Greg Emmen

Software & Controls Engineer

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Professional Experience

Software & Controls Engineer
GM Defense *Sep 2021 – Present*
- Develop software using rapid prototyping tools to implement GM standard technology in non-standard ways
- Utilize real-time vehicle communications software to diagnose and troubleshoot dynamic and static vehicle issues
- Support team 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
- Developed software and algorithms to meet or exceed system requirements on electric vehicles
- Coordinated unit and behavioral testing of software 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 hardware functionality
- 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
- Analyzed a variety of permutations in the model to quantify impact

Satellite Attitude Control Model
Fall 2020
- Specified a set of equations 2D movement of a rigid body in zero-gravity
- Developed a MATLAB/Simulink model for attitude control on a satellite
- Researched the impact of PID tuning, disturbance rejection, and open-loop vs closed-loop system response

CSU EcoCAR3 Controls Team
Fall 2010 – Spring 2011
- Built the initial controls architecture for competition vehicle
- Selected hardware for controls development on a hybrid Chevrolet Camaro
- Supported HV battery design and testing capability

Education

MSE in Energy Systems Engineering
University of Michigan – Dearborn
2019 – 2021

BS in 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

3D printing
Board game development
Houseplants
Reading