Detection of suicide-related posts in Twitter data streams

**ABSTRACT**

Suicidal ideation detection in online social networks is an emerging research area with major challenges. Recent research has shown that the publicly available information, spread across social media platforms, holds valuable indicators for effectively detecting individuals with suicidal intentions. The key challenge of suicide prevention is understanding and detecting the complex risk factors and warning signs that may precipitate the event. In this paper, we present a new approach that uses the social media platform Twitter to quantify suicide warning signs for individuals and to detect posts containing suicide-related content. The main originality of this approach is the automatic identification of sudden changes in a user’s online behavior. To detect such changes, we combine natural language processing techniques to aggregate behavioral and textual features and pass these features through a martingale framework, which is widely used for change detection in data streams. Experiments show that our text-scoring approach effectively captures warning signs in text compared to traditional machine learning classifies. Additionally, the application of the martingale framework highlights changes in online behavior and shows promise for detecting behavioral changes in at-risk individuals.

**EXISTING SYSTEM**

* In the existing system, the system implemented to understand the connectivity and communication characteristics of Twitter users who post content subsequently classified by human annotators as containing possible suicidal intent or thinking, commonly referred to as suicidal ideation.
* The system achieves this understanding by analyzing the characteristics of their social networks. Starting from a set of human annotated Tweets we retrieved the authors’ followers and friends lists, and identified users who retweeted the suicidal content. We subsequently built the social network graphs.
* An existing system results show a high degree of reciprocal connectivity between the authors of suicidal content when compared to other studies of Twitter users, suggesting a tightly-coupled virtual community. In addition, an analysis of the retweet graph has identified bridge nodes and hub nodes connecting users posting suicidal ideation with users who were not, thus suggesting a potential for information cascade and risk of a possible contagion effect. This is particularly emphasized by considering the combined graph merging friendship and retweeting links.

**Disadvantages**

* + It is not based on a natural language processing (NLP) based approach.
  + There is no technique for emotion change detection.

**PROPOSED SYSTEM**

* In the proposed system, the system addresses the challenge of real-time analysis of Twitter posts and the detection of suicide-related behavior. To process the stream of an individual’s online content, we implement a martingale framework, which is widely used for the detection of changes in data stream settings.
* The input into this framework is a series of behavioral features computed from each individual Twitter post (tweet). These features are compared to previously seen behavior, in order to detect a sudden change in emotion that may indicate an elevated risk of suicide.

**Advantages**

* Very fast Suicide warning signs in online behavior.
* The system is effective due to a general framework for detecting suicide-related posts in social networks.

**SYSTEM REQUIREMENTS**

➢ **H/W System Configuration:-**

➢ Processor - Pentium –IV or later version

➢ RAM - 4 GB (min)

➢ Hard Disk - 40 GB

➢ Key Board - Standard Windows Keyboard

➢ Mouse - Two or Three Button Mouse

➢ Monitor - SVGA

**Software Requirements:**

* Operating System - Windows XP or Later Versions
* Coding Language - Java/J2EE(JSP,Servlet)
* Front End - J2EE
* Back End - MySQL