Hannah Friedman

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Department of Mathematics

University of California, Berkeley

EDUCATION

University of California, Berkeley   Expected December 2026

PhD Candidate in Mathematics jointly advised by Bernd Sturmfels and Serkan Hoşten

Harvey Mudd College   May 2023

BS in Mathematics with High Distinction, Honors in Mathematics

Thesis advised by Michael Orrison

AWARDS & HONORS

Chancellor's Fellowship, UC Berkeley   2023

Alvin White Prize, Harvey Mudd College   2023

Presented to a student or students who have contributed greatly to the humanistic side of the Harvey Mudd College Mathematics Community.

Giovanni Borrelli Mathematics Fellowship, Harvey Mudd College   2021 - 2022

Conferred on one or two junior mathematics majors in recognition of the ability to complete high quality research independently or in tandem with a faculty advisor.

Courtney S. Coleman Prize, Harvey Mudd College   2021

Awarded to three rising juniors who excel in mathematics.

RESEARCH ACTIVITES

– Organized Non-Linear Algebra Seminar   UC Berkeley, December 2024
– Workshop for Women in Algebraic Statistics   St John's College, Oxford, July 2024
– Visit to Max Planck Institute for Mathematics in the Sciences   Leipzig, Summer 2024
– Visit to Max Planck Institute for Mathematics in the Sciences   Leipzig, Summer 2023

PUBLICATIONS

– Hannah Friedman. Likelihood Geometry of the Squared Grassmannian. arXiv:2409.03730 (2024).
– Karel Devriendt, Hannah Friedman, Bernhard Reinke, Bernd Sturmfels. The Two Lives of the Grassmannian, to appear in *Acta Universitatis Spientie, Mathematica.*
– Hannah Friedman, Bernd Sturmfels, Max Zubkov. Likelihood Geometry of Determinantal Point Processes. *Algebraic Statistics*, **15**, (2024) 15-25.
– Hannah Friedman. Long Increasing Subsequences, senior thesis advised by Michael Orrison.
– Hannah Friedman, Amani R. Maina-Kilaas, Julianna Schalkwyk, Hina Ahmed, and Jamie Haddock. An Interpretable Joint Nonnegative Matrix Factorization-Based Point Cloud Distance Measure, *Proceedings of the Conference on Information Sciences and Systems (CISS)*, Baltimore, MD, March 2023.

TALKS

Key: ♣ = invited; ♠ = contributed; ♢ = seminar/lecture.

– Likelihood Geometry of the Squared Grassmannian
  - ♠ AlgStat 2025, March 27, 2025
  - ♠ AMS Special Session on Algebraic Statistics in Our Changing World at JMM, January 8, 2025
  - ♢ UC Berkeley Combinatorics Seminar, October, 2024.
  - ♠ Workshop for Women in Algebraic Statistics at St. John's College, Oxford, July, 2024.
– Polyhedral Geometry and Gröbner Bases
  - ♢ Tropical geometry reading group at UC Berkeley, February 2025.

- The Squared Grassmannian
  ♣ University of Washington Combinatorics and Geometry Seminar, January 15, 2025.
- What is algebraic statistics?
  ♠ Bay Area Discrete Math Day, December 7, 2024.
- Phylogenetics and Tensors
  ♢ Tensor reading group at UC Berkeley, November, 2024.
- Representation Theory for Spaces of Tensors
  ♢ Tensor reading group at UC Berkeley, October, 2024.
- Optimization over Two Embeddings of the Grassmannian
  ♣ Codex seminar, July 2024.
- Likelihood Geometry of Determinantal Point Processes
  ♢ Algebra-Geometry-Combinatorics Afternoon at SFSU, November 2023.
- Long Increasing Subsequences
  ♠ Harvey Mudd Thesis Presentation Days
- A New Basis for k-Local Class Functions
  ♠ 2023 Joint Math Meetings

TEACHING & MENTORSHIP

- URep Leader, Fall 2024 - current
- Graduate Student Instructor at UC Berkeley:
  - Math 250B: Graduate Commutative Algebra, Spring 2025
  - Math H110: Honors Abstract Linear Algebra, Spring 2025
  - Math 55: Discrete Math, Fall 2024
  - Math 1A: Calculus I, Spring 2024
- UC Berkeley Directed Reading Program Mentor, Spring 2024
- President of Women in Math at Harvey Mudd College, Fall 2022-Spring 2023
- Teaching Assistant at Harvey Mudd College, Spring 2021 - Spring 2023

SKILLS

- Programming Languages: Python, MatLab, Macaulay2, Java, C++, R, Julia
- Languages: English (fluent), German (fluent), Mandarin (proficient), Hebrew (proficient)