

## Master Thesis: »Deep learning for defect detection in battery cells«

### Description

At the Fraunhofer IPT in Aachen, we work with more than 530 employees every day to make the production of the future more digital, more flexible, and more sustainable. In the department »Production Quality« we apply digital technologies to optimize production processes by using artificial intelligence to make production more sustainable. One focus of our work is on optimizing the production processes for lithium-ion battery cells and fuel cells.

Within the scope of your thesis, you will investigate deep learning-based defect detection approaches. To this end, we use roll-to-roll processes for the efficient coating of electrodes. However, defects can occur during this process step, causing high reject rates. To solve this problem, we are developing a modern deep learning-based defect detection system. A central step for the application of this system is the reduction of the annotation effort by process experts. Transfer learning approaches for deep learning models are a promising way to reduce this effort. Therefore, within the scope of this master's thesis, different deep-learning approaches will be implemented and evaluated.

What you will do

### Job Benefits

EUR 47K – 88K \*

### Hiring organization

Candidate-1st

### Employment Type

Full-time

### Beginning of employment

asap

### Job Location

Aachen, DE, 52074

### Working Hours

40

### Base Salary

euro EUR 47K - 88K \*

### Date posted

June 2, 2024