PhD (m/f/diverse) Improved SOC / SOH estimation and smart operation for Lithium-Ion Battery systems

Job ID: 93339
City: Erlangen
Organization: Corporate Technology
Mode of Employment: Limited
Part-time: 17.5 hrs./week

Use your knowledge as a springboard

Do you like the sound of finding the smartest solution side by side with professionals and experts? If so, join our R&D team to work on your PhD project. We can help you to combine knowledge, discover connections, and formulate ideas. When you join our team, you will gain an insight into a range of departments and processes. It is a chance like no other to break new ground as we head into the future of electrification, automation, and digitalization. Seize this opportunity today!

Your new role – challenging and future-oriented

Today the transportation sector is responsible for a large fraction of greenhouse gas emissions worldwide. However, within the next couple of years, all means of modern transportation will become to some extent (hybrid) electric avoiding direct emissions from fossil sources. One of these means are electrical ferry boats. The electric energy to operate these boats is stored in large Li ion battery packs with energy capacities in the MWh range. The energy and cost-efficient operation of these battery packs and the extension of the lifetime of the battery require smart algorithms for the estimation of important battery state parameters and data-driven optimized system operation. To achieve these goals, the following tasks shall be carried out within the Ph.D. research

• Investigation of estimation methods (e.g. extended Kalman Filtering) for State of Charge (SOC) and State of Health (SOH) of Lithium Ion battery modules for electrical ferries
• Implementation of these estimation methods on microcontrollers
• Evaluation of required data quality, cost of data acquisition, prediction accuracy and computational complexity
• Development of battery cell degradation prediction algorithms based on improved state estimators using machine learning
• Investigation of improved operational strategies for the battery to increase total lifetime or minimize total cost of ownership

Your qualifications – solid and appropriate

• Master’s degree in computer science, mathematics, data analytics or automation
• Profound experiences in advanced filtering techniques or machine learning
• Experience in algorithm development
• Practical experience with batteries, microcontrollers or electrical metrology
• Willingness to work for roughly 6 months in Trondheim, Norway
• High degree of motivation, people skills and problem-solving abilities
• Ability to work independently and precisely

Getting in touch with us – straightforward and direct

www.siemens.com
if you wish to find out more about Siemens before applying,
+49 (9131) 17-1717
if you wish to discuss any initial questions with our recruitment team,
The contact person handling this job ad is Ms. Nicole Schwopf,
www.siemens.com/careers
if you would like to find out more about jobs & careers at Siemens.

As an equal-opportunity employer we are happy to consider applications from individuals with disabilities.