Depression Detection Using Deep Learning

Prasad Khodave[1], Sanket Godge[2], Shreyas Jadhav[3], Prof. Mr. Uttam Patole[4]

Students[1] & [4]Prof. of Department of Computer Engineering,
Sir Visvesvaraya Institute of Technology, Nashik, Maharashtra, India
Savitribai Phule Pune University, Pune, Maharashtra, India

Abstract: *The proportion of individuals with depression has rapidly increased along with the growth of the global population. Depression has been the currently most prevalent mental health disorder. An effective depression recognition system is especially crucial for the early detection of potential depression risk. A depression-related dataset is also critical while evaluating the system for depression or potential depression risk detection. Due to the sensitive nature of clinical data, the availability and scale of such datasets are scarce. Depression is classified as a mood disorder. It may be described as feelings of sadness, anger, or loss that interfere with a person's everyday activities. People experience depression in different ways. In certain cases, depression may lead to fatal cases. To avoid all of these, depression must be detected at the earliest and victim must be treated with appropriate remedies. The objective of the project is to analyze the emotion of a user using real-time video. This is achieved using Convolutional Neural Networks [CNN]. The final decision result comes from the combination of the two models. Finally, we evaluate all proposed deep models on our built dataset. The experimental results demonstrate that (1) our proposed method can identify patients/users with potential depression risk; (2) the recognition performance of combined 2D and 3D features model outperforms using either 2D or 3D features model only; (3) the performance of depression recognition is higher in the positive and negative emotional stimulus. Meanwhile, we compare the performance with other methods on the same dataset.*

Keywords: Convolutional Neural Networks [CNN], Machine Learning, Depression Detection, Face Recognition, Classification, Dataset, etc

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