

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

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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

5

IoT, Edge programming

On the edge alerting

- Research concepts for on the edge alertings and notifications
- Implement a prototype for validating different approaches
- Work with cloud based IoT systems
- Do performance testing

Beneficial Qualifications:

- First experience with C++
- Linux

Starting: anytime**Location:** Dresden



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Cloud, Software development, Machine Learning

ML Pipelines

- Get to know cloud based ML Pipelines
- Extend existing Pipelines with new features
- Implement data quality monitoring
- Do performance testing

Beneficial Qualifications:

- Machine Learning
- AWS Cloud

Starting: anytime**Location:** Dresden/Berlin/Remote

7

Software development, UI/UX

Internal Services

- Work on a modern UI stack
- Extend existing Frontend Applications with new use cases
- Take UX into consideration
- Implement monitoring + error tracking

Beneficial Qualifications:

- Front-end development
- HTML/CSS/JS

Starting: anytime**Location:** Dresden/Berlin/Remote

8

Product development, systems integration

Demo/Showcase development

- Design a demonstrator of our services
- Build up a physical setup of the demonstrator for fairs and exhibitions

Beneficial Qualifications:

- Product Storytelling
- Affinity with tech products and devices

Starting: anytime**Location:** Dresden



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Software development

Online DBC converter

- Migrate DBC conversion tool from a CLI based python tool to web-based app
- Documentation of the web app

Beneficial Qualifications:

- Python
- Full-Stack web development

Starting: anytime

Location: Dresden/Berlin/Remote