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Survey on Prediction and Early Detection of Stress Using Machine Learning Algorithm

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ABSTRACT: Stress can be commonly interpreted as the disruption in normal psychological equilibrium. When a person is unable to balance between the demands that are placed on him/her and his/her ability to cope with them, then it causes pressure on mental health which creates stress. It becomes easy to detect the stress of the users based on their social behaviour. Also, traditional stress detection methods are time consuming and costly. So the linguistic attributes in tweets can be leveraged to detect individual user stress. There are two kinds of stresses. Stress is defined as positive stress and distress is when stress has negative impact in life. Mental health disturbances or the appearance of different disease results from the long endurance of stress. To predict Stress of a human we developed a new methodology of this project that has three main components: Preprocessing - Noise Removal, Data Clearance Feature Extraction - EM. To predict the stress we use Classification - SVM Algorithm. We also used e stress states of users are classified using Naive Bayes classification algorithm and are categorized into stressed and non-stressed user

KEYWORDS: Support Vector Machine Learning, ECG, EMG, HR, Naive Bayes classification algorithm.

I. INTRODUCTION

Mental stress is turning into a risk to individual's wellbeing these days. With the fast pace of life, progressively and more individuals are feeling stressed. Though stress itself is non-clinical and common in our life, excessive and chronic stress can be rather harmful 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 mood 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 can classify using support vector method user are in stress or not. Due to leverage both Facebook post content attributes and social interactions to enhance stress detection. After getting stress level, system can recommended user hospital for further treatment, we can show that hospital on map and system also recommended to take precaution for avoid stress.

II. LITERATURE SURVEY

1. Daily stress recognition from mobile phone data, weather conditions and individual traits:

We have Studies about Daily stress recognition from mobile phone data, weather conditions and individual traits. That day by day stress can be dependably perceived in view of behavioural measurements, got from the client's cell phone action what's more, from extra markers, for example, the climate conditions (information relating to short lived properties of the condition) and the identity attributes. In work environments, where stress has become a serious problem affecting productivity, leading to occupational issues and causing health diseases. Our system could be extended and employed for early detection of stress-related conflicts and stress contagion, and for supporting balanced workloads.

2. Flexible, high performance convolutional neural networks for image classification:

In Our system, we present our new deep CNN architecture, MaxMin-CNN, to better encode both positive and negative filter detections in the net. We propose to adjust the standard convolutional square of CNN keeping in mind the end goal to exchange more data layer after layer while keeping some invariance inside the system. Our fundamental thought

is to abuse both positive and negative high scores got in the convolution maps. This conduct is acquired by altering the customary enactment work venture before pooling. Time required for this is more. It is time consuming process.

3. Predicting personality from twitter:

We are interested in the identity of clients. Identity has been appeared to be applicable to many sorts of cooperation's. We are interested in the identity of clients. Identity has been appeared to be applicable to many sorts of cooperation's; it has been appeared to be helpful in anticipating work fulfilment, relationship achievement, and even inclination. We are intrigued in the identity of clients. Identity has been appeared to be applicable to many sorts of communications; it has been appeared to be valuable in foreseeing work fulfilment, expert and sentimental relationship achievement, and even inclination for various interfaces. We can begin to answer more sophisticated questions about how to present trusted, socially-relevant, and well-presented information to users.

4. Learning robust uniform features for cross-media social data by using cross autopen coders:

This is used to study about Learning robust uniform features for cross-media social data by using cross auto encoders. To solve learning models to address problem handle the cross-modality correlations in cross-media social elements. We propose CAE to learn uniform modality-invariant features, and we propose AT and PT phases to leverage massive cross media data samples and train the CAE. Learning robust uniform features for cross-media social data by using cross auto encoders take a more time.

5. We feel fine and searching the emotional web:

We can studies about when any person feel fine and searching the emotional web. On the usage of We Feel Fine to suggest a class of visualizations called Experiential Data Visualization, which focus on immersive item-level interaction with data. The implications of such visualizations for crowdsourcing qualitative research in the social sciences. Repeated information in relevant answers requires the user to browse through a huge number of answers in order to actually obtain information.

6. Psychological stress detection from cross-media microblog data using deep sparse neural network.1985

We study the about a an automatic stress detection method from cross-media micro blog data. Three-level framework for stress detection from cross-media microblog data. By combining a Deep Sparse Neural Network to incorporate different features from cross-media microblog data, the framework is quite feasible and efficient for stress detection. This framework, the proposed method can help to automatically detect psychological stress from social networks. We plan to investigate the social correlations in psychological stress to further improve the detection performance.

7. Bridging the vocabulary gap between health seekers and healthcare knowledge Liqiang Nie, Yi-Liang Zhao, Mohammad Akbari, Jialie Shen, and Tat-Seng Chua. 2013

To study about Bridging the vocabulary gap between health seekers and healthcare knowledge with a global learning approach. A medical terminology assignment scheme to bridge the vocabulary gap between health seekers and healthcare knowledge. The scheme comprises of two components, local mining and global learning. Extensive evaluations on a real world dataset demonstrate that our scheme is able to produce promising performance as compared to the prevailing coding methods. We will investigate how to flexibly organize the unstructured medical content into user needs-aware ontology by leveraging the recommended medical terminologies.

8. Dynamic social influence analysis through time-dependent factor graphs. Chi Wang, Jie Tang, Jimeng Sun, and Jiawei Han. 2011

To find out around an impact boost issue, which expects to locate a little subset of hubs (clients) in an interpersonal organization that could expand the spread of impact. A Pairwise Factor Graph (PFG) model to formalize the problem in probabilistic model, and we extend it by incorporating the time information, which results in the Dynamic Factor Graph (DFG) mode. The proposed approach can effectively discover the dynamic social influences. Parallelization of our algorithm can be done in future work to scale it up further.

9. Picture tags and world knowledge: learning tag relations from visual semantic sources LexingXie and Xuming He. 2013

Picture tags and world knowledge: learning tag relations from visual semantic sources studies the use of everyday words to describe images. The proposed tagging algorithm generalizes to unseen tags, and is further improved upon incorporating tag-relation features obtained via ICR. Techniques to better incorporate multi-word terms and out-of-vocabulary words; advanced NLP techniques for learning word relations from free-form text; evaluation of latent concept relation suggestion, and predicting the type of relations.

10. Moodcast: Emotion prediction via dynamic continuous factor graph model Yuan Zhang, Jie Tang, Jimeng Sun, Yiran Chen, and Jinghai Rao.

We study a novel problem of emotion prediction in social networks. A method referred to as Mood cast for modelling and predicting emotion dynamics in the social network. The proposed approach can effectively model each user’s emotion status and the prediction performance is better than several baseline methods for emotion prediction. It is used to due to the limited number of participants. For model learning, it uses a Metropolis-Hastings algorithm to obtain an approximate solution. Experimental results on two different real social networks demonstrate that the proposed approach can effectively model each user’s emotion status and the prediction performance is better than several baseline methods for emotion prediction.

III. EXISTING SYSTEM APPROACH

Existing works demonstrated that leverage social media for healthcare, and in particular stress detection, is feasible. There are some limitations exist in facebook content based stress detection. Users do not always express their stressful states directly in facebook post.. Although no stress is revealed from the post itself, from the follow-up interactive comments made by the user and her friends, we can find that the user is actually stressed from work. Thus, simply relying on a user’s facebook post content for stress detection is insufficient. Users with high psychological stress may exhibit low activeness on social networks. Stress detection performance is low.

IV. PROPOSED SYSTEM APPROACH

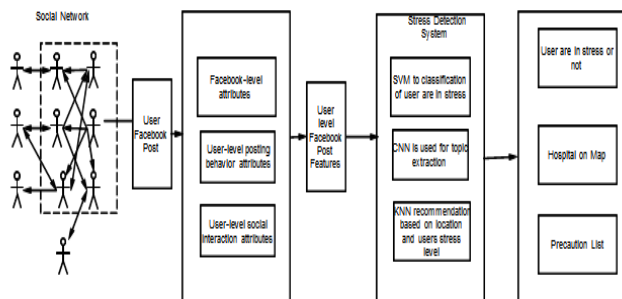


Fig.1 Block Diagram of Proposed System

In a proposed system architecture we can detect user are in stress or not due to interaction social network. In a social network contain facebook, twitter. On a facebook user are interact with other people. User can different posts on a facebook . There are three types of information that we can use as the initial inputs, i.e, facebook-level attributes, user-level posting behaviour attributes, and user-level social interaction attributes. Facebook-level attributes describe the linguistic i.e. positive and negative words and visual content like brightness, cool colour, dull colour,as well as social attention factors (being liked, commented,) of a single facebook post. User level posting behaviour attributes as summarized from a user’s monthly facebook postings, post time ,post type; social interaction attributes extracted from a user’s social interactions with friends. In particular, the social interaction attributes can further be broken into: (i) social interaction content attributes extracted from the content of users’ social interactions with friends like words and emotions; and (ii) social interaction structure attributes extracted from the structures of users’ social interactions with friends. On this user input post we can fetch user level facebook post features On that input of facebook post



.conventional neural network(CNN) is used for topic extraction. Using CNN we can sentiment analysis of facebook post after Formation of topic Using Support Vector Method(SVM) we can classified user are in stress or not. After classification user are in stress or not k-nearest neighbours algorithm (KNN) is used for recommendation hospital on a map as well as Admin can send mail of precaution list for user for become healthy and happy in life.

V. CONCLUSION

Psychological stress is threatening people's health. It is non-trivial to detect stress timely for proactive care. Therefore we presented a framework for detecting users' psychological stress states from users' monthly social media data, leveraging facebook post ' 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 behaviours. We recommended the user for health consultant or doctor. We show the hospitals for further treatment on a graph which locate shortest path from current location user to that hospital. We recommended the user for health precaution send on mail for user interaction purpose.

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