A Method for Emotion-Based Music Recommendations

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Abstract: The majority of currently used music recommendation systems rely on content- or collaborative-based recommendation engines. However, a user's choice of music is not only based on past musical tastes or its actual substance. but also based on how that individual is feeling. This study suggests a framework for emotion-based music recommendations that can identify a user's mood based on data from wearable physiological sensors. A wearable computing device that includes physiological sensors for galvanic skin response (GSR) and photo plethysmography (PPG) specifically categorises a user's emotion. The emotion data is included as additional data to any collaborative or content-based recommendation engine.These data can therefore be used to enhance the functionality of the current recommendation engines. Since arousal and valence can be predicted from a variety of physiological variables, the problem of emotion recognition in this work is seen as such. On the GSR and PPG signal data of 32 people, with or without feature fusion, experimental results are obtained using decision tree, random forest, support vector machine, and k-nearest algorithms. The results of in-depth experiments using real data show that the suggested emotion classification method, which can be used, is effective.

INTRODUCTION

The study or practice of creating, designing, constructing, or utilizing bodily-worn computational and sensory systems that take advantage of a novel kind of human-computer interaction with a body-attached component that is constantly active is known as wearable computing. The sectors in which wearable computing devices are used are expanding quickly along with the number of users of these devices. They have an impact on the health and fitness, ageing and disability, education, transportation, finance, gaming, and music sectors [1] and [2]. Recommendation engines are algorithms that search through a vast amount of data to find the items that are most pertinent to the user. By studying user preferences, recommendation engines can find patterns in the data set and create results that are relevant to the users' wants and needs [3].Most recommender systems don't take into account human expressions or emotions. However, feelings clearly affect how people live their daily lives.

For a variety of uses, including human-robot interaction, computer-assisted tutoring, emotion-aware interactive games, neuromarketing, and socially intelligent software applications, computers should consider the emotions of their human discussion partners. Speech analytics and facial expressions [4], [5] have both been used for emotion recognition. However, as people tend to conceal their emotions, focusing only on speech or facial expression signals may not be enough to correctly identify emotions in people. Instead of just visual expressions, physiological signals can be used to track and detect people's emotions and internal cognitive processes. In this work, we use wearable computing and emotion identification approaches to improve the accuracy of the music recommender system algorithm. the following music recommendations. We searched In our earlier research, we investigated emotion recognition using only GSR signals. In this study, we supplement signals using PPG in order to create music recommendation engines [6]. We also offer an emotion identification method based on data fusion.