MORITZ BECKER

Physicist | Modeling and Simulation | Python Developement

Contact

E-Mail
kontakt@moritzbecker.com

Languages

Eng.	Fluent
Ger.	Native speaker

Skills

Hard Skills

• Mathematical Modeling • Computational Geometry • Data Analysis • Dynamical Systems • Biological Neural Networks • Finite Element Method (FEM)

Soft Skills

• Self-management • Teamwork • Communication Skills • Initiative • Analytical / Problem-Solving Thinking

Interests

Swimming (German Lifeguard Association) / Music (Guitar) and Recording Technology / Computer Simulation and Graphics / Photography

Driver's License

B (Passenger cars and small vans)

moritzbecker.com
MoritzB90

Work Experience

07.2023–today
Technical Sales Engineer
Comsol Multiphysics GmbH · Göttingen
- Technical sales of the simulation software COMSOL Multiphysics®
- Customer support and consultation: Application of modeling and simulation in research and development
- Lectures and workshops on Multiphysics Simulation, COMSOL, and FEM

09.2018–08.2022
Research Assistant
Institute of Biophysics · Georg-August-University Göttingen
With Prof. Dr. Christian Tetzlaff, Collaborative Research Center "Quantitative Synaptology"
- Development of a software framework for simulating particle-based reaction-diffusion systems in complex, three-dimensional environments (PyRID)
- Formulation of mathematical models and their implementation in the areas of protein transport, signal transduction, synaptic plasticity, biological neural networks
- Coordination and communication with project partners
- Organization of seminars and group meetings
- Supervision of students

Education

08.2022–04.2023
Teacher in training (High School)
Roswitha-Gymnasium Bad Gandersheim · Studienseminar Salzgitter
Subjects: Mathematics, Physics

04.2015–07.2018
Master of Science, Physics
Institute of Biophysics · Georg-August-University Göttingen
Thesis: The influence of different mechanisms on the self-organized consolidation of memory representations in spiking neural networks
Supervisors: Prof. Dr. Christian Tetzlaff & Prof. Dr. Stefan Klumpp

10.2011–03.2015
Bachelor of Science, Technical Physics
Fraunhofer EMI, Freiburg · Ilmenau University of Technology
Thesis: Determination of the state change of hydrogen gas in a light gas accelerator
Supervisor: Prof. Dr. Siegfried Stapf & Robin Putzar

Practical Experience

05.2017–11.2017
Student Assistant
Göttingen State and University Library · Göttingen
Multimedia Production Department
- Design and implementation of virtual studio environments
- Software integration of automated production processes in a video mixer
- Creation of video tutorials

07.2015–12.2016 | **Student Assistant**
Max Planck Institute for Dynamics and Self-Organization · Göttingen
With Prof. Dr. Viola Priesemann

- Development of a method for characterizing the spreading dynamics of neural activity in networks with non-stationary input
- Investigation of the information processing capacity and criticality of neural networks
- Statistical data analysis of spike train data

Teaching

08.2020–08.2021 | **Physics for Medical Students / Dental Students**
Tutorial / Practical Course · University of Göttingen

04.2019–10.2019 | **Learning to Read Data**
Tutorial · University of Göttingen
Data Literacy, Python

IT

Languages:

Python	●	●	●
HTML, CSS, LaTeX	●	●	○
C++, Javascript, bash	●	○	○

Libraries:

NumPy, Numba	●	●	●
Matplotlib, h5py	●	●	○
SciPy, Plotly, PySide, pandas, PyTorch	●	○	○

Tools:

Sphinx	●	●	○
Git, VS Code	●	○	○

Publications

2024 J. Jauch, M. Becker, C. Tetzlaff, and M. J. Fauth. "Differences in the consolidation by spontaneous and evoked ripples in the presence of active dendrites". In: *PLOS Computational Biology* 20.6 (June 2024). Ed. by D. Bush, e1012218. DOI: 10.1371/journal.pcbi.1012218

2021 M. F. P. Becker and C. Tetzlaff. "The biophysical basis underlying the maintenance of early phase long-term potentiation". In: *PLOS Computational Biology* 17.3 (Mar. 2021), e1008813. DOI: 10.1371/journal.pcbi.1008813

2020 J. de Heuvel, J. Wilting, M. Becker, V. Priesemann, and J. Zierenberg. "Characterizing spreading dynamics of subsampled systems with nonstationary external input". In: *Physical Review E* 102.4 (Oct. 2020), p. 040301. DOI: 10.1103/physreve.102.040301