HAOCHENG ZHANG

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SKILLS

Python, Matlab, Simulink, Scikit-Learn, Tensorflow, Pandas, Vector CANalyzer, dSpace ControlDesk

EXPERIENCE

Multimatic
Controls Engineer June 2022 to Current

- Developed a prototype ECU using **Matlab/Simulink** for controlling an aftermarket 48V electrical system supporting R&D of an active suspension system
- Developed an electrical plant model using **Simscape Electrical** for optimizing a closed loop PI torque control algorithm to minimize powertrain losses while maintaining a steady state electrical system

University of Waterloo EcoCAR Team
Controls and Modeling Team Lead May 2019 to May 2022

- Re-engineered production SUV into a P4-Parallel-through-the-road hybrid electric vehicle using Simulink state machines to control aftermarket component operations
- Led team of 6-10 members in developing vehicle supervisory, powertrain, and body controls
- Increased MPGe by 30% by developing a rule based powertrain control strategy
- Responsible for feature development from requirements definition to trackside validation

Lixar IT.
Data Science Intern Jan. 2020 to Apr. 2020, Jan. 2021 to Aug. 2021

- Developed an energy price forecasting model using **FB Prophet**, potentially generating $100,000/month

University of Waterloo
Battery Modeling Research Assistant Jan. 2018 to Apr. 2018, Sept. 2018 to Dec. 2018

- Developed a fault detection algorithm for a commercial Battery Management System sensitive to a 0.15% error in MATLAB
- Constructed equivalent circuit models for analyzing model parameter C-rate dependency

PROJECTS

Battery Plant Model

- Achieved a 47% error reduction in model error by converting an existing linear resistor model to a 2-RC equivalent circuit model

Grid Storage Model

- Reduced university campus CO2 emissions by 4 tons/yr by designing and optimizing an energy storage system using Python and Gurobi

EDUCATION

University of Waterloo May 2022
Bachelor of Applied Science Chemical Engineering
Fall 2018 Research Award Recipent
Winter 2017 Dean's List