Zachary Berger

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Education

Massachusetts Institute of Technology
Ph.D. Student in Computer Science August 2024 – Present
Advised by John V. Guttag and Collin M. Stultz.

Massachusetts Institute of Technology
M.S. in Computer Science, GPA: 4.0/4.0 August 2024 – June 2026
Thesis: *Rethinking the Evaluation of ECG Representations*

University of California, Los Angeles
B.S. in Computer Science, summa cum laude, GPA: 4.0/4.0 September 2018 – June 2022

Publications

Available at www.zackberger.com. * denotes equal contribution.

Z. Berger*, D. Prakah-Asante*, J. Guttag, and C. M. Stultz, "Position: Evaluation of ECG Representations Must Be Fixed," International Conference on Machine Learning (ICML), 2026.

Center for AI Safety, Scale AI, and HLE Contributors Consortium, "A Benchmark of Expert-Level Academic Questions to Assess AI Capabilities," *Nature*, 649, 1139–1146, 2026.

Z. Berger, R. Ringel, S. Roytburd, N. Ayalon, D. Gopal, L. Tsao, J. Guttag, and C. M. Stultz, "Estimating CardioMEMS Pulmonary Artery Diastolic Pressure With a Non-invasive Cardiac Hemodynamic Artificial Intelligence Monitoring System (CHAIS)," *Circulation*, 152(Suppl. 3), 2025. Conference abstract presented at the American Heart Association Scientific Sessions, Moderated Digital Poster Session, New Orleans, LA.

Y. Onoe, S. Rane, Z. Berger, Y. Bitton, J. Cho, R. Garg, A. Ku, Z. Parekh, J. Pont-Tuset, G. Tanzer, S. Wang, and J. Baldridge, "DOCCI: Descriptions of Connected and Contrasting Images," Proceedings of the European Conference on Computer Vision (ECCV), 2024.

Z. Berger*, P. Agrawal*, T. Y. Liu, S. Soatto, and A. Wong, "Stereoscopic Universal Perturbations Across Different Architectures and Datasets," Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022.

Research Experience

Massachusetts Institute of Technology, CSAIL
Graduate Researcher August 2024 – Present

Current projects:

- **TinyAF:** Developing and deploying a compact model for continuous, on-device detection of atrial fibrillation and atrial flutter on wearables.
- **PACE-VD:** Developing a model that uses paced ECGs to forecast systemic ventricular dysfunction in children with congenital heart disease.

Boston Children's Hospital
Visiting Graduate Student August 2025 – Present

Massachusetts General Hospital
Visiting Graduate Student September 2024 – Present

Broad Institute
Visiting Graduate Student November 2024 – Present

UCLA Vision Lab
Undergraduate Researcher June 2020 – June 2022

Teaching Experience

University of California, Los Angeles
Lecturer, Demystifying CS 2021

- Developed and taught an undergraduate computer science course for 20 non-STEM majors; received an overall course evaluation of 4.84/5.

Industry Experience

Google
Software Engineer October 2022 – August 2024

- Adapted serving infrastructure for generative AI models, supporting launches including Bard LLM, MusicLM, Imagen and Parti.
- Deployed state-of-the-art logo recognition model at 50,000 queries per second. Saved 8 million dollars in TPU costs by migrating traffic to more efficient architecture.
- Designed and implemented statistical monitoring to continuously evaluate production object detection, embedding, and classification models.

Amazon
Software Engineer Intern June 2021 – September 2021

- Designed and built a native AWS application to supply up-to-date login information for multi-factor authentication challenges.

Tesla
ML Engineer Intern March 2021 – May 2021

- Wrote and scaled a data quality detection algorithm using Scala to operate on Tesla's multi-petabyte vehicle dataset. The algorithm is used to preprocess data, promoting robustness in Tesla's ML pipeline.
- Built data pipeline using Airflow to periodically deploy algorithm on a distributed Spark cluster, then update results/visualizations in Superset.

MobiTV
Software Engineer Intern June 2019 – September 2019

Awards

National Defense Science and Engineering Graduate Fellowship (NDSEG), 2024

NSF GRFP, Honorable Mention (2024)