ANDREAS BURGER

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PERSONAL INFORMATION

Researcher on machine learning and quantum algorithms. Experience across academia, quantum computing startups, and AI labs. Particularly interested in simulating chemical reactions, with machine learning and sampling.

EDUCATION

- **University of Toronto** 09/2023 – 11/2027
  Ph.D. Computer Science Toronto, Canada
  Advisor: Prof. Alán Aspuru-Guzik
- **Ludwig-Maximilians-Universität (LMU)** 11/2020 – 12/2022
  M.Sc. Physics (95%, 1.18/1-5) Munich, Germany
  Advisor: Prof. Ulrich Schollwoeck
- **National University of Singapore** 01/2022 – 12/2022
  Master thesis: "Open System Dynamics of the Spin-Boson Model on Quantum Computers" Singapore
  Advisors: Prof. Leong Chuan Kwek, Prof. Dario Poletti
- **TU Wien** 10/2017 – 07/2020
  B.Sc. Physics (85%, 2.3/1-5) Vienna, Austria
  Thesis: "Analysis of Adjacent Vorteces in a Simulated Superconductor"
  Advisor: Prof. Franz Sauerzopf

EXPERIENCE

- **NVIDIA** 01/2026 – 01/2027
  PhD Research Intern Toronto, Canada
  Electronic structure and transition state sampling (Team: Quantum and AI for Chemistry).
- **IQM Quantum Computers** 05/2023 – 08/2023
  Quantum Algorithm Engineer Munich, Germany
  Quantum reinforcement learning and reservoir computing (Team: Dr. Martin Leib).
- **University of Munich (LMU)** 05/2021 – 12/2022
  Research Internship with Prof. Ulrich Schollwoeck Munich, Germany
  Accelerated SVD of high-dimensional tensors by ~50% using U(1) symmetries.
- **EFS Consulting** 10/2021 – 12/2021
  Consultant Vienna, Austria
  Planned IT architecture for a new battery cell factory (Team: Liliane Simon).
- **TU Wien Racing** 10/2018 – 09/2020
  Head of Sponsorship Vienna, Austria
  Sourced € 600k p.a. in sponsorship; board member co-leading 80 people.
- **Red Cross** 01/2017 – 10/2017
  Lab Assistant Vienna, Austria
  Lab tests and processing of ~400 blood donations a day, serving four million people.

SELECTED FIRST AUTHOR PUBLICATIONS

- HIP: Hessian Interatomic Potentials without derivatives. A. Burger, L. Thiede, N. Rønne, V. Bernales, N. Vijaykumar, T. Vegge, A. Bhowmik, A. Aspuru-Guzik. Best Paper Award at EurIPS SimBioChem 2025.
- DEQuify your force field: Towards efficient simulations using deep equilibrium models. A. Burger, L. Thiede, A. Aspuru-Guzik, N. Vijaykumar. ICLR 2025 AI4Materials Oral Spotlight.
- Digital Quantum Simulation of the Spin-Boson Model under Markovian Open-System Dynamics. A. Burger, L. C. Kwek, D. Poletti. Entropy, Special Issue "Advances in Quantum Computing," Nov. 2022.