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Facial Emotion Recognition with Convolutional Neural Network Based Architecture

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Abstract : Neural networks are appealing for many applications since they are able to learn complex non-linear relationships between input and output data. As the number of neurons and layers in a neural network increase, it is possible to represent more complex relationships with automatically extracted features. Nowadays Deep Neural Networks (DNNs) are widely used in Computer Vision problems such as; classification, object detection, segmentation image editing etc. In this work, Facial Emotion Recognition task is performed by proposed Convolutional Neural Network (CNN)-based DNN architecture using FER2013 Dataset. Moreover, the effects of different hyperparameters (activation function, kernel size, initializer, batch size and network size) are investigated and ablation study results for Pooling Layer, Dropout and Batch Normalization are presented.

Keywords : convolutional neural network, deep learning, deep learning based FER, facial emotion recognition
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