

Analysis and Identifying Variation in Human Emotion Through Data Mining

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Abstract

This paper explored to detect emotion variation in adolescent age group through data mining techniques. In this age mood swings is maximum as compared to other age group. Children become more moody and irritable during this period of their lives. This moodiness is commonly attributes to the sudden and fluctuating hormonal level, brain still developing, peer pressure, Cognitive immaturity. Some people get more hyper but others feel under the weather and just want to be left alone, but everyone is different, and it isn't always the same emotion change. During this age period the people around us will experience drastic changes in our moods. If you're out-of-control happy one minute, totally depressed the next minute, and furious the next, you're completely normal!. But mood swings can also be frightening and confusing. Proposed paper is based on collection of dataset from this large group of emotions in adolescent age by using data mining technique. By classifying emotions and using decision tree different emotional variations are analyzed in this paper. Outlier analysis is used to identify emotion variation in child having any kind of disability.

GeneralTerms:-emotion classification, adolescent age, classification decision tree, outlier analysis, data mining.

1. Introduction

1.1 Adolescent age

During child development adolescence refer to second decade of life span from age 10 to 20. Adolescence means to grow into adulthood or from immaturity of childhood into maturity of adulthood. This is active period for laying down neural pathway related to emotion management that can shape course of adulthood. In this age mood swings is maximum as compared to other age group. Adolescence is also equated to both the terms "teenage years" and "puberty." However adolescence is not exclusive to either of these terms. Puberty refers to the hormonal changes that occur in early youth; and the period of

adolescence can extend well beyond the teenage years. In fact, there is no one scientific definition of adolescence or set age boundary. There are key development changes that nearly all adolescents experience during their transition from childhood to adulthood. Adolescence is a critical period of maturation of neurobiological processes. Emotions are fundamental for humans, impacting perception and everyday activities such as communication, learning and decision-making [1]. They are expressed through speech, facial expressions, gestures and other non-verbal clues. Ongoing physical maturation process directly affect body and brain to alter child needs, interest and mood. As children observe that their bodies are changing, they may experience a new and unfamiliar set of experience. Children become more moody and irritable during this period of their lives. This moodiness is commonly attributes to the sudden and fluctuating hormonal level and thus create mood swings. Growth of hormones results in attraction of teens towards (commonly) someone of their opposite gender. They get very easily influenced by their peers and have a strong emotional side as they get confused between being an adult and a child. This can be avoided by support from their parents and teachers. This is a very difficult time for them so they usually get close to anyone whom they think is able to understand them well [2].

1.2 Data mining: - data mining is a collection of techniques for efficient automated discovery of previously unknown, valid, novel, useful and understandable patterns in large databases. The patterns must be actionable so that they may be used in an enterprise's decision making. Data mining techniques may be used for smaller amounts of data, but the larger the data the better the chance of finding something novel and interesting. In other words, we want to ensure that what has been discovered indeed something interesting about the process underlying the data that is being analyzed and not simply a result of some random fluctuations. Data mining is often a complex process and may require a variety of steps before some useful results are obtained. Often data pre-processing including data cleaning may be

needed [3]. For example: collection of data forms a dataset from number of students who are in between the adolescent age. This data set is classified in different classes and decision making model is used to determine the class of emotion for any training set.

2. Literature Review

Shenghua Bao, Shengliang Xu September(2012) Mining social emotion for document categorization so that it is useful for online user to select the document based on their emotional preferences ,for this they have propose a joint emotion topic model with the help of latent dirichlet allocation with an intermediate layer for emotion modeling, this model provide us connection between online document and user generated social emotion . By text mining they mine the affective words and make connections with relative emotion .By this model we can uncover hidden topic that exhibits strong emotion. But problem may arise that if same word has different meaning & they may convey different emotion .These methodology can be applied in songs, emotion aware recommendation of advertisements. Further I am studying on some new techniques to detect emotion and their application area [4].

Sivaraman sriram, xiaobu yuan (2012) An enhanced approach for classifying Emotions using Customized decision tree algorithm. As there are different way to recognize emotion like from textual conversation ,facial recognition , dynamic gesture recognition capturing the human body movements but as I have read emotion detection can also be done with the help of decision tree or nearest neighbor algorithm in this emotion generated rules are used ,here artificial neural network is also used for emotion detection ,here we find out mean and root mean square for all values in dataset , as in dataset have all seven emotion . It is also be used in real time situation such as data mining or gene prediction system but proposed paper implements this above approach in application like to classify vedio's according to their emotion [5].

Minho kim,hyuk-chul kwon (2011) Lyrics based emotion classification using feature selection by partial syntactic analysis:-Songs fell emotionally diff to listeners depending on their lyrical contents even melodies are similar .in this a method for lyrics based emotion classification is text-based using feature selection by partial syntactic analysis . Classification of emotion require the choice of emotion model , as such existing research on music emotion use Thayer model, tellegen-watson –Clark model. Thayer model is efficient including twp pillar representing stress and energy to classify emotion polarity. In this study

examined emotion extracted through application of the syntactic analysis rule and classified them on basis of lyrics [6].

Oscal T.-C. Chen, Jhen Jhan Gu, (2012) Emotion-Inspired Age and Gender Recognition Systems emotion-inspired age and gender recognition systems are developed. In this work, the proposed age and gender recognition systems based on arousal intensities of speaker's emotions . First, speech frames of a speaker's utterance are classified into two groups that are higher and lower than the mean of arousal intensities of speech frames. The speech frames with higher and lower arousal intensities are used for age and gender recognitions, respectively. Here, only three ages of young, adult and senior are identified. Hence, according to the emotional arousal intensity, speech frames of a speaker's utterance are classified into two groups which are above and below the mean of arousal intensities of speech frames. Mel-scale Frequency Cepstral Coefficients (MFCC) are often used to differentiate age and gender of a human. Additionally, the classifier can be realized by k nearest neighbors, it is emotion-inspired recognition systems to identify the age and gender of a speaker. Four emotions of angry, happy, calm and sad are analyzed first. The emotions of angry and happy usually have higher arousal than those of calm and sad. From our simulations, the gender recognition prefers calm whereas the age recognition prefers angry and happy. Therefore, the recognition systems proposed herein can be widely applied to various voice interface applications [7].

Michael Garber-Barron, Mei Si June, [2012] Using Body Movement and Posture for Emotion Detection in Non-Acted Scenarios .In this paper body position and movement are used for automatically detection people's emotion in non acted scenarios. As people use to play game different emotion is observed like triumph, frustration, defeat, and concentration. our goal is to detect the subjects' emotions using their full body while they were playing games naturally a person may be able to control their facial expressions but still reveal their true emotion through their body languages. The dataset which is using having rotation angle of the people who are playing game. Different machine learning techniques are used. a range of approaches have been applied for automatically detecting emotion including recording and analyzing the person physiological responses ,electroencephalography(EEG) signal ,facial expression and body movement. combined information of the velocity and position of their body joints. in this different Algorithm 2 (Directed

Symmetry), Algorithm 1 (Pose Symmetry), Algorithm 3 (Pose Difference). Effectively detecting emotions in real time can facilitate a range of applications, e.g. help game designers dynamically adjust the content of the game and create a personalized experience for players. In this work, we explored the use of meta-features that incorporate the players body movements and posture for detecting emotions in a non-acted standing setting. we plan to improve the accuracy of our emotion detection algorithms by incorporating additional features that represent the status of the game interaction. This paper completely relying on a bottom-up approach for detecting emotions, and we will be able to consider the cognitive factors of the person as well as their experiences [8].

3. PROPOSED WORK

Proposed research is based on classification of human emotions through data mining. As our brain stores different types of emotions and through analyzing emotional behavior it can be determined that how emotions vary and how this variation occurs. In previous researches emotional identification through body postures, lyrics based emotion classification is done. The proposed research is based on data mining techniques. It will analyze and identify variation in emotions of adolescent age children. It helps to improve relationships among adolescent aged people.

4. PROPOSED METHODOLOGY

Proposed paper explored two techniques to identify and analyze emotional variation in human being. These are:

Classification:

Decision tree model

Data set - In proposed paper useful information is extracted by taking relevant data from the dataset after preprocessing the data classification is done. Classification is the process of finding a model that describes and distinguishes data classes'. The model is derived based on the analysis of a set of training data. If-then rules are used in classification. As such decision tree can be easily be converted into classification rules. In this paper some different cases are explored for example child with disability won't make friends easily and accepted in a peer group hence emotion development changes. As in another way a data set contain objects that do not comply with general behavior or model of the data so these data objects are outliers. The analysis of outlier data referred to as outlier analysis.

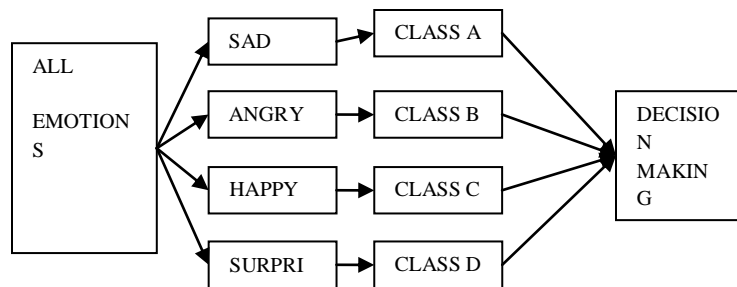


Figure 1: Over View Of Classification

Conclusion

Adolescents' emotional regulation and mood may play a pivotal role in their academic success. Emotional variation in adolescent age is common. This emotional change causes relational conflicts. Emotional variation detection can help to control the negative emotions of adolescent age groups. Classification of Human Emotions using different machine learning techniques is one of the phenomenal researches in today's world. The proposed paper explored emotional variation in adolescent age and reasons behind these changes using data mining techniques. By classifying emotions and using decision tree different emotional variations are analyzed in this paper. Outlier analysis is used to identify emotion variation in child having any kind of disability.

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