

ABSTRACT

Insufficient psychiatrists in low-income areas hinder proper depression diagnosis, making early detection crucial for reducing economic burdens and saving lives. This project aims to utilize deep learning on voice samples from the DAIC-WOZ database to address this challenge. Leveraging technology for remote monitoring is essential, despite data availability challenges.

The project evaluates the system's components and processes, starting with vocal expressions as input, typically audio recordings of speech. Preprocessing involves cleaning and transforming data, including noise reduction and feature extraction. Convolutional neural networks (CNNs) then analyze these features, learning to differentiate between depressed and non-depressed speech. After training, the system classifies new samples for depression.

Challenges include dataset bias, generalization, interpretability, and ethical considerations. Addressing these ensures the system's effectiveness, fairness, and ethical use. Analyzing the system is crucial for understanding its capabilities, limitations, and real-world implications, which guide its deployment. This project not only aims to advance the use of deep learning in mental health diagnostics but also emphasizes the importance of ethical considerations and robustness in real-world applications.