Emotion Detection using Convolutional Neural Networks

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Abstract: *Real-time emotion recognition has been an active field of research over the past several decades. A Light Weight Emotional Recognition (LWER) system has been proposed in this project by using facial expression. Compared with other conventional method, the LWER system has low test time along with higher accuracy. Facial expressions convey non-verbal information between humans in face-to-face interactions. Automatic facial expression recognition, which plays a vital role in human-machine interfaces, has attracted increasing attention from researchers since the early nineties. Classical machine learning approaches often require a complex feature extraction process and produce poor results. In this paper, we apply recent advances in deep learning to propose effective deep Convolutional Neural Networks (CNNs) that can accurately interpret semantic information available in faces in an automated manner without hand-designing of features descriptors. We also apply different loss functions and training tricks in order to learn CNNs with a strong classification power. The experimental results show that our proposed networks outperform state-of-the-art methods on the well-known FERC-2013 dataset provided on the Kaggle facial expression recognition competition. In comparison to the winning model of this competition, the number of parameters in our proposed networks intensively decreases, that accelerates the overall performance speed and makes the proposed networks well suitable for real-time systems.*

Keywords: Emotion Recognition, Convolutional Neural Networks, Deep Learning, FERC-2013, etc.

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