

# HARRY BENDEKGEY

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## EDUCATION

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### Ph.D., Computer Science

University of California, Irvine

Thesis: "Optimization of Structured Objectives in Deep Learning"

Advised by Erik Sudderth

June 2025 (expected)

GPA: 4.0

### B.A., Computer Science and Mathematics (Double Major)

Pomona College

May 2019

GPA: 3.97

## AREAS OF SPECIALIZATION

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

## TEACHING

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### Instructor, University of California, Irvine

Summer 2023 (10-Week Session)

ICS 6N: Computational Linear Algebra

- Lectured 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

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### 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

- *Under Revision:* Scaling Study of Diffusion in Dynamic Crowded Spaces.  
**H Bendekgey**, G Huber, and D Yllanes. [arxiv.org/abs/2011.02444](https://arxiv.org/abs/2011.02444)
- *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](https://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 Nanocrystals.  
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

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<b>Building Data Science Education Research Plans for Teacher-Scholars</b> Breakout Session: Electronic Conference on Teaching Statistics (eCOTS) Selected as “hot topic of the day” at eCOTS.	June 2024
<b>Why We Use Reverse-Mode Autodiff (And the Time I Didn’t)</b> Invited Talk: UC Irvine DataLab Seminar	Feb 2024
<b>Unbiased Learning of Deep Generative Models with Structured Discrete Representations</b> Invited Talk: Pomona College Computer Science Colloquium Series	Nov 2023

## UC IRVINE DEPARTMENT SERVICE

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### **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

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### **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)<sup>3</sup> 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.

## AWARDS AND HONORS

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### **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