MEMORANDUM

To: Professor Wolfe

From: Hongru Liu

Date: January 31, 2026

Subject: Justification Memo - Web Portfolio Content, Design, and Audience Targeting

Purpose and Audience

The purpose of my web portfolio is to present a clear, employer-focused snapshot of my mechanical engineering preparation and project outcomes. The intended audience is engineering hiring teams—especially engineering managers and recruiters—who typically scan quickly and look for evidence of relevant skills, applied experience, and results.

Target Employer and Desired Role

The type of employer I most want to work for is a product-driven engineering company where mechanical engineers contribute to real prototypes and validated systems—particularly in automotive, robotics, manufacturing/additive manufacturing, and energy. These organizations value engineers who can move from modeling to build/test iteration, collaborate across disciplines, and communicate technical work efficiently.

Skills Important to This Employer Type

Based on the employers I am targeting and the roles I am applying for (Mechanical Engineer, R&D;/Manufacturing/Systems roles), the most important skills to emphasize include:
- CAD and design iteration (e.g., NX CAD; manufacturable design decisions)
- Simulation and modeling (MATLAB/Simulink; dynamics; validation)
- Controls fundamentals (PID control, sensor feedback, actuator integration)
- Prototyping and fabrication (3D printing; build/test cycles; troubleshooting)
- Testing and validation mindset (risk/validation testing; performance iteration)
- Thermal-fluid fundamentals (heat transfer design; fluid mechanics optimization)
- Communication and documentation (clear summaries, structured project narratives)

Content Choices and Rationale

I selected portfolio content to highlight breadth and applied outcomes while staying aligned with mechanical engineering roles. My research experience demonstrates sustained technical work, experimentation, and iteration in an R&D; setting. My four featured projects collectively show core hiring signals across controls, thermal design, prototyping/integration, and fluid systems.

How the Content Is Tailored to Employer Needs

I tailored the portfolio in three ways: (1) I emphasize build-test-iterate evidence and validation outcomes; (2) I align each project with a core skill signal (controls, thermal design, integration, or fluid systems); and (3) I make tools and methods visible through keywords in both the Skills section and project descriptions to support quick screening.

Layout and Aesthetic Choices

I chose a simple, professional layout with consistent navigation (Home, Projects, Resume) so employers can reach the information they need in one click. Card-style sections and clear headings support fast scanning. A minimal color palette and high contrast keep the page readable and emphasize content over decoration.

Document Design Practices

To follow good document design, I focused on hierarchy (clear headings), consistency (repeated patterns across pages), scanability (short paragraphs and bullets), and accessibility (readable typography and straightforward navigation).

Conclusion

Overall, my portfolio is designed to help engineering employers quickly understand what roles I am targeting, what skills I bring, and evidence that I can design, model, prototype, and validate systems. The structure supports fast scanning while providing depth through individual project pages and a resume download.