

Lukas Münzel

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EDUCATION

Swiss Federal Institute of Technology (ETH Zurich)

B.Sc. in Mathematics; Grade average: 5.8 / 6.0

September 2022 – December 2025

Selected coursework: Deep Learning, Information Theory, Markov Processes, Fourier Theory,

Mathematical Statistics, Functional Analysis, Probability Theory, Dynamical systems and ergodic theory

University of California, Berkeley

Exchange semester

January 2025 – May 2025

Attended classes, four week-long symposia on LLMs at Simons Institute, and did independent work on RL

Gymnasium Bäumlhof

High School Diploma, graduating two years early

August 2019 – July 2022

RESEARCH EXPERIENCE

University of California, Berkeley

Independent work from exchange semester

May 2025

- Proved optimality of the KL divergence estimator introduced by John Schulman that is used in PPO and GRPO
- Blogpost: [A small observation on Schulmann's KL divergence estimator](#)

Department of Computer Science, ETH Zurich

Graduate-level Research Project on Deep Learning

September 2023 – January 2024

- Worked on enhancing representations of heterophilic graphs, a type of graph with which Graph Neural Networks commonly struggle
- I implemented and ran various experiments with PyTorch Lightning to investigate the performance of our proposed modifications. With these modifications, we surpassed the state-of-the-art accuracy of 91.64% by over three percent on the heterophilic dataset Minesweeper. Consequently, we were offered to continue our work to present it at an ICML workshop

Massachusetts Institute of Technology

Research internship under Professor Lizhong Zheng

June 2021 – August 2021

- Selected as only Central European student for the *Research Science Institute 2021*, a program annually enabling 80 high school students to conduct research at MIT for six weeks
- Designed, programmed and conducted experiments to demonstrate the feasibility of a supplemental approach to training artificial neural networks inspired by insights from information theory

Institute of Fluid Dynamics, ETH Zurich

Research internship under Professor Patrick Jenny

January 2021 – March 2021

- Optimized and implemented code for numerical fluid simulations in order to simulate airflow in lecture halls
- Designed and implemented a novel tool to edit the simulation meshes
- This work was [published](#) in *Cambridge Flow* with me as third author

AWARDS & ACHIEVEMENTS

Swiss Olympiad in Informatics 2nd place nationally in the final round in 2020 and 2022, representing Switzerland at five international competitions and winning a Bronze medal at the Romanian Masters in Informatics

Swiss Physics Olympiad 5th and 6th place in 2022 and 2021 respectively

Swiss Biology Olympiad 15th place nationally in the second round in 2022, participating in the week-long final round involving various theoretical and laboratory exams

Zurich Undergraduate Colloquium in Mathematics and Physics Invited to hold a [talk](#) on "Progress, machine learning, and why to be optimistic about the future"

Basler Maturapreis (Novartis excellence award) Selected for this price for "outstanding dedication and accomplishments, socially and academically" out of a class of 111 students