AEP Worker Safety Challenge

Devin Lust, Jake Bailey, Junbo Chen, Blake Whitman

Our Goal

- Create software that helps AEP workers determine the most at risk sites
- Allow leaders to quickly take action in preventing human, property, and environmental damage.

How we did it

- Created an LLM using open source technology and fine tuned it to domain specific nuances with text comments from AEP workers
- Developed a dashboard to help safety leaders recognize trends and take proactive safety measures
- Prototyped a mobile app to streamline the safety check process both for those on the field and in the office

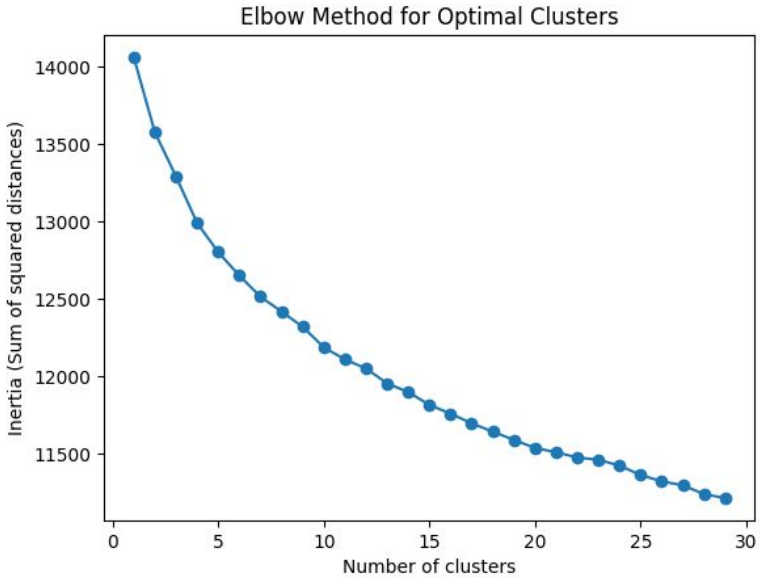
The Model

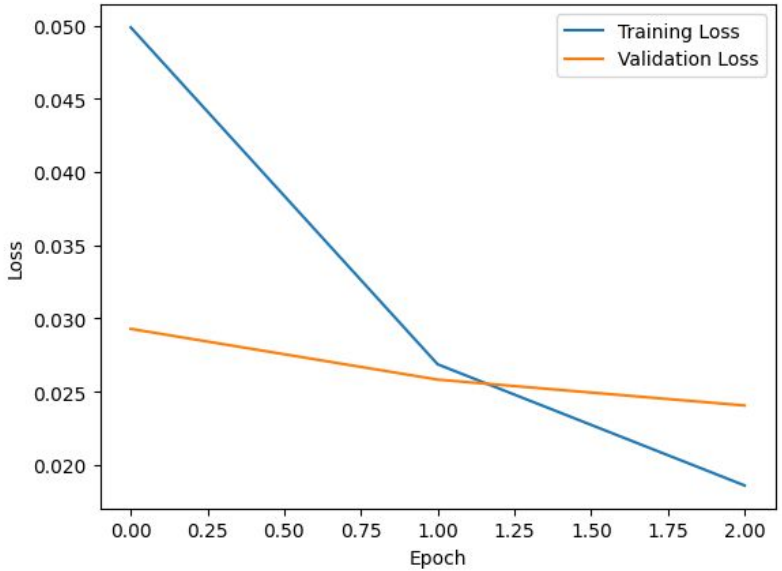
- **Main challenge:** Data provided is not labeled. We had to develop a way to label it automatically.
- Part 1:
  - Creating an accurately labeled dataset
  - Used a aggregation of clustering, tokenization, and zero-shot classifying
  - Labels generated as a confidence percentage of whether the models agreed
  - A high potential for danger is classified when it likely belongs to on of the 13 pre-identified categories from AEP

The model cont.

Part 2:

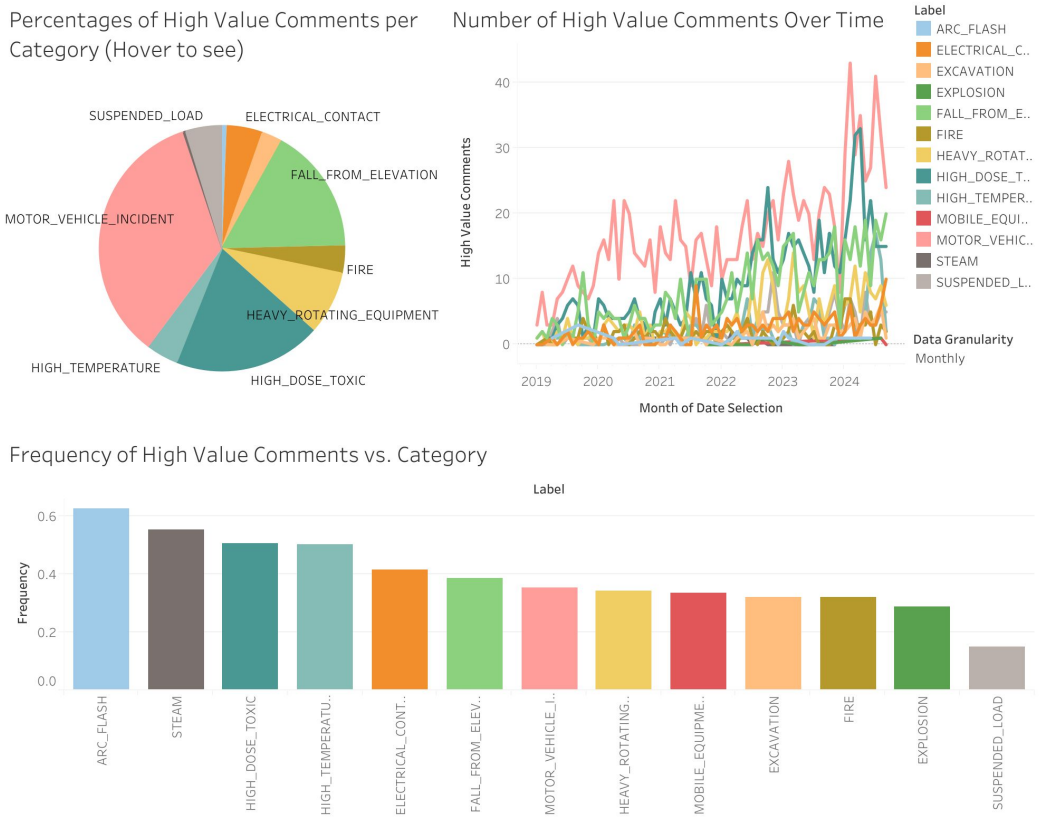
- Fine tune a transformer model (BERT) using the newly labeled dataset





AEP Dashboard

[Dashboard]



Mobile App Prototype

- Allow workers conducting safety checks to submit from their phone.
- Automatically hit the LLM after submission
- Alert supervisors if a high risk situation is detected
- Add features to safety checks for better predictions and pattern discovery in the future