Does everybody hurt? AI detects depression online

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A study in the *International Journal of Computational Systems Engineering* has introduced a new approach to identifying depression through the analysis of online comments, particularly on social media platforms, including Reddit, one of the earliest and still-popular microblogging systems.

K.G. Saranya, C.H. Babitha Reddy, M. Bhavyasree, M. Rubika, and E. Varsha of PSG College of Technology in Coimbatore, India, have used machine learning techniques, specifically the BERT model, to pick out signs of depression in the language patterns used online discussions.

The BERT (Bidirectional Encoder Representations from Transformers) model is a type of natural language processing (NLP) model developed by researchers at Google in 2018. It belongs to the family of Transformer models, which have become increasingly popular in NLP tasks due to their effectiveness in capturing long-range dependencies in text.

In contemporary health discussions, mental well-being has come to the fore, especially since the peak of the COVID-19 pandemic. The current research could fill critical gaps in conventional mental health diagnostics.

Where traditional approaches remain challenging, there is a need for more wide-ranging methods that might be used to identify issues as they arise without the need to head into the clinic for full-blown assessment prior to a health care intervention.

The BERT model has promise in accurately distinguishing between individuals exhibiting signs of depression and those who are not. The team explains that their approach integrates collaborative filtering techniques to recommend tailored therapies based on identified

depression patterns. It has an accuracy rate of 87 percent which obviously leaves room for improvement, which is where further investigation or help would come into its own.

The implications of this research are far-reaching. By harnessing the power of AI and computational methods, early diagnosis of mental health problems, specifically depression in this instance, could become more accessible and efficient.

The ability to detect depression through online interactions could free up health care workers to work with more challenging cases, but more importantly for the individual, allow earlier diagnosis and intervention to support them when they face, previously unrecognized mental problems.

The next step will be to expand the dataset to other online communities with different userbases, ethos, and approach to allow accurate and applicable diagnoses to be made essentially independently of the platform being analyzed. The team will continue to refine the algorithms used and thus to improve accuracy and develop approaches to offer personalized interventions and treatments tailored to the individual.

More information: K.G. Saranya et al, Depression prediction and therapy recommendation using machine learning technique, *International Journal of Computational Systems Engineering* (2024). DOI: 10.1504/IJCSYSE.2024.137475

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