

Project goal

Study the impact of forum conversation on suicide escalation and de-escalation.

Project description

Several studies have discussed the impact of so-called “copycat suicides”, i.e., suicide attempts that are direct effect of exposure to prominent suicides (Stack 2003). On the other hand, researchers have observed that participating in mental health online communities reduces the severity of the content posted by users (Cohan et al 2017). As such, we want to examine the following aspects on interaction among online community members:

- Given an user in a distressed state (where distress is measured as rolling average severity being over threshold τ), can we predict, based on their interaction with other forum members, the severity level for subsequent posts. The exact setup of this task should be carefully defined: should be predict whether, in the subsequent k posts, average severity increases, stays within margin δ , or decreases? Another option is to treat this prediction task as a regression task. Arman will provide predicted labels for all forum post in the dataset, which have very high accuracy (>90%).
- Given the prediction system outlined above, what expressions significantly correlate with with decrease/increase in severity level? We are interested in obtaining an interpretable model, i.e. a model that can provide insight in the most effective way to conduct suicide prevention in online communities.

Suggested model

Several models could be used to achieve the task described above. To start, a simple multi-class classifier with ngram features (e.g., unigrams, bigrams, etc.) should be explored. This classifier would take as input the n most recent post of a user and m replies to such post and try to predict whether there would be a variation in severity level in subsequent posts. Additional features (e.g. emotion scores, medical terms, etc.) could also be used as features.

References

Cohan, Arman, Sydney Young, Andrew Yates, and Nazli Goharian. "Triaging Content Severity in Online Mental Health Forums." arXiv preprint arXiv:1702.06875 (2017).
Stack, Steven. "Media coverage as a risk factor in suicide." Journal of Epidemiology & Community Health 57.4 (2003): 238-240.