

Mental Health Risk Text Classifier

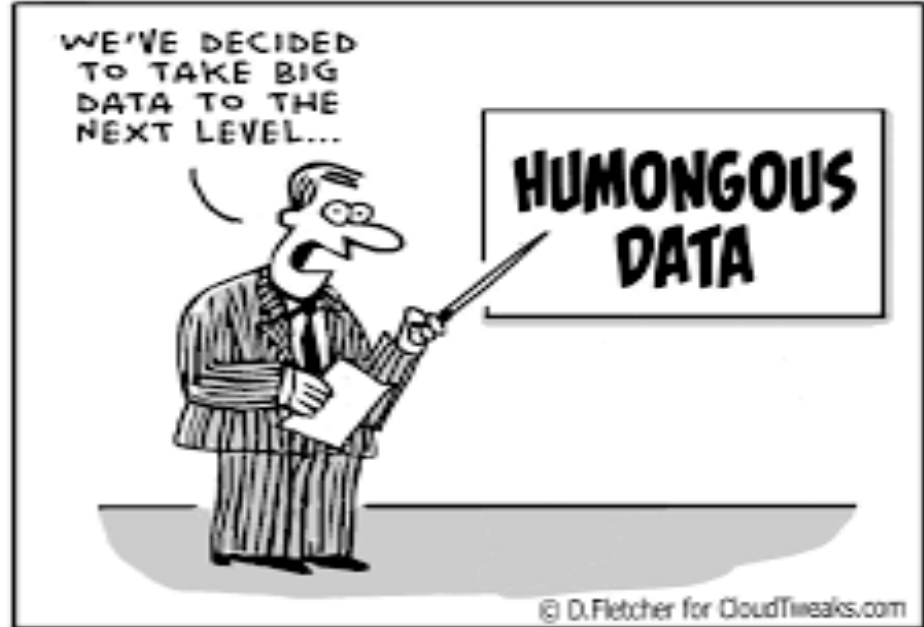
Can Text Data Identify Risk?

By Leah Pilossoph, RN



The Problem

- Diagnosing is limited
- Based on infrequent conversations between clinicians and patients
- Some questionnaires; but many feel they are outdated
- Need More Data!!!



Text Classification with Reddit Posts

- Methods:
 - PRAW for web-scraping Reddit data
 - Multinomial Naïve Bayes classification
 - Deep neural networks
 - Feature Extraction
 - Count Vectorization
 - TF-IDF Vectorization



RESULTS

- Mental Health Risk / Non-Mental Health Risk Classifier
 - Precision: 0.76
 - Recall: 0.78
 - Accuracy: 0.77
 - F1 Score: 0.77



RESULTS

- Suicide Risk Classifier

- Accuracy: 0.66
- Precision: 0.64
- Recall: 0.77
- F1 Score: 0.70



IMPORTANT WORD FEATURES

- "anxiety"
- "suicide"
- "life"
- "die"
- "kill"
- "anymore"
- "live"
- "fuck"



OTHER IMPORTANT FEATURES

- Post Length
 - Shorter post length contributed to a “suicidal post” model output
- Percentage of Absolutist Words Used
 - Higher percentage contributed to a “suicidal post” model output

RECOMMENDATIONS

- Clinicians can utilize to identify/diagnose
- Clinicians can track progress
 - Therapy Impact
 - New medications
 - Are they working?
 - Dose changes?
- Can also be used by family members
 - Parents
 - spouses

FUTURE WORK

- More data!
 - My measly computer couldn't handle that much text data...
- Better data!
 - Relying on redditors to self-diagnose themselves by posting in suicide/depression/anxiety forums is not reliable!
 - Control forums used: cannot rule out that these redditors are also in fact suffering from mental illness

FUTURE WORK CONTINUED

- PRIVACY!!!
 - Ensure that text is not being used improperly
 - Especially if future data utilizes unpublished texts



QUESTIONS?



A cartoon drawing of a clenched fist, with the words "ROAST ME" written in large, bold, red, sans-serif letters across it. The text has a black outline and a slight shadow effect. The entire graphic is tilted to the right.