

# William Jensen

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## Work Experience

### Cummins Inc.

August 2022 - Present

Internal Machine Validation Engineer (Test Engineer)

- **Program management: Led the fleet of 9 engineering trucks for the heavy duty diesel engine platform**
  - Communicated with stakeholder from several cross-functional groups to coordinate testing schedule, prioritization, as well as potential risks and their impact on testing timelines
    - Collaborated with the workshop and platform leadership on truck maintenance and new part installs
    - Planned testing schedules for the fleet in order to accommodate requests from different groups
    - Completed standard validation work for each milestone release, including assisting in troubleshooting any issues found by collaborating with feature owners
  - Led a 3.5 week test trip of two trucks to multiple locations to complete tests in different conditions
    - Worked with platform leadership to assess testing needs and create testing plan for the trip
    - Prepared the trucks for the trip including setting up CANape to log relevant data
    - Presented the trip findings to platform leadership in a post-trip data review
- **Process improvement**
  - Improved MATLAB data analysis script, increasing useable data from manual trucks by 60%
  - Automated data aggregation and summary plots using Excel macros, saving 1.5 hrs. per monthly data review
  - Created an excel tool for use as a primary scheduling calendar to reduce the number of entries made to the master scheduling database. Batch entries to the master database done weekly saved 30-45 mins. per week
  - Followed a formal fault tree analysis process to make improvements to the validation test procedure and process. This included the handling of OEM compatibility changes, metrics for new or updated features, as well as adding additional criteria to help spot an issue not directly covered by the existing procedure
- **Additional responsibilities**
  - Troubleshooting truck issues and DTC codes, this involved following troubleshooting trees, communicating with feature owners, and using CAN network tools such as PCAN explorer/view and CANalyzer
  - Planned and executed test requests submitted by other engineering groups in a timely manner, completing most requests on the team in 2023 with 72 test requests completed

## Personal Projects

### Pygame Boggle Clone

- Created a clone of the word game Boggle in Python using the Pygame library
  - Used object oriented principles to create a game object with methods implementing game functionality
  - Used a Prefix Trie and a DFS based algorithm to find all valid words on a given boggle board
  - Created a Pygame GUI with a menu, options screen, and high score leaderboard

### Portfolio Website

- Used HTML, CSS, and Javascript in React to make a responsive portfolio website

### Youtube Clone

Personal project following a design doc to learn how full stack web apps are implemented

- Implemented Firebase Auth to trigger a Firebase Function to create a Firestore document for each user
- Made a Firebase Function to generate a signed URL to allow users to upload their raw video to a Cloud Storage Bucket, only authenticated users are allowed to upload videos
- When uploading a video, a message is published to a Pub/Sub topic. Then the message is pushed to a Cloud Run worker via a subscription to the Pub/Sub topic. The Cloud Run worker then processes the video using fluent ffmpeg to scale the resolution and create a thumbnail. Processed content is stored in additional Cloud Storage Buckets. Metadata for the videos/thumbnails is stored in Firestore
- I extended from the design doc to include the thumbnail creation, storage, and their display on the Next.js client

## Education

### University of Minnesota, College of Science and Engineering, Minneapolis, MN

Bachelor's of Mechanical Engineering with a minor in French Studies, FSAE member

May 2022

## Skills

Microsoft Office & Project; Python; HTML; CSS; SQL; MATLAB; J1939; PCAN explorer; PCAN view; CANape; CANalyzer;