volytica diagnostics

Student Job Opportunities

Internships, SHK/HiWi, MSc/BSc/Diploma Thesis

1

Battery Modelling with Machine Learning Approaches

Build a digital battery twin via state-of-the-art Machine Learning methods

- Explore & apply the latest trends on modelling dynamic systems like Li ion batteries using advanced ML and digital twin approaches
- Combine Machine Learning and physics to create understandable, explainable grey-box models
- Work with real battery field data from hundreds of vehicles

Beneficial Qualifications:

- First experience with Python
- First ML/AI projects
- Basic understanding of Lithium-Ion-Batteries

Starting: anytime **Location:** Dresden

2

Pattern Recognition, Times Series Analysis

Sequencing/ clustering of time series battery data

- Develop algorithms (pattern recognition, state machine approaches) to detect crucial situations & features in signals and split time series data into meaningful sub-sequences
- Extract features as input for subsequent analysis
- Data wrangling on diverse and challenging real life data sets

Beneficial Qualifications:

- First experience with Python
- Basic understanding of Lithium-Ion-Batteries

Starting: anytime **Location:** Dresden

3

Simulation Framework, Modelling

Battery Simulation and Modeling

- Build/Improve a battery simulation framework
- Model electrical and thermal battery behavior
- Run and evaluate simulations

Beneficial Qualifications:

- Experience with modeling dynamic systems (e.g. Modelica)
- Basic understanding of Lithium-Ion-Batteries

Starting: anytime **Location:** Dresden

4

Lifetime Prognosis, Simulation Tools

Enhance a lifetime prognosis tool for battery applications

- Utilize and enhance a Li Ion battery aging model
- Cluster usage scenarios and extract relevant features
- Forecast potential futures for a battery based on its historical field data
- Create meaningful visualizations

Beneficial Qualifications:

- First experience with Python
- Basic understanding of Lithium-Ion-Batteries

Starting: anytime **Location:** Dresden