HARRY BENDEKGEY

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EDUCATION

Ph.D., Computer Science — June 2025 (expected)
University of California, Irvine — GPA: 4.0
Thesis: "Optimization of Structured Objectives in Deep Learning"
Advised by Erik Sudderth

B.A., Computer Science and Mathematics (Double Major) — May 2019
Pomona College — GPA: 3.97

AREAS OF SPECIALIZATION

- Optimization + Constrained Optimization
- Fairness + Interpretability in Deep Learning
- Deep Generative Modeling
- Variational Inference

TEACHING

Instructor, University of California, Irvine — Summer 2023 (10-Week Session)
ICS 6N: Computational Linear Algebra
· Taught a linear algebra course required for computer science and data science majors.
· Designed my own course materials, assignments and examinations, and graded a class of 21 students.

Teaching Assistant, University of California, Irvine — Fall 2020, Winter 2024, Fall 2024
CS 177: Applications of Probability in CS
Led discussion (lab) sessions with up to 40 students, designed exams, managed virtual discussion forums (Canvas and Piazza) and held weekly office hours.

Teaching Assistant, Mentor and Grader, Pomona College
Held weekly office hours, graded, and managed virtual discussion forums.
· CS54: Discrete Math and Functional Programming (Head TA) — Spring 2019
· CS105: Computer Systems — Fall 2018
· CS52: Fundamentals of Computer Science (Head TA) — Spring 2017, Spring 2018
· CS51: Introduction to Computer Science — Spring 2016, Fall 2016
· MATH103: Combinatorial Mathematics — Spring 2017, Spring 2018, Spring 2019
· MATH152: Statistical Theory — Fall 2018
· MATH60: Linear Algebra — Fall 2018

PUBLICATIONS

Conference

- *In Submission:* Learning to Infer Fast by Attending to Sparse Temporal Observations.
  H Bendekgey, M Motamed, D Sujono, E Sudderth. Submitted to AISTATS 2025.
- Unbiased Learning of Deep Generative Models with Structured Discrete Representations.
  H Bendekgey, G Hope, E Sudderth. NeurIPS 2023
- Scalable & Stable Surrogates for Flexible Classifiers with Fairness Constraints.
  H Bendekgey, E Sudderth. NeurIPS 2021

Journal

- Scaling Study of Diffusion in Dynamic Crowded Spaces.
  H Bendekgey, G Huber, and D Yllanes. Journal of Physics A: Mathematical and Theoretical, 2024
- *Under Revision:* Undergraduate Data Science Education: Who Has the Microphone and What Are They Saying?
  M Dogucu, S Demirci, **H Bendekgey**, FZ Ricci, CM Medina. arxiv.org/abs/2403.03387
- *In Preparation:* Third-Order Photon Correlations to Extract Nanocrystal Multiexciton Properties in Solution.
  J Horowitz, D Berkinsky, **H Bendekgey**, O Tye, T Šverko, K Shulenberger, M Bawendi.
- *In Preparation:* Third-Order Photon Correlations Reveal Multiexciton Dynamics and Quantum Yield in ZnSe Nanocystals.
  D Berkinsky, J Horowitz, O Tye, T Šverko, **H Bendekgey**, T Kim, H Chung, K Shulenberger, M Bawendi.

Workshop

- Clustering Player Strategies from Variable-Length Game Logs in Dominion.
  H Bendekgey, AAAI Workshop on Knowledge Extraction from Games (KEG), 2019.

TALKS

Building Data Science Education Research Plans for Teacher-Scholars June 2024
Breakout Session: Electronic Conference on Teaching Statistics (eCOTS)
Selected as "hot topic of the day" at eCOTS.

Why We Use Reverse-Mode Autodiff (And the Time I Didn't) Feb 2024
Invited Talk: UC Irvine DataLab Seminar

Unbiased Learning of Deep Generative Models with Structured Discrete Representations Nov 2023
Invited Talk: Pomona College Computer Science Colloquium Series

UC IRVINE DEPARTMENT SERVICE

Student Member of the AI Faculty Search Committee 2021-2023
I was one of 4-6 Ph.D. students who interviewed faculty candidates with a focus on their research, their advising styles, and their interactions with graduate students.

HPI@UCI Workshop Organizer Apr 2024
I coordinated talks and activities for 30 workshop attendees from UC Irvine and the Hasso Plattner Institute in Germany.

HPI@UCI Reading Group Organizer 2021-2022
I organized a cross-lab reading group of 15 student fellows across machine learning specializations for the 2021-2022 academic year.

PROFESSIONAL EXPERIENCE

Research Intern, Chan-Zuckerberg Biohub Summer 2019
- Worked with the theory group on two projects touching biology, physics, and statistics:
- Explored the ability of $(MC)^3$ to explore the space of phylogenetic trees, and
- Discovered a new power law for modeling diffusion in crowded dynamic spaces.

Engineering Intern, QuanticMind Summer 2017
- Created an API for employees to access databases without requiring access credentials, and
- Led meetings with colleagues to generate common use cases to be addressed by the API.

Intern, GradGuru Summer 2016
- Designed user experience for app to help community college students track administrative requirements.
- Met weekly with community college administrators across California to customize the app.

AWARDS AND HONORS

UC Irvine Awards
- Hasso Plattner Institute Fellowship 2021-2023
- Enhanced Computer Science Department Excellence Fellowship 2019-2020
- Dean's Award 2019

Pomona College Awards
- Paul B. Yale Computer Science Prize 2019
- Phi Beta Kappa Award 2019
- Phi Beta Kappa Member 2018
- Kenneth Cooke Summer Research Fellowship 2018
- Bruce Jay Levy Prize in Mathematics 2018
- Llewellyn Bixby Mathematics Prize 2017