

Analyzing the mental state of intelligence through a social network using artificial intelligence.

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Abstract: Nowadays, social networks have changed the way that people express their opinions and points of view. This opportunity is given through textual publications, online discussion sites, product evaluation websites etc. People rely heavily on this user-generated content. Social networks offer considerable amount of content generated by the user, it is important content for analysis and offer more services adapted to the needs of users. In recent years, the majority of developments in the field of information and opinion exchange have launched the research work for the analysis of feelings expressed on these social networks, presented in the literature as sentiment analysis.

Keywords: analyze, intelligence, intelligence, network

Introduction. The purpose of the study is to determine, based on the analysis of statements in accounts, systems of conceptual, terminological, semantic and semantic categories that reveal the nature of the personality relationships of people who committed suicide in comparison with their peers, whose suicidal judgments did not end with suicide

The relevance of the chosen topic of the Diploma Project is due to the fact that the development of a search engine application for users who are prone to suicide and a social network allows reducing the number of people committing suicide.

The object of the study is - subjective space of meanings and subjective values of persons with different levels of suicidal activity in the electronic resources of the Russian-speaking Internet sector.

Subject of study- verbalized judgments (texts of interactive messages) of people - users of accounts on social networking sites in the Internet.

The hypothesis of the study - analysis of statements in social networks of persons who committed suicide, reflects the motivational value characteristics of the personality, manifested, including semantically and semantically loaded categories, the use of which can be considered as a risk factor for suicide.

Sentiment Analysis is the procedure of 'computationally' definition whether a letter of writing is positive, negative or neutral. Additionally, this definition known as opinion mining, which means obtaining the views or position of the speaker. The analysis of sentiments uses, among other things, the detection of opinions on social networks, clarifying consumer behavior, recommending products and explaining the outcome of the elections. It consists of searching for evaluative texts on the Internet such as criticisms, recommendations and analyzing the feelings expressed therein in an automatic or manual way, in order to understand public or private opinion.

3,3 million people are active users of social networks in Kazakhstan, i.e. Tengrinews.kz. These data are indicated in the report prepared by the agent "Media Systems" using the Brand Analytics service. The study was conducted in the winter of 2015-2016. The focus was on active users, which are marked by publications at least once a month. The most popular social network among Kazakhstanis was VKontakte, where 1.945 million users are sitting. In a month they publish about 45 million messages. Among the users, 53.8 percent are men and 46.2 percent are women. Most of the audience of the social network "VKontakte" - people under 18 years old. Slightly less users fall under the category of 18 to 24 years. Over 25 years old - less than a quarter of active users.

However, social networks such as Facebook, Twitter and VKontakte are increasingly associated with many social phenomena such as harassment, intimidation, depression or even suicide. This is why it is essential to try to detect potential victims as soon as possible in order to reinforce the prevention of suicide using social networks.

This research focuses on suicide. Because suicide is simply one of the 20 leading causes of death in the world. Already the pronunciation of suicide word should not be taken with simplicity and lightly. It can be the last call for help, and yet if the signs and clues are recognized at the beginning, lives could be saved. Suicide is preventable, it is an act of those who have not been able to accomplish others and the prevention of suicide should be the responsibility of everyone.

Suicide means intentional deprivation of one's life. For many years, Kazakhstan has not left the top ten countries with the highest global suicide rate. So, in June 2017, 370 occurred, in May - 335, April - 329 suicides. The least suicide occurred in February - 251. In general, in 2017, Kazakhstan is committed 3 644 suicides. In this number, 2,906 cases occur in the "stronger sex". In addition, 3,538 suicide attempts were registered in the republic - approximately equal numbers were committed by men and women. Most often suicides were committed by men aged 35-44 years - 723 cases, and also women of the same age - 123 cases. Recent research studies have demonstrated that social networks can be used to extract feelings of depression, which makes it easier for us to prevent suicide online. The content addressed and the phrases used by depression, discouragement and suicides are well known and available.

In reality, the numbers can be much higher, since in low- and middle-income countries, not all suicides can be qualified for different reasons. According to existing data, these countries account for about 75% of all suicides in the world.

In the republics of Central Asia, the situation is most alarming in Kazakhstan, which is included in the category of countries with the highest number of suicides. The level of suicide in Kazakhstan is twice the level in Kyrgyzstan, which is the second in Central Asia in terms of this indicator. According to statistics, in Central Asia in Tajikistan are less prone to suicide - this level in Tajikistan is almost five times less than in Kazakhstan and two times less than in Uzbekistan.

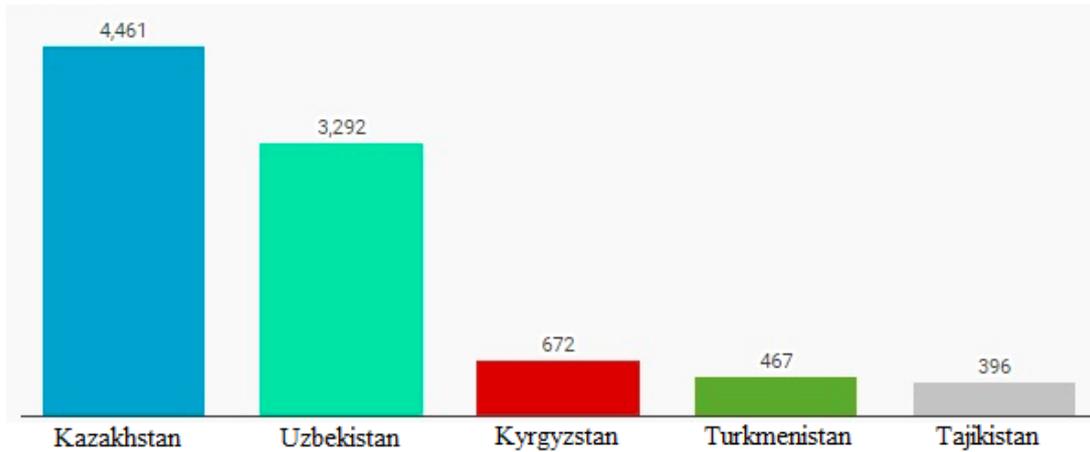


Figure 1.1 - The number of suicides for 2016 in Central Asia.

Globally, men are more likely to commit suicide. In rich countries, men are three times more likely than women to commit suicide, while in poor countries the number of women committing suicide increases dramatically. Central Asia is no exception to the rule, and in the region, men kill themselves more than women.

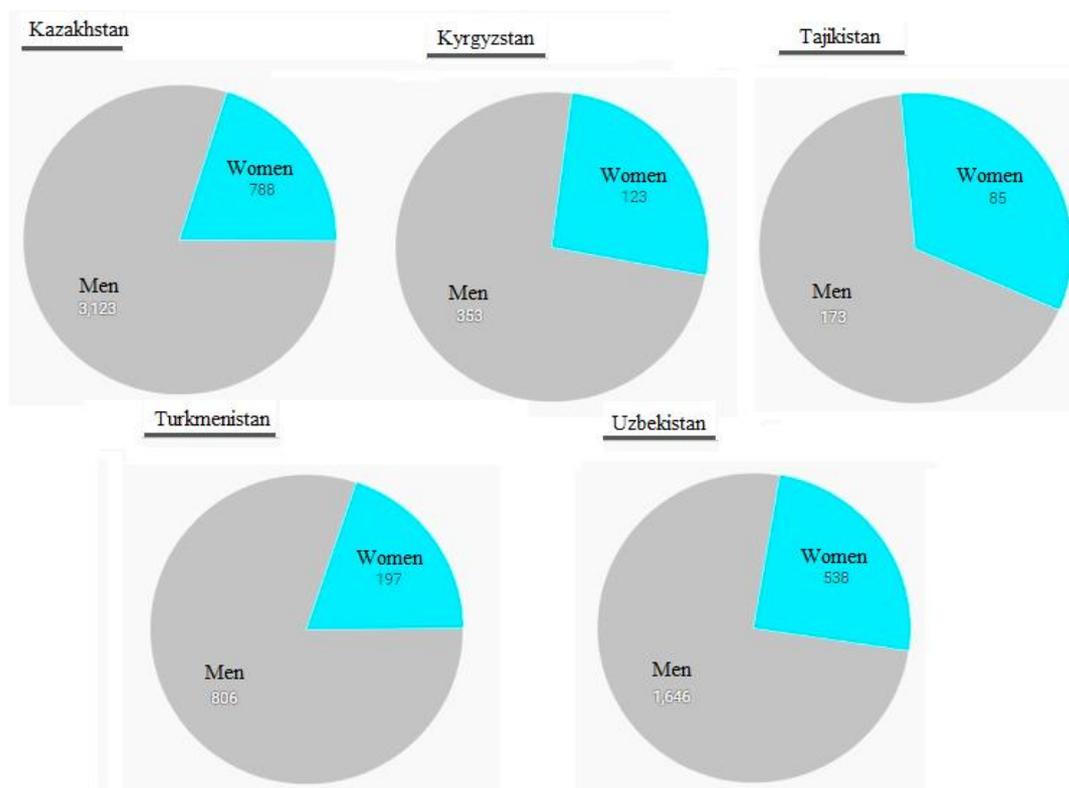


Figure 1.2 - The number of suicides by gender 2016

The hardest thing, according to statistics, is Tajik women, where for every three men who commit suicide, there are two women. A couple of years ago, Tajik society was shocked by the news about women who had deprived themselves and

their children of life. In Kazakhstan and Kyrgyzstan, the ratio is lower - for every six men who kill themselves, there is only one woman.



Figure 1.3 - Male to female ratio of suicide rates

Gender ratio of suicides per 100000 people per year. Values higher than 1 indicates countries where more men die from suicide than women.

According to World Health Organization, suicide ranks second among the causes of death for people between the ages of 15 and 29 in the world. In the republics of Central Asia, at least 70% of suicide deaths occur in people aged 15 to 49 years.

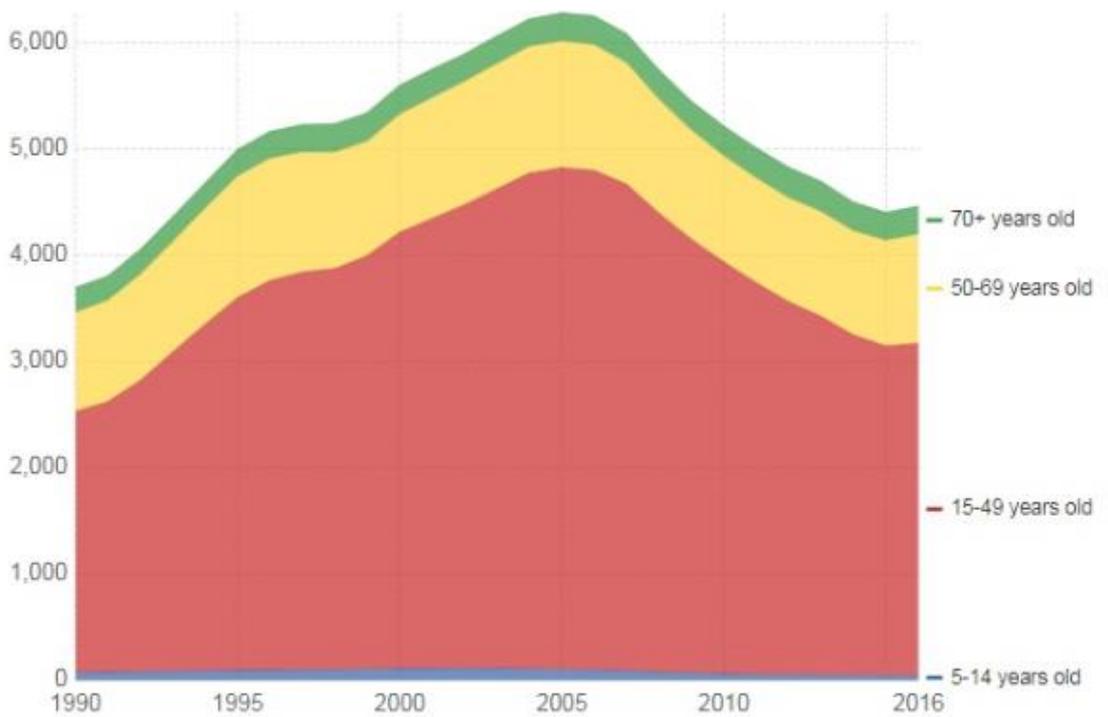


Figure 1.4 - Suicide deaths by age, Kazakhstan

Cultural differences, as well as bureaucratic features that exist among the medical institutions of the countries of the region, do not always provide an opportunity to fully assess the real situation with suicides. Not always the relatives of the deceased and the relevant authorities are interested or have the technical ability and adequate knowledge to assess the real cause of death of a person. At the same time, for every suicide there are many suicide attempts. There are many reasons for people pushing people to voluntarily leave their lives - both economic, social and cultural factors can influence a person's decision.

According to available information, people who publish their suicidal intentions through the Internet rarely receive timely assistance. That is why our search engine will help reduce the risk of suicide, find such people and give them interpersonal relations and support from expert psychologists save a person's life.

At present, due to the lack of attention to this problem, the development of an information system is being carried out, with all kinds of control and management systems.

The main adverse circumstance of the existing system is: when using specific words and phrases indicating suicidal intentions, finer tuning will be necessary, since people often use the same formulations in a figurative sense.

To achieve the goal of the graduation project, it is necessary to solve the following tasks:

Analysis of works:

- Creating a database for training and testing neural network
- Constructing an algorithm using machine learning

The project will be used in the organs of rescue from suicide in which experts and psychologists will provide emergency assistance. Additionally, we can offer our project in Facebook, Vkontakte or other social networks.

For our algorithm we use neural network and deep learning.

Neural network:

- one of methods of machine learning;
- a network of simple computing elements - artificial neurons.

Traditional machine learning:

• selection of important features from a variety of available data (feature engineering).

Deep neural networks:

- automatic identification of important features in the learning process;
- high computational requirements.

Steps for determining the text tonality of posts in social pages using a recurrent neural network:

- loading the training dataset;
- pre-processing the dataset;

- creation of neural network architecture;
- neural network training;
- saving a trained neural network;
- using neural networks for prediction (prediction).

Making your own neural network or even artificial intelligence has become easy. The most important thing you need is data - countless arrays of tagged and annotated data. Creating new AI solutions or products is the hardest part - not algorithms, but collecting and marking a collection of data. Our dataset has to contain data in Russian language, because the object of the study is subjective space of meanings and subjective values of persons with different levels of suicidal activity in the electronic resources of the Russian-speaking Internet sector.