

Education **Massachusetts Institute of Technology**

Ph.D. candidate, physics, 2021 – present
Hertz Fellowship, DoD NDSEG Fellowship

California Institute of Technology

B.S., physics, 2017 – 2021
GPA: 4.24/4.33 (class rank 2), unweighted 4.0/4.0

Papers (* indicates equal contribution / alphabetical ordering)

D. Gamarnik*, B. Kiani* and A. Zlokapa*, “Slow mixing of quantum Gibbs samplers.” [arXiv:2411.04300](#) [quant-ph], 2024.

► QIP (2025).

B. Hanin* and A. Zlokapa*, “Bayesian inference with deep weakly nonlinear networks.” [arXiv:2405.16630](#) [stat.ML], 2024.

A. Zlokapa, A. K. Tan, J. M. Martyn, M. Tegmark, and I. L. Chuang, “Biological error correction codes generate fault-tolerant neural networks.” *Physical Review E*, 2024, 110 (5), 054303. [10.1103/PhysRevE.110.054303](#)

► **Editors’ suggestion.**

A. Zlokapa and R. Somma, “Hamiltonian simulation for low-energy states with optimal time dependence.” *Quantum*, 2024, 2521-327X (8), 1449. [10.22331/q-2024-08-27-1449](#)

► QSim (2025).

B. Hanin* and A. Zlokapa*, “Bayesian interpolation with deep linear networks.” *Proceedings of the National Academy of Sciences*, 2023, 120 (23), e2301345120. [10.1073/pnas.2301345120](#)

A. Zlokapa, B. Villalonga, S. Boixo and D. Lidar. “Boundaries of quantum supremacy via random circuit sampling.” *npj Quantum Information*, 2023, 9 (1), 36. [10.1038/s41534-023-00703-x](#)

D. Jafferis*, A. Zlokapa*, J. D. Lykken, D. K. Kolchmeyer, S. I. Davis, N. Lauk, H. Neven, and M. Spiropulu, “Traversable wormhole dynamics on a quantum processor.” *Nature*, 2022, 612 (7938), 51. [10.1038/s41586-022-05424-3](#)

► **Journal cover**, [Quanta article](#), [Nature perspective](#).

M. Niu*, A. Zlokapa*, M. Broughton, S. Boixo, M. Mohseni, V. Smelyanskiy, and H. Neven, “Entangling quantum generative adversarial networks.” *Physical Review Letters*, 2022, 128 (22), 220505. [10.1103/PhysRevLett.128.220505](#)

► [Nature computational science highlight](#).

A. Zlokapa, H. Neven, and S. Lloyd, “A quantum algorithm for training wide and deep classical neural networks.” [arXiv:2107.09200](#) [quant-ph], 2021.

M. Broughton, et al., “Tensorflow quantum: A software framework for quantum machine learning.” [arXiv:2003.02989](https://arxiv.org/abs/2003.02989) [quant-ph], 2021.

A. Zlokapa and A. Gheorghiu. “A deep learning model for noise prediction on near-term quantum devices.” [arXiv:2005.10811](https://arxiv.org/abs/2005.10811) [quant-ph], 2020.

A. Zlokapa, A. Mott, J. Job, J.-R. Vlimant, D. Lidar and M. Spiropulu, “Quantum adiabatic machine learning by zooming into a region of the energy surface.” *Physical Review A*, 2020, 102 (6), 62405-62413. [10.1103/PhysRevA.102.062405](https://doi.org/10.1103/PhysRevA.102.062405)

A. Zlokapa, A. Anand, J.-R. Vlimant, J. Duarte, J. Job, D. Lidar and M. Spiropulu, “Charged particle tracking with quantum annealing optimization.” *Quantum Machine Intelligence*, 2021, 3 (2), 1-11. [10.1007/s42484-021-00054-w](https://arxiv.org/abs/10.1007/s42484-021-00054-w).

J.-R. Vlimant, et al., “Large-Scale Distributed Training Applied to Generative Adversarial Networks for Calorimeter Simulation.” *European Physical Journal Web of Conferences*, 2019, 214 (06025). [10.1051/epjconf/201921406025](https://doi.org/10.1051/epjconf/201921406025)

A. Tremsin, et al., “In-Situ Observation of Phase Separation During Growth of $\text{Cs}_2\text{LiLaBr}_6\text{:Ce}$ Crystals Using Energy-Resolved Neutron Imaging,” *Crystal Growth & Design*, 2017, 17 (12), 6372-6381. [10.1021/acs.cgd.7b01048](https://doi.org/10.1021/acs.cgd.7b01048)

Talks

Invited talks

- We Are Quantum / YQIS, INRIA, Paris, 2024. (Tutorial.)
- RPI/IBM QC Ceremony and Bicentennial, 2024.
- Logic, Quantum Computing, and Artificial Intelligence (LQCAI), 2021.
- Quantum Techniques in Machine Learning (QTML), 2019.

Seminars

- Department of Mathematics, University of Bologna, 2024.
- Statistical physics and ML journal club, École Normale Supérieure, Paris, 2024.
- QuSoft Seminar, CWI, Amsterdam, 2024.
- Quantum computing seminar, Tufts University, 2024.
- Phasecraft, Bristol, 2024.
- Lin Lin group, Department of Mathematics, University of California Berkeley, 2024.
- Research Center for Theoretical Quantum Information, NTT, 2024.
- Mio Murao group, Department of Physics, University of Tokyo, 2024.
- Quantum Matter Seminar, Harvard, 2023.
- Purdue University, 2021.
- Cambridge Quantum Computing (CQC), 2020.
- AI-at-SLAC Seminar, Stanford Linear Accelerator Center, 2019.

Awards

Undergraduate prizes (Caltech)

- Richard Feynman Prize in Theoretical Physics (2021)
- George W. Housner Prize for Academic Excellence and Original Research (2021)
- Thomas A. Tisch Prize for Undergraduate Teaching in Computing and Mathematical Sciences (2021)
- Deans’ Cup (2021)

- Green Memorial Prize (2020)

Undergraduate prizes (external)

- Barry M. Goldwater Scholar (2020)
- 2nd, Student Research Competition, ACM Grand Finals (2020)
- 1st, Student Research Competition, SC19 IEEE/ACM Conf. (2019)

Teaching

Division of Physics, Math and Astronomy, Caltech

Teaching assistant, Ph101 Order-of-Magnitude Physics, 2021.

INQNET instructor, quantum computing summer program, 2020 and 2021.

Computing and Mathematical Sciences Department, Caltech

Thomas A. Tisch Prize for Undergraduate Teaching, 2021.

Teaching assistant, ACM95a Introductory Methods of Applied Mathematics, 2021.

Teaching assistant, CS156b Learning Systems, 2020 and 2021.

Outreach

Caltech COVID-19 Research Initiative (2020–2021)

Redesigned CS156b course into an AI COVID-19 forecasting competition, with resulting models used by the California Department of Public Health.

President, Caltech Data Science Organization (2019–2021)

Founded club and recruited 200 members. Taught artificial intelligence workshops resulting in \$200,000 of competition prizes. Raised \$10,000 from external sponsors.

Outreach leader, Caltech Y (2020)

Led an elementary school science outreach program for minorities in STEM, organizing a group of Caltech students to present weekly science demonstrations.

Seminar organizer, Computing and Mathematical Sciences, Caltech (2020)

Invited and hosted AI speakers from academia and industry to CMS seminars.