Personalized Prediction of Suicide Risk for Web-based Intervention

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**Personalized Prediction of Suicide Risk for Web-based Intervention**


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**Motivation and Objective**

- **Zero-sum game:** Reddit is a widely used and highly relevant social-media platform where users share their experiences on specific subreddits, providing insights into the profile of users suffering from mental health issues.
- **Transition from a mental health condition to suicide is slow.**
- **"Social Stigma"** associated with mental health issues and suicide deter patients from sharing their experiences with others. Social media provides a free and open forum for those who have had suicide attempts.
- **Similar trend noticed in patient population suffering from depression, schizophrenia, and other mental health conditions.**

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**Architecture and Approach**

- **Reddit is a widely used and highly relevant social-media platform where users share their experiences on specific subreddits.**
- **According to SAMHSA, 80% of patients diagnosed with Borderline Personality Disorder report a history of suicide attempts, with deaths ranging between 8-10%.**
- **Transition from a mental health condition to suicide is slow.**
- **"Social Stigma"** associated with mental health issues and suicide deter patients from sharing their experiences with others. Social media provides a free and open forum for those who have had suicide attempts.
- **Similar trend noticed in patient population suffering from depression, schizophrenia, and other mental health conditions.**

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**Contributions**

- **Development of an extractive summarization module for generating semantic summaries of textual content ranked by relevance to C-SSRS.**
- **Extraction of 500 users from this cohort and annotation of content following the guidelines of C-SSRS.**
- **We assess the suicidal dynamics for randomly selected 10 users.**
- **Development of a comprehensive lexicon of suicide-related symptoms using C-SSRS categories as labels with help from domain experts.**

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**Exploratory Data Analysis**

- **Sample consists of 1000 users using Reddit, total of 1,400 posts (50% female, 50% male).**
- **Reddit users are three times more likely than the general public to post about suicide.**
- **The data obtained from mental health subreddits over a year from 2005 to 2018 users was noted to be higher than anticipated.**
- **Development of comprehensive lexicon of suicide-related symptoms and C-SSRS categories to codify and analyze users' experiences.**
- **Development of a question answer system that allows the treatment of user messages containing symptoms of suicide.**

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**Conclusion and Future Work**

- **In our current study, we have built state-of-the-art deep learning and neural embedding techniques to provide mental health awareness and a suicide detector.**
- **In the future, we plan to incorporate our approach in a ROSE web application using our own cohort.**

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**References**

3. **Khan, Shahab, and Duane E. Bates.** "Learning to Classify Social Media Texts from Users' Comments." *Journal of Artificial Intelligence Research 22.*