

FULL-TIME INTERNSHIP

Company

Tesla – Cell Characterization Lab (CCL), San Diego

Role

As a Controls Software Engineer Intern on the Battery Management System (BMS) Team, you will have the opportunity to accelerate the delivery of quality Tesla products to consumer markets. You will be responsible for implementing firmware, improving validation procedures, updating equipment, and assisting with test automation regarding high voltage systems. The Tesla battery team is extremely focused on the quality of users' indicators (i.e., range, SOC, power, etc.) which directly plays into the overall experience and the safety of the system as a whole. The team strives to create robust, efficient firmware and your responsibility is to ensure the code quality is extremely high. You will have the opportunity to support, maintain and optimize critical algorithmic simulation infrastructure (i.e., cell plant models, representing complex battery physics).

Responsibilities

- Use a variety of cell and battery pack models, fleet data, and laboratory test data to work with our controls team to create state-of-the-art feedback control and estimation algorithms for Tesla's high voltage battery packs.
- Test cutting-edge algorithms for run-time BMS logic to derive State-of-Charge, State-of-Health, State-of-Power and State-of-Energy computations.
- Enhance existing battery models to ensure Real vs. Simulation accuracy
- Support rapid test iteration framework for developers to use for quick, at-desk spot checks
- Work cross-functionally with cell modeling, firmware, and battery safety organizations.

Requirements

- Bonus: experience with battery algorithm design
- Bs/MS/PhD students in computer, mechanical, electrical, aerospace, or materials engineering
- Ability to think creatively and produce "outside of the box" solutions
- Proficiency in C and C++
- Experience with modeling of lithium-ion cells
- Simulating dynamic models of electrical systems
- Have knowledge in linear systems analysis and estimation algorithm design
- Capable of analyzing algorithm performance in MATLAB/Simulink
- Strong communication and preference for working in teams
- Basic experience, understanding, and intuition for the electrochemical physics of lithium-ion cells
- Experience in specifying or executing tests on cells in a laboratory environment
- Understanding of diagnostic techniques for cells and battery pack components

Contact

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