Dr. Tim Adler

Curriculum Vitae

⌂ *Berlin, Germany*
✉ *mail@timjadler.de*
🌐 *timjadler.de*

▬▬▬ Employment

06.2023 – **Senior data & applied scientist**, *hema.to GmbH, Germany*
- Developed a deep classifier in TensorFlow predicting new leukemia types based on flow cytometry data and deployed it to production
- Unified our inference setup with ONNX, substantially shrinking service image size and codebase
- Implemented the CI/CD pipeline for all our production models as GitHub Actions
- Supported the backend team by adding 2-factor authentication to our login endpoint

04.2018 – 04.2023 **Machine learning researcher**, *Division of Intelligent Medical Systems, German Cancer Research Center (DKFZ), Germany*
- Developed an unsupervised deep learning model in PyTorch based on out-of-distribution detection to estimate human tissue oxygenation and validated the model in a patient study
- Developed a framework to explore the well-posedness of inverse problems empirically using normalizing flows and validated the approach in the multispectral and photoacoustic medical imaging domain
- Led the endoscopy team (2020 – 2023) consisting of 4 – 7 Ph. D. students

10.2012 – 02.2017 **Teaching & research assistant**, *Heidelberg University, Germany*
- Teaching assistant for multiple lectures in the mathematics bachelor and master degree program
- Evaluation of remotely sensed nitrogen oxides data for car emission measurements

01.2015 – 05.2015 **Lecturer, *Introduction to ordinary differential equations***, *University of North Carolina at Chapel Hill, USA*
- Independent conception of the course schedule, homework, tests, and grades

03.2012 – 09.2014 **Reviewer for the German accreditation system for university degree programs**
- Reviewer for mathematics, physics, and computer science programs throughout Germany

▬▬▬ Education

04.2018 – 12.2022 **Computer Science (Dr. rer. nat.)**, *Heidelberg University, Germany*, Thesis: Uncertainty quantification in biophotonic imaging using invertible neural networks
Final grade: summa cum laude

02.2014 – 12.2017 **Mathematics (M. Sc.)**, *Heidelberg University, Germany*, Thesis: A boundary map to the Roller boundary of a CAT(0) cube complex
Final grade: 1.0 (best: 1.0, worst passing: 4.0)

10.2010 – 05.2016 **Physics (B. Sc.)**, *Heidelberg University, Germany*, Thesis: Further improvement of a NO to NO_2 converter for CE-DOAS measurements
Final grade: 1.1 (best: 1.0, worst passing: 4.0)

08.2014 – 05.2015 **Exchange Graduate Student**, *University of North Carolina at Chapel Hill, USA*

10.2011 – 02.2014 **Mathematics (B. Sc.)**, *Heidelberg University, Germany*, Thesis: Uniformization of compact Riemann surfaces
Final grade: 1.0 (best: 1.0, worst passing: 4.0)

09.2001 – 07.2010 **Abitur**, *Hartmanni-Gymnasium Eppingen, Germany*
Final grade: 1.0 (best: 1.0, worst passing: 4.0)

Relevant technical skills

Programming	Python (strong), C++, R, Bash, Zsh (all advanced), Go, SQL (all basic)
Frameworks	PyTorch, Lightning, scikit-learn (all strong), TensorFlow, Hugging Face, ONNX (all advanced), FastAPI (basic)
Tools	git, LaTeX, Ansible (all strong), GitHub Actions, Docker, GCP, ZenML, Prometheus, Grafana (all advanced), AWS, Terraform, Terragrunt (all basic)
OS	Linux, in particular Debianoids (strong)

Scholarships

2018 – 2022	**Helmholtz International Graduate School for Cancer Research**, *Scholarship*
2013 – 2017	**German Academic Scholarship Foundation (GASF)**, *Scholarship*
2015	**Heidelberg Laureate Forum Foundation**, *Participation in the 3rd Heidelberg Laureate Forum*
2014	**Fulbright Commission**, *Travel grant*

Extracurricular activities

2023 – 2024 Akademie danach, *Germany*
- Yearly retreat for Alumnx of the GASF (participant-organized program)
- My workshop contributions: Statistical fallacies & paradoxes (2023), Geolocation of image data (2024)

2010 – 2021 NoName e. V., *Heidelberg, Germany*
- Local Unix user group with weekly presentations
- Presented topics: bias-variance tradeoff, ML ethics, elliptic curves, and security of MIFARE Classic key cards

2010 – 2017 Student representation, *Heidelberg University, Germany*
- Member of diverse boards of academic administration (e. g. senate, faculty board, etc.)
- Administrator for the student representatives' servers

Language skills

German (native), English (fluent), French (advanced), Spanish (beginner)

Hobbies

Pen-and-Paper Roleplaying Games, Guitar play & Choir singing

Yoga, Hiking, Spinning, Paragliding

First author publications

Leonardo Ayala* and Tim J Adler* et al. "Spectral imaging enables contrast agent-free real-time ischemia monitoring in laparoscopic surgery". In: *Science Advances* 9.10 (2023), eadd6778.

Tim J Adler* and Jan-Hinrich Nölke* et al. "Application-driven Validation of Posteriors in Inverse Problems". In: *arXiv preprint arXiv:2309.09764* (2023).

Tim J Adler et al. "Out of distribution detection for intra-operative functional imaging". In: *Uncertainty for Safe Utilization of Machine Learning in Medical Imaging and Clinical Image-Based Procedures*. Springer, 2019, pp. 75–82.

Tim J Adler et al. "Uncertainty handling in intra-operative multispectral imaging with invertible neural networks". In: *Medical Imaging with Deep Learning (MIDL)*. 2019.

Tim J Adler et al. "Uncertainty-aware performance assessment of optical imaging modalities with invertible neural networks". In: *International journal of computer assisted radiology and surgery* 14.6 (2019), pp. 997–1007.

*: Equal contribution