Adam Keim

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Education:

Currently Enrolled: Bachelor of Arts, Physics, Chemistry (**GPA:** 3.87)   May 2024
Colorado College, Colorado Springs, CO.
Concentration: Comprehensive Physics.
Relevant Coursework Taken: Quantum II, Optics, Solid State Physics, Techniques of Experimental Physics, Instrumental Chemistry, Organic Chemistry II, Electronics I, Computational Graph Theory, Physical Chemistry I, Computational Physics.
Planned Coursework Spring 2023: Electromagnetism, Thermal Physics

Honors and Awards:

Colorado College Dean's List '20-'21, '21-'22, '22-'23.
Colorado College First Year Chemistry Award '20-'21.
American Chemical Society Undergraduate Award in Physical Chemistry '22-'23.
Colorado College Student Seed and Innovation Grant: Modular Synthesis - An Exploration of the Natural World through Sound. Awarded Jan. 2023.

Presentations:

Colorado College Molecular Crystallization in the Electrical Double Layer – Poster Presentation Feb. 2022
NIST Cryogenic Low-Noise DC Measurements of Nanoscale Josephson Junctions – Colloquium Presentation Aug. 2023

Skills and Languages:

Computer Languages: *Python, Java, C++*, C, Rust, Go, JavaScript.
Software: *Linux SysAdmin, Git, KiCad, Fusion360, VISA*, AWS, Bash, CI/CD, Test-Driven Development, Docker, Infrastructure-as-Code, LaTeX.
Embedded Skills: *Arduino, ESP-32*, STM32, Cross-Platform Unit Testing, Displays.
Electronics: Analog signal amplification, digitization, and processing, Digital protocols, SMD Soldering, Oscilloscope, SPICE.
Lab: Organic Synthesis, Cryogen Handling, Data Analysis.
Fabrication: *3D Printing*, CNC, Laser Cutting, Machining (Lathe, Mill), Woodworking.

Languages:
English: Native speaker, reader, and writer.
French: Native speaker & reader, proficient writer.

Experience:

Student Researcher (SURF)   May. 2023 — Aug. 2023
Flux Quantum Electronics Project, Superconductive Electronics Group National Institute of Standards and Technology, Boulder, CO.

- Designed, assembled, and integrated PCBs to assist with characterization of nanoscale Josephson Junctions (JJ's)
- Characterized superconducting JJ's voltage/current characteristics at liquid helium temperatures, using Python for automation of acquisition and analysis.

- Modeled JJ's numerically using a variety of approaches, and fit these models to experimental data.
- Addressed signal integrity issues (ground loops, interference, trapped flux) in order to realize measurements with nA precision.
- Presented my research at the SURF Colloquium at the end of the summer to other students and NIST staff.

Student Researcher Oct. 2022 — Nov. 2022

Bowman Lab: Spin Crossover in Inorganic Cobalt Compounds Colorado College, Colorado Springs, CO.
- Synthesized and characterized an inorganic cobalt-containing compound in an attempt to characterize its spin crossover properties.
- Used ORCA to perform computational chemistry calculations to predict structure and vibrational spectra of the target compound.
- Used analytical and spectroscopic techniques including IR, NMR, Raman, and TGA with electromagnet to characterize the compound.

Student Researcher Jun. 2022 — Aug. 2022

Light Lab: High-Voltage Nanosecond Pulse Generation Colorado College, Colorado Springs, CO.
- Developed and constructed a high voltage nanosecond-scale pulse generator to be used in generation of low-temperature plasmas, based on a Marx generator topology.
- Designed schematics and printed circuit boards of the design using KiCad. Design features include a microcontroller for controls, optical triggering of individual stages, SiC MOSFETs, and numerous high-voltage signal paths.
- Assembled, troubleshooted, and tested individual stages of the generator using oscilloscopes and signal generators to confirm that the output pulse met requirements.

Student Researcher Jun. 2021 — Aug. 2021

Fahrenkrug Lab: Molecular Crystallization within the Electrical Double Layer. Colorado College, Colorado Springs, CO.
- Directed continued research in crystallization at the molecular double-layer under the influence of large electric fields.
- Iterated on and fabricated electrochemical cells used for crystal growth.
- Used electrochemical and spectroscopic techniques such as EIS, XRD, and chronocoulometry to characterize crystals.

Associate DevOps Engineer Jun. 2019 — Aug. 2020

PowerReviews. Chicago, IL
- Worked as part of a DevOps team architecting and maintaining software infrastructure.
- Engineered a log processing application to aggregate customer data from API logs, built in Python utilizing AWS serverless functions and queue technologies.
- Expanded and modernized server infrastructure by using Infrastructure-as-Code technologies to solve scaling and security issues.

DevOps Intern Jun. 2018 — Jun. 2019

PowerReviews. Chicago, IL
- Worked full-time for a summer, and part-time during the school year upgrading infrastructure and helping developers with IT issues.
- Designed Continuous Integration/Delivery pipelines to assist developers in shipping software.
- Designed internal CLI tooling in Go to speed up connections to secure hosts.
- Became familiar with concepts and tooling to make efficient use of AWS cloud technologies.

QA Intern Jun. 2017 — Sep. 2017

PowerReviews. Chicago, IL
- Wrote automated unit and integration tests using JUnit for Java apps running in AWS.

Front-End Intern Jun. 2015 — Sep. 2015 / Jun. 2016 — Sep. 2016

PowerReviews. Chicago, IL
- Developed components for a client-facing ReactJS reviews webapp in Javascript over the course of two summers.