Simon Bachhuber | Resumé

simon-bachhuber.github.io

ML researcher with over five years of experience

Education

Friedrich-Alexander-Universität Erlangen-Nürnberg
Dr.-Ing. Medical Engineering *09/21–Present*
Thesis title: Dynamic motion state estimation and control via RNNs and sim-to-real transfer
link to thesis

Universität Regensburg & Ruprecht-Karls-Universität Heidelberg
Master of Science Physics *10/18–11/20*
Overall Grade: 1.2 (GPA: 3.8/4)
Thesis title: Increasing label efficiency in supervised classification for industrial application
link to thesis

Universität Regensburg
Bachelor of Science Physics *03/15–07/18*
Overall Grade: 1.6 (GPA: 3.4/4)
Thesis title: Lieb-Liniger model for relativistic particles
link to thesis

Maristengymnasium Fürstenzell
High-school Diploma or Abitur *09/06–07/14*
Overall Grade: 1.6 (GPA: 3.4/4)

Work Experience

Hannover
Institute of Mechatronic Systems *09/24–Present*
Scientific Staff, Postdoc Position. Foundation models for robotic systems and inertial motion tracking technology

Erlangen
Department Artificial Intelligence in Biomedical Engineering *09/21–08/24*
Scientific Staff, PhD Position. ML methods for inertial sensor fusion and for autonomous control of robotic systems.
Lecturer of the highly-rated "Introduction to Explainable ML" with over 300 participants
link to employment reference letter

Ulm
German Aerospace Center (DLR) *04/21–07/21*
Scientific Staff. Simulation of degradation processes in Lithium-Ion batteries

Regensburg
BMW AG *09/20–03/21*
Internship at the Innolab. Development of statistical methods for predictive maintenance
link to employment reference letter

Regensburg
Universität Regensburg *10/19–04/20*
Student tutor for physics classes

Publications (in first authorship)

link to Google Scholar

Transactions on Machine Learning Research *10/24*
Title: Recurrent inertial graph-based estimator: A single pluripotent inertial motion tracking solution
link to publication

IEEE/RSJ International Conference on Intelligent Robots and Systems *10/24*
Title: A soft robotic system automatically learns precise agile motions without model information
link to publication

IFAC Symposium on Biological and Medical Systems *09/24*
Title: Dispelling four challenges in inertial motion tracking with one recurrent inertial graph-based…
link to publication

IEEE Sensors Letters *08/23*
Title: Plug-and-play sparse inertial motion tracking with sim-to-real transfer
link to publication

IEEE Control System Letters *07/23*
Title: Neural ODEs for data-driven automatic self-design of finite-time output feedback control
link to publication

IEEE International Conference on Information Fusion *08/22*
Title: RNN-based observability analysis for magnetometer-free sparse inertial motion tracking
link to publication **best paper award (2nd runner-up)**

Miscellaneous

Languages: German (Native), English (Fluent) **Hobbies**: Running, Volleyball, Piano

ML and Software Engineering Skills

link to GitHub

- Python programming with > 6 years experience
- Applied ML with > 5 years experience
- Publish and maintenance of PyPI packages
- High code hygiene with auto-formatting, linting, type safety, unit testing, and CI
- High-performance Python using Numba, TorchScript, Cython
- Deep Learning using PyTorch and JAX
- TorchTune for LLM finetuning and self-hosted inference
- SLURM and multi-GPU training on 8xA100 cluster nodes with 90%+ utilization