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Human Facial Expression Tracking and Grading by Histogram Based Approach

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Tracking and analyzing of human facial expression is one of the very vital and important aspects in the research domain. The facial expression detection is a burning issue in the present era as it is one of the prime parameter in the field of visual surveillance work. The task of separating a people depending on his or her mood whether he or she is belonging to a friendly class or to an enemy class is very difficult because the collected photos or videos should have to collect based on unpredicted situation that has cropped up suddenly. During the last few decades the researchers and scientists with their tremendous effort have proposed different scientific methodologies those help us to grade and correlate human observed based facial expressions accompanied by human feeling. In this paper, we have tried to focus a new and novel tactic based on statistical as well as histogram approach for tracking a human image and grading the expressed moment of identified mood that has been tracked and recognized. Initially, We have taken the human-face-info to accumulate the highest in rank from human-face. With the collected human-face we have set our parameter depending on the X, Y and Z coordinates values for storing the values in the database. Lastly, based on the coordinate values we are able to identify the specified mood of the tracked human image.

Keywords : Face Detection, Human-face-info, K-means Clustering, Mood-identification, Nose-tip.

1. INTRODUCTION

Human face-image identification is a planned mission in the digital image processing system. To identify a person or a group of people by scrutinizing the facial appearance from human-face-info or from a set of images taken by means of camera set to a prime location is a very difficult task. The technique for recognizing facial expression consists of the following three components: (i) human face tracking (ii) image processing and (iii) human-face state recognition and restructuring. Human face-appearance recognition requires the computer knowledge to track the portion of region of any human-face within an image-frame. Image processing is build with scaling and image rendering to prepare the human-face for recognition. Detection of human-face expression should follow some mathematical as well as statistical techniques and depending on the pixel values or features collected from the face-region of an image. Here we shall concentrate on any portion of the face-image. The most useful applications contain crowd surveillance, security surveillance, video content indexing, personal identification (*e.g.*, driver's license), mug shots matching, entrance security, *etc.*[1-21].

A human-face can correspond to different ways, *e.g.*, as a whole unit (holistic representation), as a set of features (analytic representation) or as a combination of these (hybrid approach). The applied face representation and the kind of input images determine the choice of mechanisms for automatic extraction of facial expression information. Let us consider a situation where a lot number of people are working and an abnormal situation has occurred all of a sudden. The situation is such that nobody

Table 2
Face Tracking Results

Expressions	Correction-Rate in Percentage	True-Image out of 90
Normal	88.61	77
Fear	98.87	87
Smiley	87.69	82

approach for tracking a human image and grading the expressed moment of identified mood that has been tracked and recognized. Here human-face-info is used to collect the maximum information from human facial expression. Then we have set the three coordinate positions for storing the data in the database. Finally, the geometrical value of human-face-info represents the data of facial expression moment. The result from the preliminary study indicated that the proposed strategy is effective to assess different facial expression of human being more precisely.

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