

Nico Carlsen Daheim né Daheim

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📄 ~ 1,200 citations, H-index: 16

Research Interests & Experience

My research so far has focused on efficient methods for improving LLMs by using uncertainty. I have published novel approaches to different problems ranging from pretraining, model merging, and post-training to test-time scaling. Currently, I am curious about efficient scaling, adaptive computation, and many other topics.

Education

ELLIS PhD in Computer Science (summa cum laude), TU Darmstadt 09/2022–ongoing
Supervised by Prof. Dr. Iryna Gurevych, Prof. Dr. Mrinmaya Sachan (ETH Zurich), Prof. Mohammad Emtiyaz Khan, PhD.
Thesis: Practical Uncertainty for Language Models - defended, final certificate pending.

M.Sc. Data Science (cum laude), RWTH Aachen University 10/2019–08/2022
Thesis: Neural Noisy Channel Modeling for Document-grounded Dialogue Systems (Supervisor: Prof. Dr.-Ing. Hermann Ney).

B.Sc. Computer Science (Minor: Mathematics), University of Koblenz 04/2016–03/2019

Experience

Visiting Researcher, ETH Zurich 11/2024–08/2025
Visiting Prof. Dr. Mrinmaya Sachan's LRE Lab to work on LLMs for tutoring applications.

Student Research Assistant, RWTH Aachen University 07/2020–07/2022
Research on document-grounded dialogue systems at Prof. Hermann Ney's lab.

Intern & Data Scientist, Deutsche Telekom 04/2019–03/2020
Dialogue systems for customer service, semantic search, text analytics. Gap due to role transition: 10/2019.

Student Research Assistant, University of Koblenz 03/2018–03/2019
Document clustering and sentiment analysis for social data.

Selected Publications

[Parameter Exploration for RLVR via Variational Learning](#) NeurIPS 2026
V. Venkatkrishna, **N. Daheim**, I. Gurevych

[SOAP-Bubbles: Structured Weight Uncertainty for Neural Networks](#) NeurIPS 2026
AR Minut, **N. Daheim**, M. Miani, ME Khan, W. Lin, T. Möllenhoff

[SVRG and Beyond via Posterior Correction \(Oral\)](#) ICML 2026
N. Daheim, T. Möllenhoff, ML Ang, ME Khan

[Aligning LLMs with Pedagogy using Reinforcement Learning](#) EMNLP 2025
D. Dinucu-Jianu*, J. Macina*, **N. Daheim**, I. Hakimi, I. Gurevych, M. Sachan

[Uncertainty-Aware Decoding with Minimum Bayes Risk](#) ICLR 2025
N. Daheim, C. Meister, T. Möllenhoff, I. Gurevych

[Stepwise Verification and Remediation of Student Reasoning Errors with Large Language Model Tutors](#) EMNLP 2024
N. Daheim*, J. Macina*, M. Kapur, I. Gurevych, M. Sachan

[Variational Learning is Effective for Large Deep Networks \(Spotlight\)](#) ICML 2024
Y. Shen*, **N. Daheim***, B. Cong, P. Nickl, GM Marconi, C. Bazan, R. Yokota, I. Gurevych, D. Cremers, ME Khan, T. Möllenhoff

[Model Merging by Uncertainty-Based Gradient Matching](#) ICLR 2024
N. Daheim, T. Möllenhoff, EM Ponti, I. Gurevych, ME Khan

Book Chapters

Handbook on Bayesian Deep Learning - Variational Inference, Bayesian LLMs BDL Consortium	CRC 2026
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Invited Talks

Variational Learning for LLMs - Bayes in Modern AI Workshop	2026
SVRG and Beyond via Posterior Correction - RIKEN AIP	2026
Practical Bayesian Uncertainty for LLMs - INSAIT	2025
Model Merging by Uncertainty-Based Gradient Matching - Flatiron Institute	2025
Model Merging by Uncertainty-Based Gradient Matching - RIKEN AIP	2024
Adapting Language Models by Model Merging - MBZUAI	2023
Adapting Language Models by Model Merging - University of Edinburgh	2023
Language Models & Model Merging - RIKEN AIP	2023

Tutorials

LLMs for Education - Building Educational Applications (BEA) Workshop, ACL	2025
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Teaching Experience

Generative AI Seminar - TU Darmstadt	2023–2024
Machine Learning - Teaching Assistant, RWTH Aachen University	2021–2022

Reviewing Service

ARR 12/23–08/26, ICML '24-'26 (Gold Reviewer), ICLR '25-'27, NeurIPS '25-'26 (Top Reviewer), UncertainLP 24 – 26, QUESTION@ICLR '25 , UniReps@NeurIPS '24, Doc2Dial@ACL '23

Awards

Springorium Medal - RWTH Aachen University	2023
Porsche IT Campus RWTH Aachen Scholarship - RWTH Aachen University	2020

Skills

Programming: Python, PyTorch, huggingface
Languages: German (native), English (near native)