

Caleb Rotello

RESEARCH INTERN · QUANTUM APPLICATIONS

303-475-1515 | caleb@rotello.dev | [calebrotello](https://github.com/calebrotello) | [calebrotello](https://www.linkedin.com/in/calebrotello)

Education

Colorado School of Mines

M.S. IN QUANTUM ENGINEERING

Golden, Colorado

May 2021 - Aug. 2022

- Thesis title: *Symmetry Protected Subspaces in Quantum Simulations*
- Advisor: Dr. Eliot Kapit, Associate Professor
- 4.0 GPA

Colorado School of Mines

B.S. IN COMPUTER SCIENCE

Golden, Colorado

Aug. 2018 - May 2021

- 3.78 GPA, 4.0 Major GPA
- Transamerica C-MAPP Scholar, 2020

Skills

Quantum Computing

Quantum code execution, NISQ algorithms, Noise mitigation, Mathematical physics

Programming Languages

C++, Python, OCaml, R, Matlab, Mathematica

Writing

Automated detection of symmetry-protected subspaces in quantum simulations

arXiv preprint

CALEB ROTELLO, ERIC B. JONES, PETER GRAF, ELIOT KAPIT

Feb. 2023

Work Experience

National Renewable Energy Laboratory

QUANTUM COMPUTING RESEARCH INTERN

Golden, Colorado

Nov. 2021 - Present

- Discovered and published algorithms to identify symmetry protected subspaces in quantum systems
- Wrote efficient classical and quantum software
- Reviewed quantum approaches to optimizing stochastic systems
- Collaborated with researchers across disciplines

Colorado School of Mines

GRADUATE RESEARCH ASSISTANT

Golden, Colorado

May 2021 - Aug. 2022

- Submitted loop quantum gravity simulation code to Google's Sycamore processor
- Implemented quantum optimization algorithms for research
- Wrote and successfully defended a thesis

Invitae

RESEARCH & DEVELOPMENT INTERN

Boulder, Colorado

Summers 2020, 2021

- Discovered algorithm to efficiently detect DNA sample errors with lexical analysis
- Created analysis code for research on acute myeloid leukemia
- Implemented ALPHABETR algorithm to pair RNA alpha and beta sequences across multiple cells
- Wrote C++, Python, and R software for AMP chemistry analysis

Honors

2022 **1st Place**, Womanium Hackathon, IBM Challenge *Humans vs Quantum Computers*

Online

2020 **4th Place**, HackCU VI Hackathon

CU Boulder

2019 **Semifinalist**, RASC-AL

NASA

Extracurricular Activity

2011-17 **Eagle Scout**, Boy Scouts of America

Troop 794, Colorado

2021-22 **Vice President**, Creative Writing Club

Mines

2022 **Poetry Editor**, *High Grade Art Journal*

Mines