Helmholtz-Zentrum Dresden-Rossendorf e.V.

HELMHOLTZ ZENTRUM DRESDEN ROSSENDORF

With cutting-edge research in the fields of ENERGY, HEALTH and MATTER, around 1,500 employees from more than 70 nations at Helmholtz-Zentrum Dresden-Rossendorf (HZDR) are committed to mastering the great challenges facing society today. At the Helmholtz Institute Freiberg for Resource Technology (HIF), innovative technologies for the circulareconomy are developed to provide and use mineral and metal-bearing rawmaterials more efficiently and to recycle them in an environmentally friendly way. The Department of Exploration, Research Group Sensors is looking for a

Research Engineer (f/m/d).

City: Dresden; Starting date (earliest): 01/08/25; Duration: 3 years 4 months; Remuneration: TVöD Bund; Reference number: 2025/90; Closing date: 23/06/25

Working field

- Develop and implement setups for point and imaging sensors and respective routines tailored for in-line object characterisation in 3D and hyperspectral imaging of material streams for process logistics in the field of battery recycling
- Implement innovative data (pre)processing techniques for spectroscopic data from multiple sensors in order to ensure high quality data, including solutions for noise reduction, calibration and correction with efficient solutions for real-time result delivery
- Contribute to the developments of advanced workflows and efficient result generation
- Collaborate with a multidisciplinary team to integrate spectroscopy-based, multi-sensor data with process performance information in battery recycling streams and discuss methods and analytical results with the team and project partners
- Document research findings and contribute to the publication of results in peer-reviewed journals and presentations at relevant conferences

Requirements

- Completed university studies (Bachelor or Master) in the field of Data Sciences, Remote Sensing, Sensors and Instrumentation or a related field
- Proven experience in fundamental methodology and handling of optical sensors for data acquisition and in data (pre)processing
- Particular experience with industrial RGB cameras, hyperspectral imaging data from reflectance cameras and 3D data analysis, additionally also from LIBS and related spectroscopy-based sensors
- Excellent analytical and problem-solving skills, with a strong attention to detail and innovative solutions for monitoring raw material separation processes
- Proven experience in image data processing including state-of-the-art machine learning models for automated material classification, unmixing, noise reduction

and generalisation

- Ability to work effectively in a collaborative, strongly international team environment, showing high motivation and excellent communication skills (verbal and written)
- Programming skills in Python, or similar languages, with a focus primarily on spectroscopic data analysis, positive are additional experiences with image processing and machine learning applications
- English (fluent), German (basics)

What we offer

- A vibrant research community in an open, diverse and international work environment
- Scientific excellence and extensive professional networking opportunities
- Salary and social benefits in accordance with the collective agreement for the public sector (TVöD-Bund) including 30 days of paid holiday leave, company pension scheme (VBL)
- We support a good work-life balance with the possibility of part-time employment, mobile working and flexible working hours
- Numerous company health management offerings
- Employee discounts with well-known providers via the platform Corporate Benefits
- An employer subsidy for the "Deutschland-Ticket Jobticket"

Application

We look forward to receiving your application documents (including cover letter, CV, diplomas/transcripts, etc.), which you can submit via our online-application-system: https://www.hzdr.de/db/Cms?pNid=490&pLang=en&pOid=74961

More information at https://stellenticket.de/195237/TUBS/
Offer visible until 23/06/25