

# Exploring Sentiment Detection of Social Media Posts with Motion Aware AI

Kavita Gadakh<sup>1</sup>, Shrushti Kale<sup>2</sup>, Yogini Pawar<sup>3</sup>, Kirti Kadlag<sup>4</sup>, Prof. N. L. Bhale<sup>5</sup>

Students, Department of Information Technology<sup>1,2,3,4</sup>

Professor, Department of Information Technology<sup>5</sup>

Matoshri College of Engineering & Research Center, Nashik, Maharashtra, India

**Abstract:** In today's world, early detection of depression is a critical issue within the field of psychology. Mental health problems have become a significant global challenge, affecting more than 300 million people suffering from depression alone. With the wealth of user-generated content on social media platforms, researchers are increasingly turning to machine learning to explore whether this data can be leveraged to identify mental health issues in individuals. Depression, in particular, remains a major concern in society, and researchers worldwide continue to investigate this topic. Despite extensive research into understanding individual moods, including depression, anxiety, and stress, using data from devices like smartphones, predicting depressive moods remains an open question. Social network analysis is a key approach to address this challenge. In this paper, we propose a system for analyzing depression and detecting suicidal ideation by predicting potential suicidal acts based on the level of depression. Our study utilizes machine learning techniques to identify depressed social media users through their posts. We trained and tested classifiers to determine whether a user is experiencing depression by analyzing features extracted from their posts. We employed machine learning classification algorithms to predict different stages of depression on a scale from 0 to 100%. Data was collected in the form of posts and classified to determine whether the user was experiencing depression using machine learning algorithms. This approach aims to enable early detection of depression and other mental illnesses. A significant contribution of this study is the exploration of various features and their impact on depression detection. Furthermore, we aim to develop a deep learning model for classifying users with depression using multiple-instance learning. This model learns from user-level labels to identify post-level labels. By considering all possible post-label categories, it generates temporal posting profiles that help classify users with depression. The research demonstrates clear differences in posting patterns between users with depression and those without, which is indicated by the combined likelihood of post-label categories. In this study, machine learning is applied to process data scraped from social media users' posts, using Natural Language Processing (NLP) and the BERT algorithm to detect depression potentially more efficiently and conveniently.

**Keywords:** Machine Learning, NLP, BERT Algorithm, Depression, Classification, Social Media Post

## REFERENCES

- [1]. N. A. Asad, M. A. Mahmud Pranto, S. Afreen and M. M. Islam, "Depression Detection by Analyzing Social Media Posts of User," 2019 IEEE International Conference on Signal Processing, Information, Communication & Systems (SPICSCON), Dhaka, Bangladesh, 2019, pp. 13- 17, doi: 10.1109/SPICSCON48833.2019.9065101.
- [2]. K. Katchapakirin, K. Wongpatikaseree, P. Yomaboot and Y. Kaewpitakkun, "Facebook Social Media for Depression Detection in the Thai Community," 2018 15th International Joint Conference on Computer Science and Software Engineering (JCSSE), Nakhonpathom, 2018, pp. 1-6, doi: 10.1109/JCSSE.2018.8457362.
- [3]. P. Arora and P. Arora, "Mining Twitter Data for Depression Detection," 2019 International Conference on Signal Processing and Communication (ICSC), NOIDA, India, 2019, pp. 186-189, doi: 10.1109/ICSC45622.2019.8938353.

- [4]. A. U. Hassan, J. Hussain, M. Hussain, M. Sadiq and S. Lee, "Sentiment analysis of social networking sites (SNS) data using machine learning approach for the measurement of depression," 2017 International Conference on Information and Communication Technology Convergence (ICTC), Jeju, 2017, pp. 138- 140, doi: 10.1109/ICTC.2017.8190959.
- [5]. M. Deshpande and V. Rao, "Depression detection using emotion artificial intelligence," 2017 International Conference on Intelligent Sustainable Systems (ICISS), Palladam, 2017, pp. 858-862, doi: 10.1109/ISS1.2017.8389299.
- [6]. S. Jain, S. P. Narayan, R. K. Dewang, U. Bhartiya, N. Meena and V. Kumar, "A Machine Learning based Depression Analysis and Suicidal Ideation Detection System using Questionnaires and Twitter," 2019 IEEE Students Conference on Engineering and Systems (SCES), Allahabad, India, 2019, pp. 1-6, doi: 10.1109/SCES46477.2019.8977211.
- [7]. B. Yalamanchili, N. S. Kota, M. S. Abbaraju, V. S. S. Nadella and S. V. Alluri, "Real-time Acoustic based Depression Detection using Machine Learning Techniques," 2020 International Conference on Emerging Trends in Information Technology and Engineering (ic-ETITE), Vellore, India, 2020, pp. 1-6, doi: 10.1109/icETITE47903.2020.394.
- [8]. Yates, A., Cohan, A., and Goharian, N.: Depression and self-harm risk assessment in online forums. arXiv preprint arXiv:1709.01848 (2017).
- [9]. Seabrook, E.M., Kern, M.L., Fulcher, B.D., and Rickard, N.S.: Predicting depression from language-based emotion dynamics: longitudinal analysis of Facebook and Twitter status updates. *Journal of Medical Internet Research* 20 (5), e168 (2018).
- [10]. O'Dea B, et al. Detecting suicidality on Twitter. *Internet Interv.* 2015;2(2):183–188. doi: 10.1016/j.invent.2015.03.005