Christian Pratt

Physics Ph.D. Candidate
University of California, Davis

czpratt@ucdavis.edu
czpratt.github.io

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](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
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

Presentations

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

Winter 2025,   Graduate Student Researcher Fellowship
Spring 2024,   Department of Physics and Astronomy
Spring 2023   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: April 16, 2025