Andy J. Goldschmidt

Chicago, IL 60615 | andyjgoldschmidt@gmail.com | andgoldschmidt.github.io

EDUCATION

University of Washington, Ph.D., Physics — Seattle, WA
Thesis: Data-driven modeling and control of quantum dynamics — Aug 2022
Awards: NSF Quantum Information Science & Engineering Network Fellowship

The Ohio State University, B.S., Math and Physics — Columbus, OH
GPA 3.7 | magna cum laude — Jun 2016
Awards: Full Fellowship (100% tuition), Phi Beta Kappa. Leadership: Undergrad Research Advisory Committee

EXPERIENCE

University of Chicago — Chicago, IL
Postdoctoral researcher, Quantum Computing, with Fred Chong — Sept 2022-present

- Awards: Intelligence Community Postdoctoral Research Fellowship (up to 3 yrs.)
  Novel Control and Readout Schemes for Gate-Based Quantum Computing
- Career metrics: >8 publications (>600 citations), >20 conference presentations. Recent work:
  1. *Quantum Noise Suppression at Scale with Crosstalk-Robust Gate Sets.* 2025, in preparation.
     AJ Goldschmidt, EP Cisneros, R Sitler, K Olsson, KN Smith, G Quiroz.
  2. *Quantum Iterative Learning Control.* 2025, in preparation.
     AJ Goldschmidt, A Trowbridge, et al., with FT Chong, DI Schuster, Z Manchester.
  3. *Quantum Trajectory Bundles: Massively-parallel, Derivative-free Quantum Control.* 2025, in preparation.
     A Trowbridge, AJ Goldschmidt, D Chen, KS Tracy, Z Manchester.
  4. *Using Optimal Control to Guide Neural-Network Interpolation of Continuously-Parameterized Gates.* 2024, IEEE QCE.
     B Bhattacharyya, F An, D Kozbiel, AJ Goldschmidt, FT Chong.
  5. *Model Predictive Control for Robust Quantum State Preparation.* 2022, Quantum.
     AJ Goldschmidt, JL DuBois, SL Brunton, JN Kutz
- Co-founder: Harmoniqs, offering open source + subscription software in Julia and Python for quantum control and calibration.

University of Washington — Seattle, WA
Graduate research assistant, Physics, with Nathan Kutz — Sept 2017-Sept 2022

Physics-informed machine learning for dynamical systems (modeling, sensing, and control).

- Positions: Lawrence Livermore National Lab (quantum computing, 2 yr.), NSF AI Institute in Dynamic Systems (fellow, 1 yr.), Pacific Northwest Research Institute (genetics, 1 yr.), Teaching Assistant (physics, 1 yr.)
- Software: *derivative* (Python, numerical differentiation of noisy data, part of the PySINDy ecosystem)

Battelle Memorial Institute — Columbus, OH
Research associate — Sept 2016-Sept 2017

Software developer (C++, C#, F#, Python) modeling complex systems (e.g. civil infrastructure, supply chains, industrial processes).

- Part of a 4-person team that developed a new data-driven model of foodborne illness outbreaks for a corporate client.
- Secret clearance. Part of a team running risk models and statistical analysis for US Dept. of Defense. Led a complete upgrade of the test infrastructure for the existing C++ ecosystem (majority of the codebase).

Lawrence Livermore National Laboratory — Livermore, CA
Summer Undergraduate Laboratory Internship — Jun 2015-Aug 2015

Applied high-performance computing to nuclear physics simulations. Best Poster Award (top 10% of 250 participants).

Frankfurt Institute for Advanced Studies — Frankfurt, Germany
Visiting research assistant — Jun 2014-Sept 2014

Contributed collision initialization to SMASH, a major C++ software for collider physics, as part of a 15-person scientific team.

LEADERSHIP AND SERVICE

Organizer, JuliaCon Mini Symposium (Quantum Computing)	2025
Organizer, IEEE Quantum Week Workshop (Quantum Optimal Control and Calibration)	2024, 2025
Lecturer, Numerical Methods in Quantum Information Science (QNumerics) Summer School	2024, 2025
Mentor, Illinois Mathematics and Science Academy (1 credit SIR program)	2024, 2025
Organizer, SIAM CSE Mini Symposium (Data-driven Methods for Quantum Dynamics and Control)	2021
Organizer, UW Career Development Networking Days (Annual multi-day, industry-sponsored networking event)	2018, 2019