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DEEP LEARNING FOR DEPRESSION DETECTION

This article introduce the depression sentiment analysis based on deep learning.

INTRODUCTION

With the increase of stress in people's life, the incidence of depression seems to have been very high. In addition, some people have some personality problems that contribute to the high incidence of depression, but research on this disorder is still in the developmental stage and there are still many questions to be addressed, so it is important to study this disorder. This paper will discuss the detection of depression through a sentiment analysis approach.

I. SENTIMENT ANALYSIS

Sentiment analysis (also known as opinion mining or emotion AI) is the use of natural language processing, text analysis, computational linguistics, and biometrics to systematically identify, extract, quantify, and study affective states and subjective information. Sentiment analysis is widely applied to voice of the customer materials such as reviews and survey responses, online and social media, and healthcare materials for applications that range from marketing to customer service to clinical medicine. With the rise of deep language models, such as RoBERTa, also more difficult data domains can be analyzed, e.g., news texts where authors typically express their opinion/sentiment less explicitly.

II. ANALYSIS APPROACHES BASED ON DEEP LEARNING

The modeling method based on deep learning is mainly to jointly consider the user's social behavior and multimedia information, such as text, pictures, videos, etc. Among them, the modeling of text information is the main research direction. The researchers employed NLP methods to embed text into high-dimensional continuous vectors to automatically mine word features. Some works also fuse manually extracted features as part of the input into DNN classifiers, or integrate traditional classifiers with DNN classifiers to improve performance. These multimodal and ensemble approaches have been shown to be effective methods for accomplishing various tasks

of social network analysis, including depression detection [1].

There are two types of sentiment classification techniques, binary classification technique and multi-class sentiment classification technique. In binary classification technique each document d_i in D where $D = \{d_1, d_2, d_3, ..., d_n\}$ are classified into category C where $C = \{Positive, Negative\}$ and in multi-class sentiment classification the d_i is classified into category: $C = \{StrongPositive, Positive, Neutral, Negative, StrongNegative\}$ [3].

III. DATE SETS

The API provided by Twitter is used to get a large amount of tweet data to train the model. tweepy [2] is a Python library used to access the Twitter API. It takes various parameters as input, such as coordinates, radius, etc., and stores the number, text, and location of the most recent tweets in a database after removing duplicates, links, hashtags, and words in other languages (besides English) from those tweets.

SUMMARY

The above paper introduces the method of using deep learning to detect depression. Depression psychological disorder seriously affects people's life and social stability, and the prediction and classification of depressed users is a very meaningful research. Using the rich data of social networks and advanced learning algorithms such as machine learning and deep learning, effective detection models can be constructed. The application of these research models to solve social problems will effectively improve the utilization of social resources.

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2. "Tweepy". http://www.tweepy.org/.
3. Tripathy, Abinash, Abhishek Anand, and Santanu Kumar Rath. "Document-level sentiment classifi-cation using hybrid machine learning approach." Knowledge and Information Systems (2017): 1-27.

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