

Christian Pratt

Physics Ph.D. Candidate
University of California, Davis

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Education

- 2021 — Ph.D. *Physics*
University of California, Davis
Advisor: Prof. James P. Crutchfield
Expected graduation date: Spring 2026
- 2022 M.Sc. *Physics*
University of California, Davis
- 2021 B.Sc. *Physics*
University of California, Davis
- 2019 A.A. *Mathematics*
San Diego Community College District

Research Positions

- 2022 — Graduate student researcher
[Complexity Sciences Center](#)
University of California, Davis
Advisor: Prof. James P. Crutchfield
- 2019 - 2021 Undergraduate research student
Experimental particle physics
University of California, Davis
Advisor: Prof. Michael Mulhearn

Publications

- 2025 **C. Z. Pratt**, K. J. Ray, and J. P. Crutchfield. Controlled erasure as a building block for universal thermodynamically robust superconducting computing. *Chaos*. [10.1063/5.0227130](https://doi.org/10.1063/5.0227130)
- 2025 **C. Z. Pratt**, K. J. Ray, and J. P. Crutchfield. Extracting equations of motion from superconducting circuits. *Physical Review Research*. [10.1103/PhysRevResearch.7.013014](https://doi.org/10.1103/PhysRevResearch.7.013014)
- 2021 J. Swaney, M. Mulhearn, **C. Z. Pratt**, C. Shimmin, and D. Whiteson. Measurement of smartphone sensor efficiency to cosmic ray muons. [arXiv:2107.06332](https://arxiv.org/abs/2107.06332)

Presentations

- 2025 Controlled Erasure as a Building Block for Universal Thermodynamically-Robust Superconducting Computing. *Society for Industrial and Applied Mathematics (SIAM) Conference on Applications of Dynamical Systems (DS25)*. Denver, Colorado.
- 2025 **[Invited Poster]** Computing with Dynamical Energy Landscapes. *Interdisciplinary Graduate Research Exhibition*. University of California, Davis.
- 2025 Controlled Erasure as a Building Block for Universal Thermodynamically-Robust Superconducting Computing. *APS March Meeting 2025*. Anaheim, California.
- 2024 [Controlled Erasure as a Building Block for Universal Thermodynamically-Robust Superconducting Computing](#). *Technical seminar*. Complexity Sciences Center, University of California, Davis.
- 2024 Universal Dynamical Computing on the Nanoscale. *Dynamic Days 2024*. Davis, California.
- 2023 Universal Dynamical Computing on the Nanoscale. *Information Engines at the Frontiers of Nanoscale Thermodynamics*. Telluride, Colorado.
- 2023 Equations of Motion for Dynamical Computing. *Army Research Office on-site visit*. Complexity Sciences Center, University of California, Davis.

Teaching

- 2025 University of California, Davis: Teaching Assistant
256A: Physics of Information
256B: Physics of Computation
- 2021 - 2022 University of California, Davis: Teaching Assistant

7B: Fluid mechanics, electrical circuits, Newtonian mechanics
 7C: Modern physics, waves, optics
 9A: Classical mechanics

Awards & Honors

2025	Ryan Couch Memorial Travel Award Department of Physics and Astronomy University of California, Davis
Winter 2025, Spring 2024, Spring 2023	Graduate Student Researcher Fellowship Department of Physics and Astronomy University of California, Davis
2018	NASA Community College Aerospace Scholar
2016 - 2019	Dean's Honors List San Diego Community College District

Service and Outreach

2025	Session Chair for CS28: Electronic, Optical, and Condensed Matter Systems. <i>Society for Industrial and Applied Mathematics (SIAM) Conference on Applications of Dynamical Systems (DS25)</i> . Denver, Colorado.
2020 - 2021	Mentor, Support Encourage and Develop For Children (SendForC)
2018	Volunteer, New Story Charity
2017 - 2018	Volunteer, San Diego Rescue Mission
2016 - 2018	Volunteer, San Diego Air and Space Museum

Last updated: May 16, 2025