**FACIAL EXPRESSION RECOGNITION USING SALIENT FEATURES AND CONVOLUTIONAL NEURAL NETWORK**

[Facial expression](https://www.sciencedirect.com/topics/engineering/facial-expression) recognition has been an active research area in the past 10 years, with growing application areas including avatar animation, neuromarketing and sociable robots. The recognition of facial expressions is not an easy problem for machine [learning methods](https://www.sciencedirect.com/topics/computer-science/learning-method), since people can vary significantly in the way they show their expressions. Even images of the same person in the same facial expression can vary in brightness, background and pose, and these variations are emphasized if considering different subjects (because of variations in shape, ethnicity among others). Although facial expression recognition is very studied in the literature, few works perform fair evaluation avoiding mixing subjects while training and testing the proposed algorithms. Hence, facial expression recognition is still a challenging problem in [computer vision](https://www.sciencedirect.com/topics/computer-science/computer-vision). In this work, we propose a [simple solution](https://www.sciencedirect.com/topics/engineering/simple-solutions) for facial expression recognition that uses a combination of [Convolutional Neural Network](https://www.sciencedirect.com/topics/engineering/convolutional-neural-network" \o "Learn more about Convolutional Neural Network) and specific image [pre-processing](https://www.sciencedirect.com/topics/computer-science/preprocessing) steps. [Convolutional Neural Networks](https://www.sciencedirect.com/topics/engineering/convolutional-neural-networks" \o "Learn more about Convolutional Neural Networks) achieve better accuracy with [big data](https://www.sciencedirect.com/topics/computer-science/big-data).  we apply some [pre-processing techniques](https://www.sciencedirect.com/topics/computer-science/preprocessing-technique) to extract only expression [specific features](https://www.sciencedirect.com/topics/computer-science/specific-feature) from a [face image](https://www.sciencedirect.com/topics/engineering/face-image) and explore the presentation order of the samples during training.