Philipp Nazari

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Education

PhD **Max Planck ETH Center for Learning and Systems**, Computer Science — July 2025 – July 2028
- CLS PhD Fellow, advised by Konstantin Rusch and Prof. Fanny Yang
- Research Areas: Efficient AI, Geometric Deep Learning, AI for Science

MsC **ETH Zurich**, Mathematics — Sept 2023 – Feb 2025
- GPA: 5.78 (Swiss grading system)
- Focus Areas: Differential Geometry, Machine Learning

BsC **Ruprecht-Karls-University Heidelberg**, Mathematics — Oct 2019 – July 2023
- GPA: 1.3 (German grading system)
- Focus areas: Differential Geometry, Analysis, Machine Learning

University of Bergen, Mathematics — Aug 2021 – Jan 2022
- Exchange Semester at the University of Bergen, Norway
- Focus Areas: Algebraic Topology, Differential Geometry

BsC **Ruprecht-Karls-University Heidelberg**, Physics — Oct 2019 – Aug 2022
- GPA: 1.3 (German grading system)
- Focus areas: Theoretical Physics, Machine Learning

Experience

Heidelberg Collaboratory for Image Processing (HCI), Research Assistant — Heidelberg, Germany, Aug 2022 – Mar 2023

Publications

The Key to State Reduction in Linear Attention: A Rank-based Perspective — February 2026
Philipp Nazari, T. Konstantin Rusch
arxiv.org/abs/2602.04852 (ArXiv:2602.04852)

The Curious Case of In-Training Compression of State Space Models — October 2025
Makram Chahine, ***Philipp Nazari***, Daniela Rus, T. Konstantin Rusch
openreview.net/forum?id=LtzmeSMBTW (ICLR 2026)

Geometric Autoencoders – What You See is What You Decode — July 2023
Philipp Nazari, Sebastian Damrich, Fred Hamprecht
proceedings.mlr.press/v202/nazari23a.html (ICML 2023)

Software

Linax: State Space Models in JAX — October 2025
Philipp Nazari, Francesco Ruscio, Benedict Armstrong
github.com/camail-official/linax

Research Projects

Geometric Encoder Regularization in Autoencoders — Juli 2024
- Semester Project at ETH with Prof. Thomas Hofmann. Paper and code

Entropy Aware Message Passing in Graph Neural Networks — Mai 2024
- Project spun out of the Deep Learning course at ETH by Prof. Thomas Hofmann. Paper and code

Talks

Guest Lecturer November 2024

- Guest lecturer in the course "Machine Learning and Physics" at Ruprecht-Karls-University Heidelberg by Prof. Dr. Fred Hamprecht: "An Introduction to Autoencoders and (Geometric) Regularization Techniques"