

Alexander Hägele

Website: haeggee.github.io
Email: alexanderhagele@gmail.com
LinkedIn: [haeggee](https://www.linkedin.com/in/haeggee)
GitHub: github.com/haeggee
Google Scholar: [Link](#)

Education

- EPFL** Lausanne, Switzerland
Ph.D. in Computer and Communication Science Oct. 2023–Current
– Supervisor: Prof. Martin Jaggi ([MLO](#))
- ETH Zürich** Zürich, Switzerland
M.S. in Computer Science (with distinction). Mar. 2021–Oct. 2023
– Thesis (Spring 2023) with C. Bunne, Prof. A. Krause ([LAS Group](#)) & Prof. M. Cuturi ([Apple](#))
– Coursework in Probabilistic Modeling, NLP, Perception, Statistical Learning.
- École Polytechnique Paris** Palaiseau, France
Graduate Exchange Semester. Sept. 2022–Dec. 2022
– Coursework in Neuroscience, Data Management, Machine Learning. Part of the Cycle Ingénieur.
- ETH Zürich** Zürich, Switzerland
B.S. in Computer Science (with distinction). Sept. 2017–Mar. 2021
– Thesis: “Certifying Neural Network Robustness using Generative Models”.
Supervised by Prof. Martin Vechev.
- University of Toronto** Toronto, Canada
Undergraduate Exchange Semester. Sept. 2019–Dec. 2019
– Coursework in Computer Science at the Faculty of Arts & Sciences

Research & Work Experience

- Apple** Paris, France
Student Researcher in the Machine Learning Research ([MLR](#)) team. Spring 2023
Supervised by Marco Cuturi ([homepage](#)) through a collaboration for the MSc thesis.
– Topic on reinforcement learning and optimal transport, with applications to biomedicine. Work ongoing.
- École Polytechnique Fédérale de Lausanne (EPFL)** Lausanne, Switzerland
Part of the [Summer@EPFL](#) program. Competitive application, $\approx 2\%$ acceptance rate. Summer 2022
Supervised by Prof. Thiran and S. Salehkaleybar ([INDY Lab](#)).
– Topic: Novel advances in nonlinear independent component analysis and connections to causality.
- ETH Zürich** Zürich, Switzerland
Semester + Research Project. Spring 2022
Supervised by L. Lorch, J. Rothfuss, Prof. Krause ([LAS Group](#)).
– Title: *Bayesian Causal Discovery with Unknown Interventions*
– Design of a Bayesian Structure Learning framework that incorporates data from different contexts and unknown interventions. This work was accepted to AISTATS 2023 with an oral presentation (top 1.9% of submissions); also presented as a paper at the Causal Representation Learning workshop at UAI [1].

ETH Zürich

Bachelor Thesis & Research Project
Supervised by M. Mirman and Prof. Vechev ([SRI Lab](#)).

Zürich, Switzerland

2020/2021

- Title: *Certifying Neural Network Robustness using Generative Models*.
- Advanced the implementation of a new verification framework for neural networks that uses generative models such as VAEs. Extended the method to novel domains and datasets and performed extensive evaluations.
This work resulted in a publication at PLDI 2021 [2].

Spacemaker AI

Software Engineering Intern.

Oslo, Norway

Winter 2020

- Multiple programming projects extending the companys cloud platform. Delivered code that was put into production in the first 4 weeks. Tools used include AWS, Golang, JavaScript, Python. Interview available [here](#).

Publications

- [1] **Alexander Hägele**, Jonas Rothfuss, Lars Lorch, Vignesh Ram Somnath, Bernhard Schölkopf, and Andreas Krause. “BaCaDI: Bayesian Causal Discovery with Unknown Interventions”. In: *Proceedings of the 26th International Conference on Artificial Intelligence and Statistics (2023)*. Oral presentation at AISTATS (32/1689 submissions, top 1.9%). Also presented at the 1st Workshop on Causal Representation Learning (CRL) @ UAI’22. [\[PDF\]](#).
- [2] Matthew Mirman, **Alexander Hägele**, Timon Gehr, Pavol Bielik, and Martin Vechev. “Robustness Certification with Generative Models”. In: *Proceedings of the 42nd ACM SIGPLAN Conference on Programming Language Design and Implementation*. [\[PDF\]](#). ACM. 2021.

Teaching Experience

ETH Zürich

Teaching Assistant for the course *Formal methods and Functional Programming (FMFP)*.

Zürich, Switzerland

Spring 2020

Skills

- **Technical:** Machine Learning, Probabilistic Modeling, Analytical Thinking, Programming Methodology
- **Programming:** Python, C/C++, JavaScript, Go, Haskell
- **Frameworks:** JAX, PyTorch, NumPy, Docker

Languages

- **German:** Mother tongue
- **English:** native
- **French:** very good

Professional Services

- **Reviewing:** [AISTats](#) (2023); Workshop on Neuro Causal and Symbolic AI ([nCSI](#)) at NeurIPS (2022); Workshop on Causal Representation Learning ([CRL](#)) at UAI (2022).

Talks

Invited

- **Causality Discussion Group (CDG, TU Darmstadt, online)**: Bayesian Causal Discovery with Unknown Interventions. 27.07.2022
- **LTS4 (Prof. Frossard, EPFL)**: ML for Science beyond i.i.d: Bayesian Causal Discovery and Decision-Making for Population Dynamics. 16.08.2023

Conferences

- **AISTATS 2023 (Valencia)**: Bayesian Causal Discovery with Unknown Interventions (Oral Presentation). 26.04.2023

Scholarships and Awards

- **Distinction** for the Bachelor's degree in Computer Science, ETH Zürich. 2021
 - **Book Prize** in Theoretical Computer Science, ETH Zürich. 2018
 - **Valedictorian**, Abitur Schubart Gymnasium Aalen. 2016
- Awards:** Mathematics, Physics, Scheffel (German), Ferry-Porsche (STEM).

Extracurricular Activities

- **Causality Reading Group ([Link](#))** 2021–2022
Active participant of weekly online meetings with PhDs from various universities. Reading and discussing newly published papers in causality and machine learning.
- **Eastern European Machine Learning Summer School ([EEML](#))** Summer 2021
Participant. Focus: Deep Learning & Reinforcement Learning.
- **Tennis** 2019 –2021
Team Captain, National League C Switzerland, TC Waidberg.
- **Voluntary Social Year** 2016 –2017
Administrative Assistant, Red Cross & Fire Department Aalen.

Last updated: *November 10, 2023*