

Facial Emotion Recognition with Artificial Intelligence Techniques

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Abstract

In this paper we present a novel automatic facial expressions recognition method based on combining HLAC (Higher Local Autocorrelation) and LBP (Local Binary Patterns) features for recognizing seven basic human facial expressions: angry, disgust, fear, happy, neutral, sad, surprise. Additionally, our system allows characterizing a user's emotional state in terms of the seven universal expressions. We use JAFFE (Japanese Female facial Expression) database of facial images, organizing in training and testing sets for evaluation. In the proposed system we initially apply face detection and then extract HLAC and LBP features from the rescaled images. KNN (Euclidean Distance) is adopted for classification. Experiments illustrate that this method is efficient for facial expression recognition compared with other features extraction method. The proposed method reports a 81.49% classification accuracy rate.

Keywords: facial expression, face detection, HLAC (Higher Local Autocorrelation), LBP (Local Binary Patterns), JAFFE (Japanese Female facial Expression)