

Facial Expressions Recognition

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Abstract—The objective of this work is creating a system for facial expressions recognition. This system is sensitive to large variations in lighting and directions to different genders and ages, using artificial intelligent algorithms such as (training, classification) and computer vision tools to implement our work like the OpenCV library, this last, proved that it is one of the best tools to simulate the human actions. So basically, in this work we used the HAAR cascade classifier to achieve the first step which is the face detection, where we built negative and positive datasets and specified the number of stages to train theme (the higher number you get the best results you will have) by the end of this we should have a system which can detect the human face in different situations. In the second step, which is the feature extraction by projecting the faces from the " Cohn-Kanade AU-Coded Facial Expression Database " using fisherface approach which's a method based on the Principal Component Analyze PCA and the Linear Discriminate Analyze LDA to extract the main features alongside a special value represent each of the expressions in a specific position in the vector extracted. Then applying the whole system on a live stream camera and extract the victor from the input face, finally loading a similar vector from the trained expressions database to put up the final expression.

Keywords—*Human-Computer Interaction; Pattern Recognition; OpenCV.*