

# katherine gruenewald

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## Skills

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**programming languages:** julia, python, C, go, C++, zig/rust

**web development:** javascript/CSS/html, htmx, playwright, esbuild

**hosting infrastructure:** podman/docker, systemd with podlet, caddy, AWS - EC2/S3/Route53, Fedora ecosystem

**tools:** git - github/gitea/gitlab, wireshark, qemu, ollama - local language models

## Experience

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### Myriad Fleet / Tutoring

Boulder, Colorado

COURIER

Dec 2022 – Present

- Delivered packages to businesses and residences in Boulder and northwest Denver.
- Tutored biology and algebra to community college students in Longmont

### CU Boulder, Chemistry/Ecology and Evolutionary Biology Department

Boulder, Colorado

GRADUATE TEACHING ASSISTANT

Aug 2020 – Dec 2021

- Oversaw the instruction of a general and engineering chemistry laboratory course as well as a general biology laboratory

### CU Boulder, Chemistry/Computer Science Department

Boulder, Colorado

GRADUATE RESEARCH ASSISTANT

May 2020 – Aug 2021

- Investigated spectroscopic models for the Fenna-Matthews-Owen photosynthetic complex of deep sea bacteria to understand its dynamical spectroscopic behavior for the Montoya-Castillo laboratory.
- Examined mechanical stability of simulated bee swarms to oscillatory perturbations with an aim to understand wider adaptive collective behavior with the Peleg research group.

### SUNY CNSE, Ion Beam Laboratory

Albany, New York

RESEARCH AIDE

Nov 2015 – Oct 2017

- Performed XRD characterization of hafnia mirror samples for Lawrence Livermore National Laboratory's National Ignition Facility
- Performed X-ray photoelectron spectroscopy (XPS) on Niobium doped 2D molybdenum disulfide which resulted in a publication in MRS Advances.

## Projects

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### personal website

javascript/css/html, htmx

BUILT AND HOSTED MY PERSONAL WEBSITE ON AWS S3, EC2, AND EVENTUALLY ON A RASPBERRY PI ON A

CONTAINERIZED FEDORA IoT ATOMIC OS ALONG WITH OTHER APPLICATIONS SUCH AS A REVERSE PROXY, WIREGUARD

kathesch.com

VPN, AND A SNAKE PUZZLE SOLVER. MY OTHER PROJECTS CAN BE VIEWED THERE.

### incompressible navier-stokes solver

Julia, Makie.jl

WROTE A FINITE DIFFERENCE SOLVER IN JULIA TO VISUALIZE THE FLOW OF A VISCOUS, INCOMPRESSIBLE FLUID IN A COUPLED FLOW REGIME.

github.com/kathesch

### assorted electronics

ModellingToolkit.jl, esptek  
labrador, RTL-SDR, milky-V duo riscv

BLINKING LEDS AND PWM ON RISC-V, AM RADIO FROM SCRATCH / SDR, HARTLEY OSCILLATOR, SRAM/DRAM DEMO, LI-PO BOOST CONVERTER / VOLTAGE MULTIPLIER

## Education

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### SUNY College of Nanoscale Science and Engineering

Albany, NY

BS IN NANOSCIENCE

Sep 2013 – May 2017

GPA: 3.8

### University of Colorado Boulder

Boulder

MSC IN MATERIALS SCIENCE

Jan 2020 – May 2022

GPA: 3.7

