Abstract

Increasing and maintaining human productivity of different tasks in stressful environment is a challenge. Music is a vital mood controller and helps in improving the mood and state of the person which in turn will act as a catalyst to increase productivity. Continuous music play requires creating and managing personalized song playlist which is a time consuming task. It would be very helpful if the music player itself selects a song according to the current mood of the user. The mood of the user can be detected by a facial expression of the person. A facial expression detection system should address three major problems: detection of face from an image, facial feature extraction and facial expression classification[1]. The first stage is of face detection from an image for which various techniques used are model based face tracking which includes real-time face detection using edge orientation matching [2], Robust face detection using Hausdorff distance [3], weak classifier cascade which includes Viola and Jones algorithm [4], and Histograms of Oriented Gradients (HOG) descriptors. The next stage is to extract features from detected face. Two major approaches for feature extraction which use
Gabor filters [Dennis Gabor] and Principle Component Analysis [Jolliffe]. The final stage is of image classification for mood detection, where various classifiers like BrownBoost [Freund, 2001], AdaBoost [Freund and Schapire, 1995] and Support Vector Machines (SVM) are available. The proposed system will use classic Histograms of Oriented Gradients (HOG) along with facial landmark detection technique; these detected features then passed through SVM classifier to predict the mood of the user. This predicted mood will stimulate the creation of playlist.

References


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