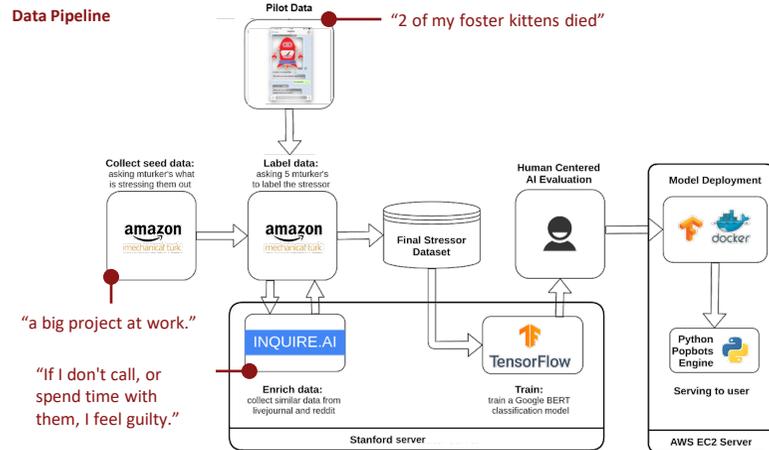


SAD: A Stress Annotated Dataset for Recognizing Everyday Stressors in SMS-like Conversational Systems

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Dataset Topics & Distribution

| Stressor | Example | Count (%) |
|---------------------------------------|---|--------------------|
| Work (W) | "I have some tasks I keep putting off" | 1341 (20%) |
| Health, Fatigue, & Physical Pain (HF) | "I want to eat better but I'm, having a hard time with it" | 782 (11%) |
| School (S) | "I have a paper due tomorrow for class" | 743 (11%) |
| Family Issues (FI) | "My marriage" | 742 (11%) |
| Emotional Turmoil (ET) | "feeling lonely" | 667 (10%) |
| Financial Problems (FP) | "I have a friend coming by and I'm stressed about an expense" | 635 (9%) |
| Social Relationships (SR) | "I found out my ex has a new girlfriend" | 629 (9%) |
| Everyday Decision Making (ED) | "Don't know what to cook for dinner" | 337 (5%) |
| Other (O) | "Just travel stuff" | 974 (14%) |
| Total | | 6850 (100%) |

Motivation

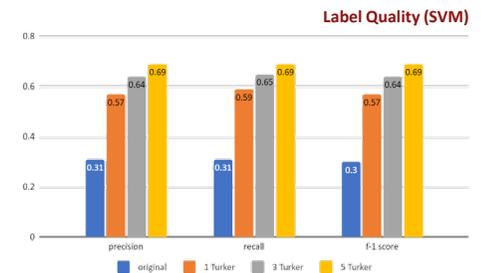
60-80% of primary care visits have a **stress component**, but only **3%** receive stress management **advice**. **Chatbots** can make such advice **more accessible**; however, these systems are costly to build and **data is not readily available**.

Approach

We developed a **prototype chatbot system** and conducted an exploratory study to determine the **types of stressors** users would be comfortable discussing. Then we developed a **synthesizing and labeling** pipeline utilizing **crowdsourcing** and **web scraping** to create our SMS-like **stressor dataset**.

Evaluation

Label quality increased with the number of **raters** using majority vote (right) and our **N=20 bootstrap experiment performed well** when selecting for topics with >600 examples (below).



Topic Classification (BERT)

| | Precision | Recall | F1 | O | W | SR | FP | ET | HF | S | FI |
|---------|-----------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Mean | 0.814 | 0.807 | 0.809 | 0.667 | 0.905 | 0.779 | 0.869 | 0.636 | 0.837 | 0.920 | 0.861 |
| SD | 0.012 | 0.009 | 0.010 | 0.036 | 0.011 | 0.033 | 0.018 | 0.033 | 0.025 | 0.011 | 0.018 |
| SE | 0.003 | 0.002 | 0.002 | 0.008 | 0.002 | 0.007 | 0.004 | 0.007 | 0.006 | 0.002 | 0.004 |
| Support | 1043 | 1043 | 1043 | 152 | 238 | 99 | 101 | 103 | 101 | 123 | 126 |

Get the dataset on [GitHub](https://github.com/PervasiveWellbeingTech/Stress-Annotated-Dataset-SAD)

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