

Psychological AI First Aid for Mental Relaxation: A Privacy-Preserving, Emotion-Aware Support Framework

A. Murugeswari

Assistant Professor, Department of AI &DS, RVS College of Engineering and Technology, Coimbatore, Tamil Nadu, India

M. Sandhiya

M.E CSE-AI &ML, Department of AI &DS, RVS College of Engineering and Technology, Coimbatore, Tamil Nadu, India

Abstract

Dhiya AI is an intelligent and empathetic mental health support system designed using advanced artificial intelligence techniques to provide accessible, private, and real-time emotional assistance. At the core, a multimodal deep learning model combined with affective computing and Natural Language Processing (NLP) is implemented to interpret user emotions based on facial expressions, written inputs, and conversational turns. A mood analyzer is developed through ConvLSTM networks which can handle temporal patterns in the textual data to separate emotional fluctuations as well as long term mental rides while deep learning-based facial expression recognition used for affect detection. The outputs of two models are merged into a single emotional representation to perform accurate and individualized interventions. Furthermore, a Generative AI-based chatbot furnishes supportive and context-aware advice with respect to mental health principles. With generative AI and state-of-the-art emotion analysis, Dhiya is a well-rounded mental health assistant for users with zero registration requirements to become the go-to source for increasing emotional awareness, detecting early signs of distress all while providing empathy.

Keywords

Natural Language Processing (NLP), Affective Computing, ConvLSTM, Facial Expression Recognition, Generative AI, Multimodal Emotion Analysis, Mental Health Support, Deep Learning.

