

Identifying Level of Depression with the Help of Machine Learning

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1 Introduction

Depression is the most common psychological disorder that creates strenuous complexities while treating with existing medications. According to WHO, more than 264 million people are affected worldwide.[1] This is a serious condition that can affect anyone from any age group. The severity of this malady enforced in advancement of various machine learning methods to assist the treatment process of depressive disorders.

Neuroscientists around the world are utilizing machine learning to produce steady treatment for patients.[2] By implementing Artificial Neural Network (ANN) and Support Vector Machine (SVM) the model will be able to provide a rational and logical outcome to predict if a person is depressed or not. We have obtained the raw unprocessed data for this project from a reliable source. The following step is to apply various data engineering methods to process the data and divide it into two parts, test set(0.2), and train set. So that we can train the ANN on eight thousand observations and test its performance on two thousand observations. Moreover, the goal is to build a classifier.

1.1 Objectives

- To prognosticate the depression level among adult demographic.
- Several groups will be identified according to the severity of depression based on our model's prediction.
- An insight into the tremendous hardship that people are going through due to depression and propose an intuitive solution to minimize the damage.

1.2 Motivation

Millions of people are experiencing depression but still, it hasn't been taken seriously in many countries. In many places, there are not even adequate facilities to have an actual diagnosis. Besides, the lack of proper treatment and diagnosis makes the patient's condition more detrimental over time. Many get overwhelmed by their situation that it reaches to a boiling point, which results in self-destruction.

If our model can accurately predict the actual level of someone being depressed that will be unprecedented. Even though there are already existing machine learning models showing significant promise in this delicate sector. But still, there are tremendous possibilities to improve on a large scale with more research.

References

- [1] WHO, "Depression." <https://www.who.int/news-room/fact-sheets/detail/depression>, Jan. 2020.
- [2] A. Z. M. S. A. R. . C. R. Victor, E., "Detecting depression using a framework combining deep multimodal neural networks with a purpose-built automated evaluation.," *Psychological Assessment*, vol. 31, no. 8, p. 1019–1027, 2019.