

STRESS DETECTION BASED ON SOCIAL INTERACTIONS

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ABSTRACT

Mental stress is becoming a threat to people's health now days. With the rapid pace of life, more and more people are feeling stressed. It is not easy to detect user's stress in an early stage to protect user. With the popularity of web-based social networking, individuals are used to share their day by day movements and interacting with friends via web-based networking media stages. It make possible to use online social network data for stress detection. In this paper, we proposes framework of detect users stress states is closely related to that of his/her friends in social media, and employ a large-scale data sheets from real-world social platforms to systematically study the correlation of users' stress states and social interactions. We first define a set of stress-related textual, visual, and social attributes from various aspects, then convolutional neural network (CNN) is used for topic extraction. Using CNN we can perform sentiment analysis of post after formation of topic. The contribution work is detecting users are stressed or not by using support vector method (SVM). Experimental results show that the proposed model can improve the detection performance .With the help of enumeration we build a website for the users to identify their stress rate level and can check other related activities.

I.INTRODUCTION

Mental stress is turning into a risk to individual's well-being these days. With the fast pace of life, progressively and more individuals are feeling stressed. According to a worldwide survey reported by Newbusiness in 2010, 1 over half of the population have experienced an appreciable rise in stress over the last two years. Still stress itself is non-clinical and common in our life, excessive and chronic stress can be rather destructive to people's physical and mental health. Users' social interactions on social networks contain useful cues for stress detection. Social psychological studies have made two interesting observations. The first is emotional contagions: a bad mood can be transferred from one person to another during social interaction. The second Social Interaction: people are known to social interaction of user.

The advancement of social networks like Twitter, Facebook and Sina Weibo², an ever increasing number of people will share their every day events and moods, and interact with friends through the social networks. We first discover a set of attributes for stress detection from facebook-level attribute and user-level attribute. Facebook-level attributes from content of user's single post, and user-level attributes from user's month to month

posts. The facebook-level attributes are mainly composed of linguistic, visual, and social attention (i.e. being liked, commented) attributes extracted from a single-'post text, image, and attention list. The user-level attributes however are composed of: (a) posting behavior attributes as summarized from a user's monthly posting and (b) social interaction attributes extracted from a user's social interactions with friends. Especially, the social communication attributes can further be broken into: (i) social interaction content attributes extracted from the content of users' social interactions with friends; and (ii) social interaction structure attributes extracted from the structures of users' social interaction with friends. User level attribute contain Linguistic, Visual, Social. In Linguistic contain Positive & Negative Emotion Words, positive and negative emotions. Visual category contain five-colour scheme, warm color, dull colour, brightness, saturation. Social category contain social attention factors such as number of comments and likes. Thus classification of stressed or non-stressed users by using support vector method. Due to advantage of both facebook post content attributes and social interactions to enlarge stress detection. After getting stress level, using k-nearest neighbours algorithm for recommendation of hospital on map for further treatment as well as admin can send mail of precautions list for avoid stress. This paper focus on main methods for stress detection:

Motivation:

1. In existing system, it is not easy to detect stressed and non-stressed user's due to interaction of social network. so we propose framework for

detecting user's psychological stress states from user's weekly social media data, leveraging post content as well as user's social interaction then we can find out user are stress or not.

2. If the user are stressed then we can recommend hospital on map which is located nearest distance from current location of user.

3. If the user are non-stressed then admin can send mail of precaution list for avoid stress. Objectives:

1. To study framework for detecting users psychological stress states from users weekly social media data, leveraging post content as well as users social interactions. From social interaction of user we find out user are in stress or not.

2. To study convolutional neural network for topic extraction. In which we can perform sentiment analysis of post after formation of topic.

3. To propose support vector method for classification purpose. In which we can classified the positive and negative post after classification we predict users are in stress or not.

III.PROBLEM STATEMENT

Traditional mental strain detection is particularly primarily based on face-to stand interviews, self-file questionnaires or wearable sensors. However, conventional strategies are simply reactive, which may be usually hard work-ingesting, time-costing and hysteretic. These works specially leverage the textual contents in social networks. In fact, records in social networks are generally composed of sequential and inter-linked gadgets from various assets and modalities, making it are genuinely move-media information. Though a few person-degree emotion detection studies had been done, the position that social relationships plays in one's

mental stress states, and how we are able to incorporate such facts into stress detection have no longer been tested yet.

IV. PROPOSED SYSTEM

Inspired through the usage of psychological theories, we first define a set of attributes for stress detection from tweet-diploma and person-degree components respectively: 1) tweet-degree attributes from content material of patron’s single tweet, and 2) person-degree attributes from purchaser’s weekly tweets. The tweet-degree attributes are specially composed of linguistic, visible, and social interest (i.e., being favored, retreated, or commented) attributes extracted from a single-tweet’s textual content, photo, and interest listing. The user-level attributes however are composed of: (a) posting conduct attributes as summarized from a person’s weekly tweet postings; and (b) social interaction attributes extracted from a person’s social interactions with friends. In specific, the social interaction attributes can in addition be broken into: (i) social interplay content attributes extracted from the content of customers’ social interactions with buddies; and (ii) social interplay structure attributes extracted from the systems of customers’ social interactions with pals

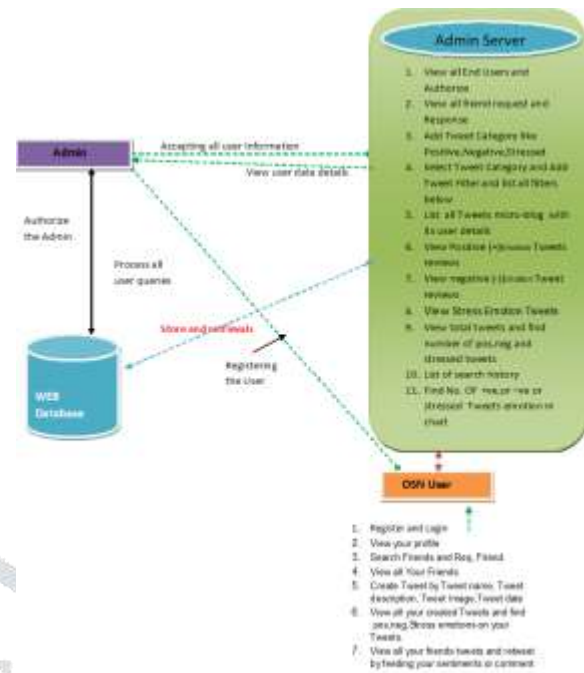


FIGURE 1: SYSTEM ARCHITECTURE

V. IMPLEMENTATION

- System Framework
- Social Interactions
- Attributes categorization
- Tweet-level Attributes
- User-Level Attributes

1. System Framework:

In this framework we propose a completely unique hybrid version - a problem graph model combined with Convolution Neural Network to leverage tweet content material fabric and social interaction information for stress detection. Experimental outcomes show that the proposed model can decorate the detection normal overall performance via 6-nine% in F1-score. By in addition analyzing the social interplay statistics, we moreover discover numerous exciting phenomena, i.e. the extensive kind of social systems of sparse connections (i.E. With no delta connections) of compelled customers is round 14% better than that of non-harassed customers, indicating that the social form of careworn clients’ friends have a propensity to be

lots less associated and lots much less complex than that of non-burdened clients.

2. Social Interactions:

We have a look at the correlation of customers' stress states and their social interactions on the networks, and address the problem from the standpoints of: (1) social interaction content material cloth, through manner of investigating the content material variations among careworn and non-burdened clients' social interactions; and (2) social interaction structure, by way of investigating the structure versions in terms of structural variety, social impact, and robust/susceptible tie. Our research unveils some exciting social phenomena. For example, we find out that the sizable form of social structures of sparse connection (i.e. With out a delta connections⁴) of pressured clients is spherical 14% higher than that of non-stressed customers, indicating that the social shape of burdened customers' pals will be predisposed to be an awful lot much less related and complex, compared to that of non-pressured clients.

3. Attributes categorization

We first define gadgets of attributes to degree the variations of the burdened and non-compelled customers on social media structures: 1) tweet-stage attributes from a patron's single tweet; 2) man or woman degree attributes summarized from someone's weekly tweets.

3.1. Tweet-degree Attributes

Tweet-degree attributes describe the linguistic and seen content material, further to social attention factors (being desired, commented, and retreated) of a single tweet. We can classify phrases into one of type training, e.g. Nice/poor emotion phrases, diploma adverbs. Furthermore, we extract linguistic attributes of emoticons, so we're able to map the

important thing-phrase in rectangular brackets to find out the emoticons. Twitter adopts Unicode due to the fact the instance for all emesis, which can be extracted right away.

3.2. User-Level Attributes

Compared to tweet-diploma attributes extracted from an unmarried tweet, patron-degree attributes are extracted from a listing of user's tweets in a selected sampling period. We use one week due to the fact the sampling length on this paper. On one hand, mental pressure often results from cumulative sports or intellectual states. On the alternative hand, users also can precise their continual strain in a sequence of tweets in preference to one. Besides, the aforementioned social interplay types of clients in a time period additionally include useful data for stress detection. Moreover, as aforementioned, the statistics in tweets is restricted and sparse. We want to combine more complementary facts spherical tweets, e.g., customers' social interactions with buddies.

VI.CONCLUSION

We presented a framework for detecting users psychological stress states from users' weekly social media data, leveraging tweets' content as well as users' social interactions. Employing real-world social media data as the basis, we studied the correlation between user' psychological stress states and their social interaction behaviors. In this work, we also discovered several intriguing phenomena of stress.

VII.REFERENCES

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