Jacob B. Collins

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SUMMARY

Computer Science Student Research Assistant and Software Engineer with experience in academic Quantum Computing research, web development, and network science. Committed to leveraging advanced data analytics, parallel computing, and embedded systems to develop robust solutions. Enthusiastic about using 3D printing for rapid design iteration and integrating microcontrollers to drive high-impact, interdisciplinary research.

Programming languages: *C/C++, Python, R**, OCaml, Rust, HTML, CSS, JS***

EMPLOYMENT

Lab Assistant – Summer assistant for Dr. Sam Siewert
General assistance and in-person liaison for i-SAIL lab and summer research program. Used CAD to design lab layout, found quotes for workbench orders, and supervised CURE-E research students.
California State University, Chico
June 2025 – August 2025

Student Research Assistant – advised by Dr. Jaime Raigoza & Dr. Sam Siewert
Student lead for research efforts to design Quantum Computing algorithms, to be compared against equivalent parallel solutions. Quantum circuits implemented with CUDA-Q: C++.
Chico State Enterprises
June 2024 – December 2024

EDUCATION

B.S. Computer Science [CS] (IP)
GPA: 3.76
California State University, Chico
Expected Completion: December 2025

Data Science Certificate [DS] (IP)
California State University, Chico
Expected Completion: December 2025

PUBLICATIONS & PROJECTS

Quantum Semiprime Factorization: Leveraging Grover's Algorithm for Efficient Prime Decomposition
Developed a quantum computing algorithm to find factors of large semiprimes using fewer qubits than previous existing methods.
Published at CSCSU 2025 Research Conference

Iterative Prisoner's Dilemma
Simulated an iterative adaptation of the prisoner's dilemma on a variety of networks. Automated visualization of model statistics.
Hosted on GitHub
Skills: Python, NetworkX, Matplotlib

EXTRACURRICULAR ACTIVITY

CSCI Research Club President – advised by Dr. Richard Tillquist
The CSCI Research Club meets weekly to discuss recent discoveries and innovations in the field of Computer Science.
California State University, Chico
August 2023 - Present

Quantum Computing Research Club President – advised by Dr. Jaime Raigoza
Co-founder and president of the interdisciplinary quantum research club.
California State University, Chico
April 2025 - Present

Homeless Shelter Winter Volunteer – Registration Crew
Safe Space Homeless Shelter

ABOUT ME

Between my passion for photography, weekend hikes, and the sound of my electric bass, I'm always looking for new ways to unleash my creativity. Writing custom scripts to modify the photos I take was one of the first experiences I had with Computer Science, and that motivation has only increased over time. I enjoy carpentry projects that allow me to build practical solutions from the ground up, and I make time to guide and support other students whenever possible. I consider myself a safe space for others, and always try to be considerate of my peers. I appreciate quick wit and a good sense of humor, because life is far better when everyone is enjoying themselves.