

Steffen Plunder

Mathematician · Developer · Interdisciplinary Researcher

SteffenPL [steffenpl.github.io](https://github.com/steffenpl)



Work Experience

Research Scientist, ASHBi, Kyoto University, Japan

02/2023 – present

- Built GPU-accelerated simulations for digit growth and analyzed 3D image data (meshing, cell tracks, structural measures).
- Published in high impact journals Nature Physics, Nature Materials, and iScience.
- Initiated cross-department networking events to connect researchers across biology and mathematics. Co-supervised three students, co-organized international workshops.

Graduate Researcher, University of Vienna, Austria

10/2019 – 01/2023

- Proved that a widely-used game engine technique (Position-based Dynamics) can produce scientifically accurate simulations.
- Achieved 300× speedup in simulations through algorithm design and efficient implementation.
- Published two Nature Communications papers and 4 further manuscripts.

Research Assistant, TU Kaiserslautern, Germany

12/2018 – 10/2019

- Organized calculus classes and exams. Research in Differential-Algebraic Systems group leading to 2 publications.

Programming Assistant, Fraunhofer Institute ITWM, Kaiserslautern, Germany

06/2013 – 06/2016

- C++ programming for image analysis software and user interfaces (Qt).

Education

German grading: 1 = excellent, 4 = passing, 6 = fail.

Ph.D. in Mathematics, University of Vienna, Austria Grade: 1.0

10/2019 – 01/2023

M.Sc. in Mathematics, TU Kaiserslautern, Germany Grade: 1.1

10/2016 – 09/2018

B.Sc. in Mathematics, TU Kaiserslautern, Germany Grade: 1.1

10/2013 – 09/2016

Awards and Grants

Kakenhi: Early-Career Scientists (PI) ≈ 12,000€

04/2024 – 03/2027

Independent research grant — managed budget, timeline, and publication strategy

ASHBi Fusion Grant (Co-PI) ≈ 30,000€

04/2023 – 03/2025

Co-led interdisciplinary biology-mathematics collaboration across two research groups

Further Scholarships: EMBO Scientific Fellowship (2021), DAAD-PROMOS Scholarship (2018), Main Award DMV Students Conference (2017), Felix-Klein Scholarship (2016–2018), Deutschlandstipendium (2014–2016)

Skills

Technical: GPU-accelerated simulation, agent-based modeling, numerical solvers, performance optimization

Programming: Julia, Python, C++, JavaScript/TypeScript, MATLAB, Lua

Frameworks: SciML, numpy/scipy, numba, jax, pytorch, FEniCSx, Git/GitHub, Linux

Languages: German (Native), English (Fluent), Chinese (Basic A1-A2)

Personal Note

I believe that in times of rapid change, adaptability, openness to new ideas, and strong interpersonal skills matter more than ever. I want to contribute to and thrive in environments where I can support my colleagues, tackle hard problems with a positive mindset, and grow together as a team.