

ABSTRACT

Ever since computers have been able to process images and perform complex calculations there has been a fascination with machines that can interact with humans intelligently and at a more personal level. One such example would be a system that can identify human facial expressions and react in a manner similar to how other humans would. In this project given two frontal face images of an individual the first being a non-expressive (base image) and the second showing an expression (expressive image) we attempt to recognize the expression being indicated as either a “frown” “smile” or “surprise”.

The project involves performing face detection and feature extraction on the two input images and then “subtracting” the resultant features of the expressive image from the base image. This step will quantize the “change” in the individual’s facial features. This change is then fed into a neural network which is trained on a large number of image sets of the given individual. Further, this project aims to improve the accuracy of current emotion recognition systems by developing, modifying and combining multiple sophisticated image processing algorithms for feature extraction followed by a novel normalization and subtraction process and then harnessing the power of a Multilayer Perceptron Neural Network.