

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 Crutchfield

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 Crutchfield

2019 - 2021 Undergraduate research student
Experimental particle physics
University of California, Davis
Advisor: Prof. Michael Mulhearn

Publications

2024 **C. Z. Pratt**, K. J. Ray and J. P. Crutchfield. Controlled Erasure as a Building Block for Universal Thermodynamically-Robust Superconducting Computing. To appear in *Chaos*. [arXiv:2406.12153](#)

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](#)

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

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

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

Winter 2025 Graduate Student Researcher Fellowship
Department of Physics and Astronomy
University of California, Davis

Spring 2024 Graduate Student Researcher Fellowship
Department of Physics and Astronomy
University of California, Davis

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

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: March 14, 2025