

Title: *Stress Analysis in Social Media in Bengali language using BERT-based approaches*

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Abstract: Recent researches highlight a rapid increase in mental health issues, signaling a concerning rise in stress-related conditions such as high blood pressure, psoriasis, polycystic ovary syndrome (PCOS), etc., and these should have a sophisticated remedy that plays a big role in stress analysis. To proceed with that the ongoing connection between increased stress levels and social media has gained a lot of attention. This study focused on inspecting a complex language, Bengali by extracting comments from YouTube to analyze stress to provide a meaningful solution. We are aware of no research on stress analysis in the Bengali language, although many studies have been done on the same topic in other languages. Thus by paying closer attention to stress analysis in the Bengali language, our work suggested a BERT-based method that has shown good results on a range of NLP tasks. Our approach included Bangla-BERT-base and hybrid models that combine deep and transfer learning, like BERT-LSTM, BERT-GRU, and BERT-CNN-BiLSTM. Our task performed well with an accuracy of 90.36% in stress analysis utilizing the Bengali dataset. Our experiment also helped to get an understanding that hybrid models had an influence in increasing the performance of the BERT-base model. Though our research has made little contribution to the BNLN field considering its vast aspect, expanding the Bengali dataset and conducting further multi-class stress analysis work can have a remarkable contribution.

Keywords: Analytical models, Video on demand, Social networking (online), Computational modeling, Psoriasis, Transfer learning

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