency, but it is unclear of the impact of different lengths of risky post queue.

5. Overall assessment.

Weak Accept. Useful. A good paper. The results and insights will benefit the field. I believe it should be accepted.

5. Justify your score in a few lines. Please focus on novelty, soundness, significance, expected impact, relevance to AI, impact on SDGs, clarity of exposition, and reproducibility.

This paper is well written and easy to read. The proposed method not only achieves SOTA performance in both conventional and ERD settings, but also can be a more efficient ERD solution than simple Logistic Regression models.

The proposed method also provides symptom-based interpretations, which is a vital property for depression detection.

Various ablation studies have been conducted to evaluate the proposed approaches.

7. Are the results in this paper easily reproducible ?

CREDIBLE: I believe that the obtained results can, in principle, be reproduced. Even though key resources (e.g., proofs, code, data) are unavailable at this point, the key details (e.g., proof sketches, experimental setup) are sufficiently well described for an expert to confidently reproduce the main results, if given access to the missing resources.

8. Independent of your judgement of the quality of the work, are there any ethical concerns with regard to responsible research or potential negative societal impacts of this submission that must be considered by IJCAI-ECAI 2022 before the paper can be accepted? Papers with a yes here will undergo

additional ethical screening by track chairs of the program committee. In case of glaring violations of well accepted ethical principles, IJCAI-ECAI 2022 reserves the right to reject the submission. Please check our Ethics Policy in the Call for papers for more details.

No

Reviewer #3

Questions

1. Please briefly summarize the main contributions of the paper in your own words. (Please do not include your evaluation of the paper here).

The paper presents a succinct and novel model, named as Hierarchical Attentional Network equipped with BERT (HAN-BERT), which aims to extract representations of the K risky posts, and proposes an online algorithm based on evolving queue of risky posts.

2. What are the main strengths of the paper? Please focus on novelty, soundness, significance and impact, relevance to AI, clarity of exposition, and credibility with regard to reproducibility (as specified in our reproducibility guidelines).

Proposed an online algorithm based on evolving queue of risky posts.

3. What opportunities are there to improve the paper?

the compared methods are too old, and the recent deep learning methods such as Yates et al.[2017] should be compared.

5. Overall assessment.

Weak Accept. Useful. A good paper. The results and insights will benefit the field. I believe it should be accepted.

5. Justify your score in a few lines. Please focus on novelty, soundness, significance, expected impact, relevance to AI, impact on SDGs, clarity of exposition, and reproducibility.

The paper is organized clearly, and the methods are explanatory

7. Are the results in this paper easily reproducible ?

CREDIBLE: I believe that the obtained results can, in principle, be reproduced. Even though key resources (e.g., proofs, code, data) are unavailable at this point, the key details (e.g., proof sketches, experimental setup) are sufficiently well described for an expert to confidently reproduce the main results, if given access to the missing resources.

8. Independent of your judgement of the quality of the work, are there any ethical concerns with regard to responsible research or potential negative societal impacts of this submission that must be considered by IJCAI-ECAI 2022 before the paper can be accepted? Papers with a yes here will undergo additional ethical screening by track chairs of the program committee. In case of glaring violations of well accepted ethical principles, IJCAI-ECAI 2022 reserves the right to reject the submission. Please check our Ethics Policy in the Call for papers for more details.

No

Reviewer #4

Questions

1. Please briefly summarize the main contributions of the paper in your own words. (Please do not include your evaluation of the paper here).

This paper proposed a method to tackle ERD. First, it selects salient content for analysis. It reduces the input size and endows symptom-based interpretations. Second, it utilizes hierarchical attentional network with BERT to enhance the model accuracy and explainability. Third, it presented an online algorithm based on an evolving queue of risky posts, improving timeliness and accuracy.

2. What are the main strengths of the paper? Please focus on novelty, soundness, significance and impact, relevance to AI, clarity of exposition, and credibility with regard to reproducibility (as specified in our reproducibility guidelines).

1. This paper is clear to read.
2. The framework of the proposed method is clear.
3. The process of proposed method is easy to read.

3. What opportunities are there to improve the paper?

1. There are some spelling errors, such as ascertain(ascertain) in Introduction.
2. Experiment to evaluate the efficiency is not enough.
3. You need reveal more details of your experiment setting such as training iterations and optimizer, so that others can reproduce your results.
4. Table 2 shows that different selections of post have different results. What about the result of HAN-GRU and BERT with Psych strategy?
5. The reported performance is the best among three seeds. The standard deviation is an important indicator. What is the value of standard deviation?
6. Is there any suggested number of post remaining?

5. Overall assessment.

Borderline Accept. Marginally above the acceptance threshold. Technically correct, but not particularly exciting or inspiring. Could be accepted more or less in its current form. Not a big loss if it is not included in the program. Please use sparingly.

5. Justify your score in a few lines. Please focus on novelty, soundness, significance, expected impact, relevance to AI, impact on SDGs, clarity of exposition, and reproducibility.

this paper is sound and leads to the better performance.

7. Are the results in this paper easily reproducible ?

CREDIBLE: I believe that the obtained results can, in principle, be reproduced. Even though key resources (e.g., proofs, code, data) are unavailable at this point, the key details (e.g., proof sketches, experimental setup) are sufficiently well described for an expert to confidently reproduce the main results, if given access to the missing resources.

8. Independent of your judgement of the quality of the work, are there any ethical concerns with regard to responsible research or potential negative societal impacts of this submission that must be considered by IJCAI-ECAI 2022 before the paper can be accepted? Papers with a yes here will undergo additional ethical screening by track chairs of the program committee. In case of glaring violations of well accepted ethical principles, IJCAI-ECAI 2022 reserves the right to reject the submission. Please check our Ethics Policy in the Call for papers for more details.

No

