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Sentimental Analysis of Speech – Video Recognition

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Abstract: Sentiment analysis is field of research that can have significant impact on today's environment. Using social media, such as Twitter, Facebook, and etc. user share their views, feelings in a suitable way, where millions of people express their views in their daily interaction, which can be their sentiments and opinions about particular thing. Different areas of sentiment approaches do it will be mentioned. This paper is focused on feature based sentiment analysis in which not the sentiment of the whole opinion is analyzed but how particular features of opinion's subject are seen. Sentiment analysis is the task of identifying Sad and happy emotions, and evaluations.

Keywords: Speaker recognition, Vocal emotion recognition, Sentimental analysis, Emotion prediction, Text mining

I. INTRODUCTION

In Sentiment analysis are fields of study that analyze people and opinions, evaluations, attitudes, and emotions generally from written language. This paper is based on sentiment analysis in which not the sentiment of the whole sentiment is analyzed but how particular features of sentiment subject are seen. The pattern based approaches to sentiment analysis are used. First of them allows to present products features in a form of hierarchy while second automatizes the process of features with its sentiments extraction. To every feature the sentiment is assigned. In that paper sentiment analysis will be defined. Different areas of mining and approaches do it will be mentioned. Then we will move on to description of feature based analysis. It will also contain explanation how different approaches are used in this area. Sentiment analysis refers to the application of natural language processing and text analytics to identify and the emotion of that person. In that sentiment can be defined as the sad, Happy positive and negative opinions, emotions, and evaluations. Most work on sentiment analysis has been done at the document level, for example distinguishing positive from negative reviews.

II. LITERATURE SURVEY

"Learning utterance-level representations for speech emotion and age/gender recognition" [1]
Accurately recognizing speaker emotion and age/gender from speech can provide better user experience for many spoken dialogue systems. In this study, we propose to use deep neural networks (DNNs) to encode each utterance into a fixed-length vector by pooling the activations of the last hidden layer over time. The feature encoding process is designed to be jointly trained with the utterance-level classifier for better classification. A kernel extreme learning machine (ELM) is further trained on the encoded vectors for better utterance-level classification. Experiments on a Mandarin dataset demonstrate the effectiveness of our proposed methods on speech emotion and age/gender recognition tasks.

"A Study of Support Vector Machines for Emotional Speech Recognition" [2]
In this paper, efficiency comparison of Support Vector Machines (SVM) and Binary Support Vector Machines (BSVM) techniques in utterance-based emotion recognition is studied. Acoustic features including energy, Mel-frequency campestral coefficients (MFCC), Perceptual linear predictive (PLP), Filter in bank (FBANK), pitch, their first and second derivatives are used as frame-based features. Four basic emotions including anger, happiness, neutral and sadness in Interactive Emotional Dyadic Motion Capture (IEMOCAP) database are selected for training and evaluating in our experiments. The best accuracy of emotional speech recognition is 58.40% in average from SVM with polynomial kernel. Energy features combination with FBANK, pitch and their first and second derivatives features are the most suitable for computing utterance feature. Binary Support Vector Machines (BSVM) techniques show accuracy improvement in some emotions, such as sadness and happiness emotion.

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s"Biologically inspired speech emotion recognition" [3]

In Conventional feature-based classification methods do not apply automatic recognition of speech emotions, mostly because the precise set of spectral and prosodic features that is required to identify the emotional state of a speaker has not been determined yet. This paper presents a method that operates directly on the speech signal, thus avoiding the problematic step of feature extraction. Furthermore, this method com-bines the strengths of the classical source-filter model of human speech production with those of the recently introduced liquid state machine (LSM), a biologically-inspired spiking neural network (SNN). The source and vocal tract components of the speech signal are first separated and converted into perceptually relevant spectral representations. These representations are then processed separately by two reservoirs of neurons. The output of each reservoir is reduced in dimensionality and fed to a final classifier. This method is shown to provide very good classification performance on the Berlin Database of Emotional Speech. This seems a very promising framework for solving efficiently many other problems in speech processing.

"Normal-to-shouted speech spectral mapping for speaker recognition undervocal effort mismatch" [4]

Speaker recognition performance degrades substantially in case of vocal effort mismatch (e.g. shouted vs. normal speech) between test and enrollment utterances. Such a mismatch is often encountered, for example, in forensic speaker recognition. This paper introduces a novel spectral mapping method which, when employed jointly with a statistical mapping technique, converts the Mel-frequency band energies of normal speech towards their counterparts in shouted speech. The aim is to obtain more robust performance in speaker recognition by tackling vocal effort mismatch between enrollment and test utterances. The processing is performed on the speech signal before feature extraction. The proposed approach was evaluated by testing the performance of a state-of-the-art i-vector-based speaker recognition system with and without applying the spectral mapping processing to the enrolment data. The results show that pre-processing with the proposed approach results in considerable improvement in correct identification rates.

III. PROPOSE SYSTEM

We focus on videos because the nature of speech in these videos is more natural and spontaneous which makes automatic sentiment processing challenging. In Particular, automatic speech recognition (ASR) of natural audio streams and text spoke in audio is difficult and the resulting transcripts are not very accurate. The difficulty stems from a variety of factors including (i) noisy audio due to non-ideal recording conditions, (ii) foreign speech, (iii) natural speech production, and (iv)various range of topics. Our approach towards sentiment extraction uses two main systems, namely, automatic speech recognition (ASR) system and text-based sentiment extraction system. For text based sentiment extraction, we propose a new method that uses part-of-speech tagging to extract text features and Maximum Entropy modelling to predict the polarity of the sentiments (positive or negative) using the text features.

IV. SYSTEM ARCHITECTURE

Following diagram is our system's architecture diagram:

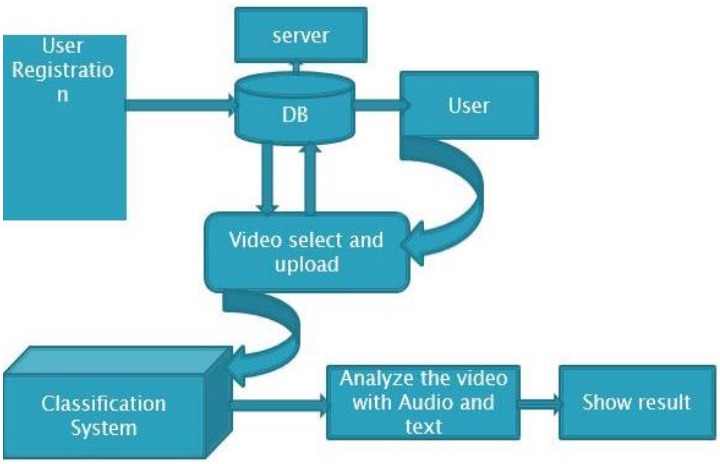

Figure 1: system architecture

In system architecture user can upload the MP4 video in application. After that analyzed the video with Audio and text and after that user get result.

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V. SENTIMENTAL ANALYSIS

Sentimental analysis is process of extracting emotions from given video. Sentiment level can be classified in below.
1. Sentence Level:-Each sentence is analyzed separately and classified as negative, positive or objective.
2. Document Level- In it the whole document is given a single polarity positive, negative or objective.
3. Phrase Level- It involves much deeper analysis of text and deals with identification of the phrases or aspects in a sentence and analyzing the phrases and classify them as positive, negative or objective.

VI. METHODOLOGIES

For a text based extraction, we develop a new method that uses part-of-speech tagging to extract text features and Maximum Entropy modelling to predict the polarity of the sentiments like positive or negative using the text features. An important method is the ability to identify the individual contributions of the text features towards sentiment estimation. We assess the proposed sentiment estimation on both publically available text databases and videos. On the text datasets, this provides us with the capability of identifying words within the video that carry important information. By indexing these words, retrieval systems can enhance the ability of users to search for relevant information. Sentiment analysis deals with identify and classify the expression. Sentiment analysis is compared with sentiment analysis due to the presence of emotions.

CONCLUSION

The prediction of the next reactions from emotional outspoken signals based on the recognition of emotions, using different classification of classifiers in this research, the trained dataset was used for modeling the emotional state. They database includes speech files in the wave format. The leadership, anger, disagree, self-control emotions were chosen. Eleven spectral features, namely, angle, intensity, the first four formants and their bandwidths and standard deviation, were extracted.

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