

Intelligent Mental Health Classification using Motivational Conversation

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Abstract: *In recent years, mental health challenges such as depression, anxiety, PTSD, and loneliness have intensified globally, yet barriers like stigma, limited access to professionals, and diagnostic subjectivity continue to hinder timely intervention. This research presents an intelligent and accessible system for mental health classification using structured questionnaire data and machine learning. The system is built around a Random Forest classifier trained on curated datasets to detect patterns associated with six major mental health conditions. Unlike traditional diagnostic tools, this solution offers a lightweight, browser-based interface that requires no user registration and ensures anonymity.*

The methodology involves binary-encoded input processing, rigorous pre-processing, and real-time classification, followed by condition-specific motivational feedback. The classifier was evaluated using standard metrics such as accuracy, precision, recall, and F1-score to validate its performance. The model demonstrated high reliability, especially in classifying depression and anxiety disorders. Additionally, a dynamic feedback module was integrated to deliver empathetic, tailored support messages based on the predicted condition.

The results indicate that the machine can serve as a valuable initial screening aid, removing the distance between the learning awareness and professional consultation. The system is designed to adopt widespread adoption in scalable, cost-effective and educational, rural and underworld environments. This task highlights the possibility of AI making mental health care democratic and lifts the future enhancement associated with multimodal data and personal intervention

Keywords: Mental Health Classification, Machine Learning, Depression Detection, Anxiety Prediction, Mental Health Diagnosis

