

Julian Mosig von Aehrenfeld

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EDUCATION

Bachelor of Science, Computer Science

Oct. 2022 – Sept. 2026

University of Leipzig

Leipzig, Germany

- Expected grade: **1.0**, Equivalent American GPA: **4.0**
- Thesis: Citation-Aware LLMs using perturbation-based watermarking
- Recipient of the Deutschlandstipendium scholarship for academic excellence (2024-2025)

Semiconductor Talent Incubation Program Taiwan

Sept. 2025 – Febr. 2026

National Taiwan University of Science and Technology

Taipei, Taiwan

- Exchange semester at NTUST with focus on Semiconductor manufacturing
- Recipient of a scholarship in the competitive STIPT program

EXPERIENCE

Data & Systems Engineering Intern

Dec. 2025 – Feb. 2026

TSMC

Taichung, Taiwan

- Created a data-based wafer damage prediction system for earthquake events with automated notification workflows
- Completed technical training on semiconductor manufacturing workflows and fab scheduling systems

Software Engineering Intern

April 2025 – August 2025

ScaDS.AI, national AI competence center

Leipzig, Germany

- Implemented a RAG system on technical drawings using LlamaIndex as part of a research-industry collaboration
- Improved retrieval accuracy by integrating multimodal LLMs with OCR to extract domain-specific visual data
- Deployed Ollama models on GPU server, reducing prompt latency from 120s to under 2s
- Architected and scaled a Flask API backend in combination with a PostgreSQL and Hibernate drawing database, reducing overall retrieval times on 4.000+ drawings to under 0.2s

Machine Learning Research Intern

July 2024 – October 2024

Max-Planck Institute for Mathematics in the Sciences

Leipzig, Germany

- Designed a unified training/benchmarking pipeline for neural networks (Transformer, MLP, RNN, NODE, ESN) using Pytorch for shared latent space analysis
- Leveraged HPC clusters (Slurm, V100), reducing model training times by over 90%

Student Tutor

Oct. 2023 – March 2025

University of Leipzig

Leipzig, Germany

- Taught OOP concepts and Java programming to over 100 students through classes and project-based labs

PROJECTS

AskMyRepo | *Python, Flask, Docker, Redis, Qdrant, Groq API, HTML/JS* | [Live Demo](#) | [Github](#)

May 2025

- Developed and deployed an end-to-end RAG system that answers natural language questions about Github repos
- Engineered a scalable microservice architecture using Flask, enabling individual scaling of services
- Persisted Vector Indices to Qdrant, reducing follow-up response times to under 3s

Flappy Bird AI | *JavaScript, HTML, CSS, Canvas* | [Live Demo](#) | [Github](#)

March 2025

- Build a browser simulation of a genetic algorithm learning to play Flappy Bird
- Added real-time performance visualization and tunable parameters to explore impact on evolutionary computation

PUBLICATIONS

[2026] Relative Geometry of Neural Forecasters: Linking Accuracy and Alignment in Learned Latent Geometry (TMLR Journal)

Authors: Deniz Kucukahmetler, Maximilian Jean Hemmann, Julian Mosig von Aehrenfeld, Maximilian Amthor, Christian Deubel, Nico Scherf, Diaaeldin Taha

- Also accepted at 2025 NeurIPS workshop 'Symmetry and Geometry in Neural Representations (NeurReps)'

TECHNICAL SKILLS

Languages: Python, Java, SQL (PostgreSQL), JavaScript

ML/Tools: Pytorch, HuggingFace, LlamaIndex, Docker, CUDA, Linux, HPC/Slurm, Git, Pandas, Numpy