

Deep Learning Based Interactive Dashboard for Enhancing Online Classroom Experience through Student Emotion Analysis

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Abstract: *The rapid shift toward online education has highlighted challenges in maintaining student engagement and monitoring emotional well-being during virtual classes. Traditional teaching methods often fall short in providing real-time feedback on students' emotional states, leading to decreased interaction and learning effectiveness. This project proposes the development of an interactive dashboard powered by deep learning-based facial expression recognition to address this issue. The system captures live video feeds during online classes, detects student faces, and classifies emotional states such as boredom, confusion, interest, and frustration. These emotional trends are then visually presented on a dynamic dashboard, enabling teachers to assess student engagement in real-time. By providing timely emotional insights, the proposed system empowers educators to adapt their teaching strategies, foster more meaningful interaction, and enhance the overall online learning experience*

Keywords: Online education, Student enagement, Facial Expression Recognition, Emotion detection, Deep learning, Interactive Dashboard, Student emotions, Teaching Strategies

