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Automating Sentiment Detection & Classification through Neural Network

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ABSTRACT : The information which is published by users via short texts contains emotional, sentimental features of various types, and it is of great consequence, importance to dig deep into these features. This paper proposes to apply text classification and mine deeper information, and achieve good results. The traditional neural network which is based on short text classification algorithms for sentiment classification and detection is easy. In the field of sentiment detection, opinions or sentiments of the people are verified. Sentiment analysis systems are being applied on social platforms as well as in almost every business in day to day life.

KEYWORDS: Sentiment Analysis, Natural Language Processing, term frequency-inverse document frequency, neural network, text classification.

I. INTRODUCTION

In today's life, technology is rapidly developing along with the use of the internet and social media. Social networking sites, instant messaging, etc. are positively changing the lives of human beings. People can express their opinions as well as sentiment through online reviews. Online review text is the feedback or the opinions of consumers to most of the E-commerce platforms in the form of text after personal exposure or experience of the consumer object, which has been considered as the public opinion guide. So to get the sentimental tendency of people, reviewers are very important. Therefore, Sentiment classification is one of the sentimental tendency analysis methods. Sentiment analysis (SA) is the task of evaluating the the emotional state of a writer or a person with respect to their written texts by considering the polarity or contradiction of keywords that are used in the writing. Sentiment analysis is such type of review text that can provide consumers with clearer product evaluation pieces of information, and provide companies with a reputation of the product as well as feedback information from consumer's review. It has various kinds of applications. It can help the providers to know more about the public opinions, reviews as well as suggestions on various kinds of management measures, service means and latest topics, so that providers can timely adjust management strategies as well as methods with respect to improving management and service level. Sentiment Analysis is done by detecting or finding the contextual polarity of documents, suggestions using semantic orientation technique and machine-learning too. The main task of text sentiment analysis (SA) is to analyze information from texts reviews with emotional colors, extract features, and make polarity judgments from it. The polarity of keywords from public opinions, reviews could be positive, negative, or neural, for example the words like 'happy', 'angry', 'sad' or 'indifferent' or any kind of human behavior.

Most of the researchers, investigators divided the sentiment the polarity of online reviews, suggestions into the positive and negative categories, where positive categories represent the sentiment such as affirmation, admiring as well as praise of the review objects, while negative categories represent the sentiment such as negation, criticism as well as denunciation of the review objects. Classifying sentiments of online reviews, suggestions is a special text classification, which is distinguished by a short kind of review text document with irregular grammar. Therefore, it is necessary thing to improve the traditional method of text classification model to adapt, alter to classifying online reviews and amplify the effects of sentiment classification. In recent years, machine learning and deep learning have also been used in emotion classification on a large scale. The basic process of emotion classification methods based on machine learning , is preprocessing of data, extraction of features, word training vectors and classifier models for emotion classification. Thus,the main motive of short text sentiment analysis is to identify the subjective information from short text information and to mine the opinions , suggestions as well as attitudes held by users, consumers on products, news, hot events and other commentary information. The important reference value has been given to the real-time analysis of information.

II. LITERATURE REVIEW

In this paper, the deep learning algorithm is used to build a model to complete the sentiment analysis of a text. For a single neural network model with a simple structure, the traditional convolutional neural network cannot fully extract deep text features.The experiment uses intel I3, and the comparative machine learning methods include SVM (Support Vector Machine), LSTM. SVM is implemented by the pychar]m installation tool sklearn, which is implemented by the python installation tool keras. In this paper, a simple set of operation for selecting distinct words for sentiment classification and introduced the concatenation of various truncated SVD features for sentiment classification presented by us. Despite being one of the most used languages in the world, lacks in both benchmark datasets and a well furnished model for sentiment analysis. Researchers never publish their datasets. Those datasets that made for such research is going to clearly step ahead since it is being enriched and published for research purposes. The datasets were going to be stemmed for our purpose. In future, we can stem our dataset and our result might be improved. This paper proposes, an online review sentiment classification and detection method based on the semantic analysis of sentimental words by using neural network. The topic vector of an online review text documents are obtained through LDA method, and each review text document is represented as the topic vector.
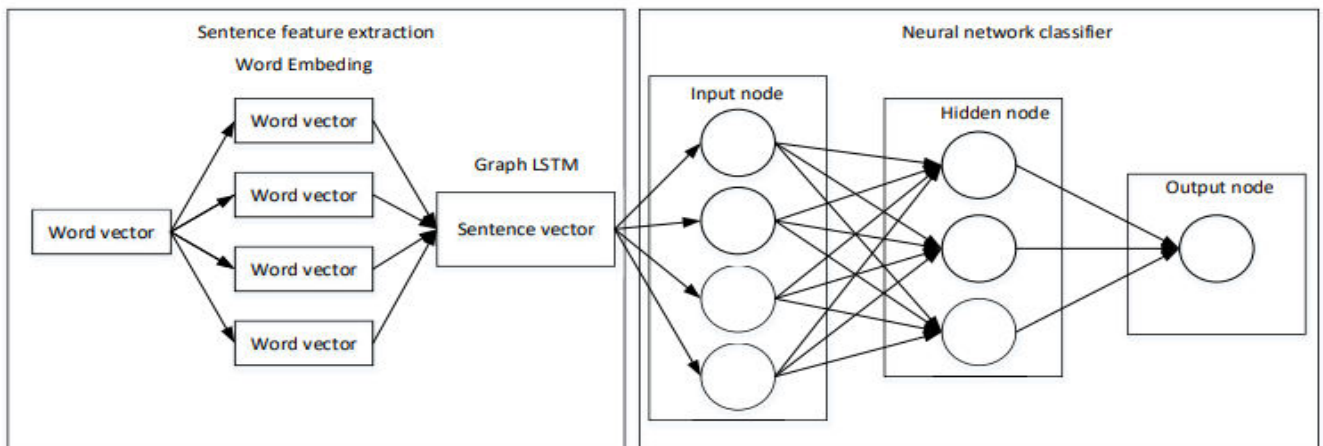

Fig. 1. Graph LSTM Short text classification model

Then, the Word2Vec tool is used to train the word vector model to represent the words in the review text and the sentiment words in the sentiment dictionary. This paper reports about an experiment in which the probabilities of using different filters in a training dataset were compared during pre-processing. The overall framework is called hierarchical classification where the original data file is shrunk at different levels as different filters are applied to it.First, the existing feature extraction method does not consider the subject information and the semantic information of the text when extracting the feature item of the text, so that the quality of the obtained feature item is low. A feature extraction method based on a combination of dependency syntax analysis and LDA topic models, secondly, when using dependency syntax analysis to extract sentiment elements, it is necessary to add sentiment vocabulary.We present a new tweet sentiment analysis approach, which integrates sentiment-specific word embeddings and a weighted text feature model.Compared to other tweet sentiment analysis feature generation approaches, the WTFM model is easy to build, and effective.The proposed function outperforms the two state-of-the-art emotions and comments classification approaches. Our future research will be goal-dependent emotion analysis to find the polarity for a specific target in tweets.

III.CONCLUSION

This paper conducts research on text sentiment analysis. The experimental comparison proves that the model has significantly improved the accuracy and Proves the superiority of the model. Sentiment analysis has become very important for business owners. With sentiment analyzers, it is now possible to understand user activities and choices. Automatic text mining so far needs lots of research for finding efficient and simple methods to implement.

IV. ACKNOWLEDGEMENT

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