

Intelligent web inference model based facial micro emotion detection for media store playback using artificial feed forward neural network and facial coordinate matrix.

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Abstract

The problem of facial emotion detection has been approached by various methods in several articles but suffers from the problem of poor accuracy in detecting the facial emotion. The psychological condition of any human can be obtained by facial emotions or facial reactions, which helps to solve various problems. To solve the issue of facial emotion detection, in this paper an intelligent fuzzification model is described which uses the artificial feed forward neural network and facial coordinate matrix. More than our previous methods, the proposed method considers the facial coordination matrix which stores the coordinate point of different facial components extracted at different facial emotions considered. The method extracts the facial features and computes various measures of facial features like eye size, lip sizes, nose size, and chin size. With the above-mentioned features, the method extracts the coordinate points of skin at different emotional situations. The extracted features are used to construct the neural network and the feed forward model computes various measures by each neuron and forwards them to the next layer. At each layer, the neuron computes multi-variant emotion support for each facial emotion and forwards them to the next layer. Finally, a single emotion is selected according to the computed measure based on fuzzy approach. Identified emotion is used to play songs and videos from the media store available on the server. The proposed fuzzification based method improves the performance of facial emotion detection in micro level with more accuracy.

Keywords: Facial emotion detection, Facial coordinate matrix, Artificial neural network (ANN), Feed forward model, WIM.

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Introduction

The psychological condition of human can be identified from the facial expression and emotions. Whatever the condition of human mind can be expressed on the face and by monitoring the changes in the facial components the human emotion can be identified. The face has number of components namely eye, mouth, lips, nose and chin. The change in psychology of any human has noticeable change in the human facial components. So the psychological conditions can be identified using the facial emotions and the facial features.

The face emotion recognition is an on-going research based on biological features and signals now a day. There are various researchers working on this to support different fields of personal identification and monitoring systems. Facial emotion recognition will become vitally important in future visual communication systems, for emotion translation between cultures, which may be considered analogous to speech translation. However so far the recognition of facial emotions is mainly addressed by computer vision researchers, based on

facial display. Facial emotion recognition is very essential in various human-to-computer communications method. Even though so many examinations are made, it is difficult to locate applications in the real time system due to its undervaluing about human being's emotion recognition in any form. Various other features also under usage for the person identification like hand, eye, fingerprint and etc. To satisfy customers the automobile industries working on playing audios and videos based on reading the mind of the driver. On focusing this, we have to identify the emotions of the human and the bio-signal and facial features are the key to perform this task.

The facial coordinate matrix is one which represents the edge points of each feature from the nose, mouth, lips, chin, and skin. By identifying the edge points of the facial components, the facial coordinate matrix can be generated and used to perform facial emotion detection. Because, whenever the psychological emotion has been changed then the edge points of the facial components also gets changed. By monitoring and maintaining coordinate matrix at different situations, the