

Facial Emotion Recognition using Convolutional Neural Networks

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Abstract: Facial emotion recognition is a critical task in the field of computer vision with applications ranging from human-computer interaction to emotion-driven marketing strategies. Convolutional Neural Networks (CNNs) have demonstrated remarkable success in various image analysis tasks, including facial emotion recognition. This paper presents a comprehensive study on the application of CNNs for facial emotion recognition. The proposed approach leverages the hierarchical feature learning capabilities of CNNs to automatically extract discriminative features from facial images, enabling accurate emotion classification. We experiment with different CNN architectures, data preprocessing techniques, and training strategies to achieve state-of-the-art performance on benchmark emotion recognition datasets. Additionally, we explore the challenges and limitations of CNN-based facial emotion recognition systems and discuss potential avenues for future research. This study contributes to the advancement of emotion recognition technology, highlighting the potential impact of deep learning techniques in understanding and interpreting human emotions from facial expressions.

Keywords: Facial emotion recognition, Convolutional Neural Networks, Deep learning, Image analysis, Emotion classification, Human-computer interaction.

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