

The Fraunhofer Institute for Solar Energy Systems ISE is the biggest solar energy research institute in Europe. With our approximately 1.100 employees, we conduct applied research to contribute to the broad application of solar energy, developing new materials, improving technical systems and energy conversion, and creating technological foundations for an efficient and environmentally friendly energy supply.

In our group “Applied Energy Storage Systems” we are looking for a student for

Bachelor/Master thesis on the design and implementation of a data bank for battery test measurements and automatic parametrization

General Information:

Electrical storage systems are one of the key components of the energy transition and the future electrical energy supply system, above all, because they enable a higher penetration of renewable energies in both off- and on-grid power systems. In the group "Applied Storage Systems", you will support us in optimizing and standardizing the process for characterization and parametrization of this key component. You will deal with data obtained from the battery tests conducted in our laboratories, for which you will develop a database and implement the necessary interfaces. You will spend some time at the laboratory, familiarizing with test hardware, and then work on the data structure to build up the database. Finally, an algorithm for automatic parametrization of battery performance and aging characteristics will be developed to run on the implemented database. We are looking forward to receiving your application, and would be glad to welcome you soon in our highly motivated team.

Your tasks will be:

- Study data storage available options and select database type, based on the specific requirements
- Definition of data structure and implementation of efficient data storage
- Automatic recognition of hardware inconsistencies and data fixing
- Adaption of existing interfaces for analysis of tests data and implementation of data extraction filters
- Implementation of recursive least-squares algorithm for the online identification of battery model parameters

What we expect from you:

- Completed studies in Computer Science, Physics, Mathematics, Electrical Engineering, Microsystems Engineering, Industrial Engineering or similar
- Knowledge and experience about databases and its implementation is essential. Hands-on experience in SQL or NoSQL databases
- Experience in statistical data analysis is an advantage
- Very good knowledge in at least one programming language (ideally Python)
- Knowledge about battery system technologies and battery modeling is a plus
- You have critical thinking and good analytical problem-solving skills
- Good team working and communication skills. You are responsible, reliable and have the ability to work autonomously
- Good MS-Office skills
- Very good written and spoken English. German is not a prerequisite but considered advantageous

**Questions related to this position are answered by
Lluís Millet Biosca, Tel.: +49 761 4588 5793**

**Please, send your application to
lluis.millet.biosca@ise.fraunhofer.de
(motivation letter, CV, course transcripts and other certificates attached in PDF
with max. 10 MB)**

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