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Affective Computing for Visual Emotion Recognition Using Convolutional Neural Networks (Conference Paper)

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Abstract

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Affective computing is a developing interdisciplinary examination field uniting specialists and experts from different fields, from artificial intelligence, natural language processing to intellectual and sociologies. The thought behind affective computing is to give computers the aptitude of insight that will, in general, comprehend human feelings. Notwithstanding these victories, the field needs hypothetical firm establishments and efficient rules in numerous regions, especially in feeling demonstrating and developing computational models of feeling. This exploration manages affective computing to improve the exhibition of Human-Machine Interaction. This work's focal point is to distinguish the emotional state of a human utilizing deep learning procedure, i.e., Convolutional Neural Networks (CNN) containing parameters like three convolution layers, pooling layers, learning rates, two fully connected layers, batch normalizations, and dropout ratios. The Warsaw Set of Emotional Facial Expression Pictures dataset has been utilized to build up a feeling acknowledgment model, which will have the option to perceive five facial feelings, including happy, sad, anger, surprise, and neutral. The database was selected based on its validation study of facial display photographs. Dataset was split based on a 65:35 ratio for training and testing/validation, respectively. The proposed framework design and the strategy has been discussed in this paper alongside the experimental findings. Our model's recognition accuracy came out to be 80% and 83.33% for validation set 1 and validation set 2, respectively. The performance parameters have also been evaluated in terms of the confusion matrix, recall, and precision. © 2021, The Author(s), under exclusive license to Springer Nature Switzerland AG.

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