

Greg Emmen

Software & Controls Engineer



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Professional Experience

Software & Controls Engineer

GM Defense

Sep 2021 – Present

- Rapid prototype controls development
- Built software to integrate GM technology for defense applications
- Utilized real-time CAN communication tools to troubleshoot vehicle issues
- Coordinating with suppliers on hardware and software integration
- Supporting team member in pursuit of defense contracts and opportunities

Controls Design Engineer

General Motors

Dec 2018 – Sep 2021

- Led a cross-functional team to deploy HV propulsion and safety features
- Wrote embedded controls software in an agile development environment
- Refactored code to improve run-time, maintainability, and software quality
- Engaged in GM standard system analysis of failure modes (DFMEA)
- Coordinated unit and behavioral testing with global team

Plant Modeling & HIL Integration Engineer

General Motors

Jun 2016 – Dec 2018

- Technical expert on the implementation of software to HIL benches
- Built and maintained plant models to simulate vehicle hardware capability
- Managed multiple HIL benches to meet customer requirements for testing

Facilities Engineering Intern

Cummins Inc

Jun 2014 – Aug 2014

- Assisted in implementing an ISO 50001 energy management system
- Provided troubleshooting support for failures on air handler units



Projects

Regenerative Braking Control of a Brushless DC Motor Drive

Fall 2021

- Model built using MATLAB/Simulink for basic vehicle energy and dynamics
- Testing of modified six-switch inverter strategies for regenerative braking

Satellite Attitude Control Model

Fall 2020

- Specified a set of equations for 2D movement of a rigid body in zero-gravity
- Researched the impact of PID tuning, disturbance rejection, and open-loop vs. closed-loop system response

CSU EcoCAR3 Controls Team

Fall 2010 – Spring 2011

- Created decision matrices to choose between controls hardware suppliers
- Built the supervisory control framework to use on the competition vehicle
- Provided supporting documentation and analysis for competition events



Education

Master of Science in Engineering

Energy Systems Engineering

University of Michigan – Dearborn

2019 – 2021

Bachelor of Science

Mechanical Engineering

Colorado State University

2011 – 2015



Skills

- Vehicle data acquisition & analysis
 - ETAS tools (MDA, INCA)
 - Vehicle Spy
 - neoVI HW
- Vehicle communication
 - CAN/CANFD
 - J1939
 - LIN
- Rapid prototyping
 - dSPACE HW & SW
 - New Eagle HW & SW
- Automated software testing
- Version control
 - GIT
 - Github
- Agile software development
- MATLAB/Simulink
- Python
- C++



Interests

Additive manufacturing

Board game development

Houseplant cultivation

Reading