Peer Evaluation - October 25, 2022
CS6630 Final Project

Understanding Complex Manufacturing Equipment Structure and Behavior through Advanced Visualization Technologies

Alan Weber, Faris Khan, Filemon Mateus

Peer review session notes: We paired with Hyrum Schenk's group "U Hungry." (Hyrum's group partner Nooshin Seddighi was out of town for the session, so it was just Hyrum asking the questions)

Some of Hyrum's comments and our responses:

- How many data points are we talking about for the datasets?
    - There's a large range of dataset sizes that can come from fab equipment. For dynamic data, some tools may have a dozen traces, while others may have hundreds. For this project, we will be limiting our scope to 5 to 10 different equipment models with data that is reasonably easy to parse and visualize (such that even non-technical audiences can understand the gist of the visualizations).

- Scope of the project seems immense in terms of the data that is being visualized. For the dynamic data, hundreds of traces seems like it could be a lot.
    - A real tool may have close to a thousand traces being generated. Being able to select and deselect traces for our visualization will allow the end user to determine which variables are worth paying attention to.
    - We will also limit the number of tool types so that we don't have to write many (if any) custom structure/data parsers. Even though the format are governed by industry standards, there are variations by equipment supplier and process type that must be comprehended.

- Will the visualization show things going out of spec? That is, if things have anomalous distributions, is that going to be highlighted in the visualization at all?
    - Tools often have process control limits that tell you whether certain variables are going beyond specification limits. Visualizing this is not currently a plan for our visualization. It would be good to include stat reflectors of the data to see what is going out of spec as a "nice to have" feature.

- How are you going to navigate between the different visualizations, especially since there is different data being visualized?

    - Different sidebars for static and dynamic data can split up visualizations according to the stakeholder's particular use case on the main "launchpad."

- Is the data coming in real time?
    - Data won't be streamed in real-time; rather, the dynamic data will be a "recent history" of tool data. Moreover, parsing real-time data is beyond the current scope of the project.

Other general comments from Hyrum include:

- Target audience for the visualization seems very narrow, technical, and niche, so it may be hard for outside people to understand the visualizations. Maybe include some "beginner friendly" tooltips and explanations. Proper navigation and clean UI will help in that regard. How will the TAs and professors know what the visualizations are communicating at a high level?