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Music recommendation system based on facial expressions, with or without face mask

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ABSTRACT

This **MOOD TUNES** music recommendation system utilizes facial expressions to determine the user's mood and preferencesDue to its versatility and utility in the present pandemic crisis, this device can function well in both disguised and unmasked circumstances. Although earlier research looked into music suggestion and facial expression recognition separately, the particular difficulty presented by face masks calls for particular consideration. The accuracy of models or the integration of numerous emotions in the context of mask-wearing have not been fully addressed by previous research. This study intends to explore how emotions are perceived and conveyed when facial characteristics like the eyes and brows serve as the main external cues owing to masks that partially hide the face.

The study suggests a unique method for reliably identifying facial expressions of emotion and making music suggestions. Modified activation keys, specific CNN layers, and cutting-edge methodologies are used in this method. In order to properly collect emotional information, the difficulty of face masks is handled by analyzing observable facial characteristics such the eyes and brows. The suggested approach entails changing CNN architectures with specific layers, attention mechanisms, or feature fusion modules to enhance the extraction of emotional information. Unique activation keys direct the network's emphasis on pertinent face areas, increasing facial emotion recognition's accuracy and robustness while reducing the effect of face masks.

The proposed system underwent testing against other music recommendation services using a dataset of user facial expressions, with and without face masks. The outcomes showed that, in terms of accuracy and user happiness, our system surpasses rival systems. Importantly, even when users are using face masks, our system reliably recognizes and categorizes facial emotions. Deep learning and image processing techniques were used to make this accomplishment possible, which led to a high degree of accuracy in face emotion prediction.

Keywords: Face emotion detection, Music recommendations, Image processing and deep learning