

Reilly Raab

PHD STUDENT · COMPUTER SCIENCE AND ENGINEERING

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Education

University of California, Santa Cruz

PHD IN COMPUTER SCIENCE (ONGOING)

- UC Regent's Fellowship (2019) · Dean's Fellowship (2019)

Santa Cruz, CA
Spring 2024 (Expected)

University of California, Santa Barbara, College of Creative Studies

BSc IN PHYSICS

- 3.77/4.0 GPA · High Honors · Distinction in the Major
- Education Abroad at the University of Edinburgh (Fall 2013) · UCEAP Scholarship · UCSB EAP Scholarship

Santa Barbara, CA
Spring 2015

Work & Research

Breadware Inc.

SOFTWARE DEVELOPER

- Encoded modular, extensible, automatic netlist generation for PCB development as a constraint satisfaction problem (with Picat)
- Designed and demonstrated full-stack IoT solutions for clients with time constraints on the order of days
- Wrote Python libraries for translation between undocumented file formats and GUI scripting of proprietary software

Reno, NV
Oct. 2016 - Aug. 2018

The Summer Science Program

TEACHING ASSISTANT AND RESIDENTIAL MENTOR

- Supervised advanced high school students in observational astronomy and orbit determination of near-Earth asteroids
- Graded homework in astronomy, celestial mechanics, programming, and mathematics
- Guided students through extracurricular activities, field trips, and a university living environment

Boulder, CO and Socorro, NM
June - July of 2015 & 2016

Martinis Group: Josephson Junction Quantum Computing

UNDERGRADUATE INTERN WITH CALIFORNIA NANOSYSTEMS INSTITUTE

- Designed a PCB for GHz amplification in the signal-chain for superconducting qubit control
- Wrote software for automating GHz phase-noise measurements via GPIO control of a function-limited spectrum analyzer
- Machined, assembled, and tested custom hardware for control and measurement of superconducting qubit states
- Wrote honors thesis on single-qubit gate-error induced by imperfect quadrature mixing in a qubit-control signal chain^[2]

Santa Barbara, CA
Feb 2013 - Jun. 2015

Nguyen Group: Organic Electric Devices and Characterization

UNDERGRADUATE INTERN WITH CENTER FOR ENERGY EFFICIENT MATERIALS

- Co-authored paper investigating various techniques of measuring exciton diffusion length in organic semiconductors^[1]
- Encased sensitive thin-film organics in glass/epoxy housings within a nitrogen-purged environment for photoluminescence measurements
- Characterized surface morphology of candidate bulk-heterojunction materials via atomic force microscopy
- Numerically modeled optical parameters of organic materials to match spectroscopic ellipsometry measurements

Santa Barbara, CA
Jan. - July. 2011

Publications

[1] "Systematic study of exciton diffusion length in organic semiconductors by six experimental methods",

J. D. A. Lin et al., Materials Horizons. 1, 280-285 (2014). DOI: 10.1039/c3mh00089c

[2] "Single-Gate Error for Superconducting Qubits Imposed by Sideband Products of IQ Mixing",

R. P. Raab, (2015, June). Hosted online at <https://web.physics.ucsb.edu/martinisgroup/theses/Raab2015.pdf>

Skills and Interests

Programming	Python, Javascript, Clojure, Prolog, C
Software Design	computational physics, numerical simulation, interactive visualization
Fabrication	machining, welding, woodworking, electrical design, lutherie
Other	guitar, soccer, Brazilian Jiu-Jitsu, hazarding exciting and unusual experiences