MARVIN SCHMITT

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Artificial intelligence researcher with a PhD in machine learning, specializing in generative modeling, inference, and evaluation. I work on improving the reliability, calibration, and capabilities of neural networks (transformers, diffusion, flow matching).
I build reproducible experimental pipelines to study representation alignment, interpretability, and inference behavior at scale.

EXPERIENCE

Midjourney since August 2025
Research Resident
- Designing controlled experiments to analyze latent representation disentanglement and robustness in generative models.
- Building reproducible evaluation pipelines to compare model designs and sampling strategies for faster experimentation.
- Synthesizing empirical results into technical reports to inform model training directions and guide research design decisions.

Cluster of Excellence 'Data-Integrated Simulation Science' December 2021 – November 2024
Research Associate Stuttgart, Germany
- Defined and implemented novel machine learning algorithms for reliable modeling in scientific applications.
- Initiated, led, and coordinated scientific collaborations with international research teams in Finland, UK, and the US.
- Authored 10 peer-reviewed publications within 3 years (+3 peer-reviewed workshop papers and 4 pre-prints under review).
- Published and presented work in international machine learning venues, such as NeurIPS, ICML, AISTATS, GCPR, TMLR.

Probabilistic Machine Learning Group, Aalto University March 2024 – August 2024
Visiting Researcher Helsinki, Finland
- Conceptualized a hybrid workflow for reliable statistical inference with deep neural networks and MCMC.
- Implemented diagnostics to measure the calibration of statistical models at test-time with increased efficiency.

BayesFlow August 2021 – November 2024
Open Source Developer Germany / Remote
- Developed and maintained a Python library for statistical inference with neural flows (600+ GitHub stars, 44k+ downloads).
- Designed the software architecture for simulation workflows, API, CI, documentation pipeline, and the diagnostics module.

University-Level Teacher (multiple institutions) Since February 2016
- Taught statistical inference and data science to 900+ students in lectures, seminars, and workshops (undergrad, grad, PhD).

EDUCATION

Ph.D. in Machine Learning December 2021 – March 2025
University of Stuttgart & European Laboratory for Learning and Intelligent Systems Grade: summa cum laude
Supervisors: Prof. Paul Bürkner, Prof. Aki Vehtari
Title: Towards Trustworthy Amortized Bayesian Inference with Deep Learning

M.Sc. in Data and Computer Science October 2020 – September 2022
Heidelberg University, Germany Grade: 1.0 / 4.0 (A+)

M.Sc. in Psychology October 2018 – September 2021
Heidelberg University, Germany Grade: 1.0 / 4.0 (A+)

SELECTED PUBLICATIONS

NeurIPS 2024 – adapting consistency models for scalable conditional generative modeling from simulations (PDF)
ICML 2024 – using self-consistency principles to improve data efficiency when learning joint probabilistic systems (PDF)
GCPR 2024 (oral, best paper honorable mention) – detecting distribution shifts during test-time in latent representations (PDF)
UAI 2023 (spotlight) – learning forward and inverse problems in statistical simulations simultaneously (PDF)
AISTATS 2023 – developing a layered framework to analyze uncertainty at multiple hierarchical levels of data analysis (PDF)

SKILLS

Machine Learning: transformers, diffusion models, normalizing flows, flow matching, PyTorch, JAX, TensorFlow
Statistics & Modeling: Stan, brms, MCMC diagnostics, uncertainty quantification, evaluation framework design
Software Engineering: git, pytest, experiment tracking (e.g., W&B), hyperparameter optimization, CI/CD pipelines