

Improving the Performance of Deep Learning in Facial Emotion Recognition with Image Sharpening

Authors : Ksheeraj Sai Vepuri, Nada Attar

Abstract : We as humans use words with accompanying visual and facial cues to communicate effectively. Classifying facial emotion using computer vision methodologies has been an active research area in the computer vision field. In this paper, we propose a simple method for facial expression recognition that enhances accuracy. We tested our method on the FER-2013 dataset that contains static images. Instead of using Histogram equalization to preprocess the dataset, we used Unsharp Mask to emphasize texture and details and sharpened the edges. We also used ImageDataGenerator from Keras library for data augmentation. Then we used Convolutional Neural Networks (CNN) model to classify the images into 7 different facial expressions, yielding an accuracy of 69.46% on the test set. Our results show that using image preprocessing such as the sharpening technique for a CNN model can improve the performance, even when the CNN model is relatively simple.

Keywords : facial expression recognition, image preprocessing, deep learning, CNN

Conference Title : ICIMCS 2021 : International Conference on Internet Multimedia Computing and Service

Conference Location : Cape Town, South Africa

Conference Dates : April 15-16, 2021