

## Final Thesis

### „Characterization of Second-Life Batteries and Development of Applications“

(in cooperation with IFSC and UFSC)

#### **Topic Description:**

This thesis is offered within the DAAD NoPa 2.0 cooperation project 2LIFEBAT. The goal of the project is to build a research network between Brazilian and German universities in the area of solar powered storage systems with second-life Li-ion batteries. The Solar Energy Research Laboratory Fotovoltaica/UFSC ([www.fotovoltaica.ufsc.br](http://www.fotovoltaica.ufsc.br)) at the Federal University of Santa Catarina (UFSC) and General/Labsolar from the Federal Institute of Santa Catarina (IFSC), located in Florianópolis, Brazil are part of the project team. The focus of the final thesis is the development of applications using second-life batteries. The work will be carried out partly at THI and partly at IFSC+ Fotovoltaica/UFSC. Accommodation and travel costs for a 2-months stay at IFSC/UFSC in Florianópolis (Brazil) will be covered by DAAD.

#### **Tasks:**

- Sizing of solar photovoltaic systems for stand-alone second-life Li-ion battery applications
- Battery cycling data processing
- Extraction and selection of battery health indices (SoH, SOC, internal resistance,...)
- Application of machine learning to identify degradation models for SoH estimation and RUL prediction
- Writing of technical report (which could be tentatively submitted at a conference)

#### **Your Profile:**

- Study of Electrical Engineering, Computer Engineering or Computer Sciences
- Interested in machine learning and data analysis
- Willingness to cooperate and travel internationally
- Fluent in written and spoken English language
- Confident use of MS Office

**Are you interested? Please contact us!**

#### **Contact:**

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<https://aware.thi.de/en/about-aware/funding-projects/2lifebat/>

