Greg Emmen

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💼 Professional Experience

General Motors

Vehicle Systems Integration Engineer for GM Defense, *Feb 2024 – Present*
- Manage the development and integration of electrical systems into defense vehicles
- Collaborate with GM Defense team members to maintain and pursue defense contracts
- Ensure that integrated vehicle systems comply with regulatory standards and requirements
- Identify and resolve issues related to vehicle system integration

Software & Controls Engineer for GM Defense, *Sep 2021 – Feb 2024*
- Prototype control systems for military vehicles to meet customer requirements with tight deadlines
- Utilize real-time CAN communication tools (neoVI, ETAS INCA/MDA) to troubleshoot vehicle issues
- Develop software to integrate GM standard technology onto non-standard defense applications
- Coordinate with suppliers on hardware and software integration for off-the-shelf components
- Perform hardware validation activities with dyno cells and mule vehicles

Controls Design Engineer, *Dec 2018 – Sep 2021*
- Led a cross-functional team of engineers to enable HV propulsion capability and safety features
- Defined a leader/follower communication protocol for coordinating actions across controllers
- Refactored C++ code to improve run-time execution, maintainability, and software quality
- Wrote embedded controls software in a scaled agile development environment
- Directed the automation of unit and behavioral software tests with global team
- Engaged in GM standard system analysis of failure modes (DFMEA)

Plant Modeling & HIL Integration Engineer, *Jun 2015 – Dec 2018*
- Technical expert on the implementation of controller software to Hardware-in-the-Loop (HIL) benches
- Built and maintained MATLAB plant models to simulate vehicle hardware capability
- Spearheaded initiative to organize tools and workflow in laboratory environment
- Managed multiple HIL benches to meet customer requirements for testing
- Enabled Python scripted test automation capabilities for HIL benches

🎓 Education

Master of Science in Engineering (Energy Systems Engineering)
University of Michigan – Dearborn, *2019 – 2021*
- Regenerative Braking Control of a Brushless DC Motor Drive ([regen braking project writeup](#))
  - Designed a vehicle model to analyze six-switch inverter strategies for regenerative braking
- Satellite Attitude Control Model ([attitude control project writeup](#))
  - Simulated and analyzed various aspects of attitude control on a rigid body in zero-gravity

Bachelor of Science in Mechanical Engineering
Colorado State University, *2011 – 2015*
- CSU EcoCAR3 Controls Team
  - Built the supervisory control framework and selected hardware for use on competition vehicle

💡 Skills

Data Acquisition & Analysis · Agile Software Development · Version Control (Git/Github)
Vehicle Communication (CAN/CANFD, J1939) · Project Coordination · MATLAB/Simulink · Python · C++