Let us describe the challenge we offer

The increased global average temperature and extreme weather events raise the need for immediate actions to combat climate change. Polestar is committed to driving change towards a climate-neutral future with sustainable electric mobility. However, the speed and convenience of charging at a public station remain as challenges that warrant further investigation.

The battery is a complex core component in a modern EV, especially when high performance is combined with a strive to reduce carbon footprint to zero. Both the battery performance and service life are strongly depending on the operating temperature, in turn depending on a multitude of factors such as battery charge level, driving conditions, battery age, battery / thermal system design and vehicle design.

This project is focused around two main topics: development of advanced thermal cell models, partly extending to modules and packs, as well as characterization techniques for large-format Li-ion cells. Modelling will be done in both 0D as reduced-order / lumped models and in 3D using advanced tools for multi-physic simulation.

The work will be performed in close cooperation with other master-thesis projects at Polestar and involves both experimental work and analytical tasks.

What you’ll do

- Develop thermal models for cells, modules and packs at various levels of complexity
- Validate models towards experiments and/or data from vehicles/field
- Incorporate electrochemical/electrothermal models with thermal models
- Develop experimental methods to extract key parameters for cells

Who you are

- M.Sc. in Electrical Engineering, Engineering Physics, Chemistry, Mechanical Engineering
- Good knowledge in Python or MATLAB/Simulink, basic skills within CAE-tools like COMSOL or Ansys
- Interest and skills in experimental work and measurement techniques
- Completed courses and with good knowledge in electrical circuit theory and thermodynamics. A background with electrochemistry/battery technology and experience with advanced modelling tools is an advantage.
- Analytical and independent

Duration

- 20 weeks / 30 ECTS
- Starting date: January 2023
- Estimated end date: Summer 2023
- Number of students: 1-2 students
- This position is based at our HQ in Gothenburg, Sweden.

How to apply

Attach your resume and cover letter stating your interests within the given area and your thoughts and credentials. Please note that applications arriving later then the last application date will not be taken in consideration. Selection will be ongoing during the application period.

We want your application as soon as possible, but no later than 2022-12-01. Please note that applications via email will not be accepted.

Apply at https://about.polestar.com/careers/