Jan Schützke

Data Scientist

Experienced academic specializing in automating spectroscopic data analysis. Proficient in developing innovative algorithms and software solutions tailored to extract meaningful insights from complex spectral data sets. Ability to work in interdisciplinary teams to to drive impactful research outcomes.

Demonstration on
https://spectra-identification.streamlit.app

schuetzkejan@gmail.com

Karlsruhe, Germany

jschuetzke.github.io

/in/jan-schuetzke

AREAS OF EXPERTISE

Machine Learning | Neural Networks | High-throughput Screening | Cloud Computing | Data Analysis | Scientific Programming | DevOps | Computer Vision

EDUCATION

Ph.D. in Mechanical Engineering (Dr.-Ing.)

Karlsruhe Institute of Technology
10/2019 - 04/2024
Thesis title:
Spectra-based Neural Networks for Uncovering Novel Substances in Material Discovery Experiments

M.Sc. in Mechanical Engineering

Karlsruhe Institute of Technology
10/2017 - 09/2019
Major in
- Robotics
- Information Technology

Thesis title:
Evaluation of Machine Learning Approaches for Crystalline Phase Identification

B.Sc. in Mechanical Engineering

Karlsruhe Institute of Technology
10/2013 - 09/2017
Major in
- Mechatronics
- Data Analytics

Thesis title:
Design and Development of a Concept for Networked Monitoring of Parameters in the Production of Capacitive Pressure Sensors by Use of Data-Mining

SELECTED PUBLICATIONS

Journal Article
Accelerating Materials Discovery: Automated Identification of Prospects from X-Ray Diffraction Data in Fast Screening Experiments
Authors
J. Schuetzke, *et. al.*
Advanced Intelligent Systems, 2024
DOI: 10.1038/s41524-023-01055-y

Journal Article
Validating neural networks for spectroscopic classification on a universal synthetic dataset
Authors
J. Schuetzke, *et. al.*
npj Computational Materials, 2023
DOI: 10.1002/aisy.202300501

WORK EXPERIENCE

Research Scholar
Lawrence Berkeley National Laboratory, Berkeley, CA, USA
02/2022 - 04/2022
Visiting researcher in the group of Prof. Ceder
Exchange and collaboration on the development of neural network structures for the analysis of powder XRD patterns in battery materials research

Student Associate
Bruker Corp., Karlsruhe, Germany
03/2019 - 08/2019
Development of a deep learning solution for the analysis of XRD signals from multi-phase powder samples

Student Associate
Karlsruhe Institute of Technology
06/2018 - 02/2019
Development of a proof of concept for identification of synapses in bio-medical microscopy image stacks using a Faster R-CNN architecture

Internship
Endress+Hauser SE+Co. KG, Maulburg, Germany
09/2016 - 04/2017
Implementation of a relational database for monitoring of parameters in the production of capacitive pressure sensors

TECHNICAL SKILLS

Programming
- Python
- SQL
- MATLAB
- C++
- Java

Frameworks
- Keras
- TensorFlow
- scikit-learn
- PyTorch

Computing
- Linux
- ssh
- Azure
- Kubernetes

Libraries
- NumPy
- Pandas
- SciPy
- OpenCV

Development
- VS Code
- Jupyter Notebook
- Docker
- GIT
- CI/CD
- Colab

LANGUAGES

German	English	Spanish
Native	*Full Professional Proficiency*	*Basic*