

# Further Application of Forecasting Depression Level and Suicidal Risk Through Text Mining

Our goal is to forecast people's depression level and suicidal risk from their social media text. To achieve this, we first preprocess the dataset and extract useful features from it. Then, we split the dataset into training and testing. Finally, we try different models to predict the depression level and find the best fit for the observed data. Predicting level of depression from social media posts can be applied to real life situations in order to help people who suffer from depression and suicidal thoughts.

In the first application, we can have the user enter a social media account or link, and the prediction tool will then automatically capture the user's social media posts and give them a level of suicidal risk. This model can be incorporated into apps or websites that offer online psychological help. It assesses the risk of suicide and the level of depression and returns the user the classification result. If the result shows a high suicidal risk or some possibility of depression, then the user is advised to go to a hospital for further treatment and seek for psychological help from professionals.

Secondly, People who are worried about their friends and family experiencing depression may use this tool to identify risks and provide effective early support. However, this approach may involve some privacy and ethical issues.

Third, the model could help support psychiatrists in making more structured decisions. Currently, the clinical diagnosis of depression is based on the ICD-10 or DSM-V diagnostic criteria, combined with patient interviews, scales, and physician experience. This approach is restricted to one-on-one testing and may easily lead to misdiagnosis due to subjective factors such as patient cooperation and physician proficiency. In addition, due to the lack of patient awareness and early screening tools, patients may have reached a severe depression level by the time of diagnosis. Therefore, using this depression prediction tool,

doctors could identify patients' mental health problems early. Conversely, if a patient has been diagnosed with depression and is receiving treatment, the model can help doctors assess the patient's recovery.

The fourth possible application is that mental health organizations could do advertising campaigns with targeted viewers. As users' posts are automatically captured to analyze their mental health status. If the classification results indicate some possibility of suicidal depression, then they could be offered ads for a psychiatrist or counselling hotline. Similarly, this action will need users' consent of a certain privacy policy.

In conclusion, this prediction tool could be very helpful for people experiencing mental depression, and it could be applied to many fields. We really hope people suffering from mental illness could use our model as an early screening, and get help at the early stage.