A Hybrid Approach of Facial Emotion Detection using Genetic Algorithm along with Artificial Neural Network

Volume 175 - Number 4

Year of Publication: 2017

Authors:
Amrendra Sharan, Sunil Kumar Chhillar

Abstract

The facial emotion recognition from facial expression is one of the most imperative intellectual functions that our brain performs quite efficiently. For a single person, facial expressions may be different at different instances and this is a great task to recognize the emotion from their facial expressions. This work is an attempt to look at the task of emotion recognition using artificial intelligence which is cognitively very attractive and the same has been shown to perform very well for emotion recognition. The facial emotion recognition is frequently used but there is a problem occurred during the classification of emotion from the facial expressions due to existing feature extraction techniques and their uniqueness. The major causes of the problem in facial emotion recognition system are the extraction of best and appropriate feature sets from the faces according to the facial expressions. To minimize these types of problems from facial emotion recognition system, SIFT descriptor along with genetic algorithm (GA) is best solution according to the survey and to achieve better performance of proposed work, a novel objective function is being designed. In the proposed work, artificial Neural Network (ANN) is used as a classifier to train the facial emotion recognition system and by using the public database
Japanese Female Facial Expression (JAFFE), the accuracy of facial emotion recognition is obtained around 98% in MATLAB.

References


Index Terms

Computer Science Pattern Recognition

Keywords
Facial emotion recognition, Scale invariant feature Transform (SIFT), Artificial neural network (ANN), Genetic algorithm (GA)