

Brooke Chalmers

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🏠 Boston, MA & Portland, ME

🔗 <https://breq.dev/>

🐙 github.com/breqdev

📅 Available May–December 2023

Education

Khoury College of Computer Sciences, Northeastern University, Boston, MA Sept 2021–Present
Candidate for Bachelor of Science in Computer Science expected graduation May 2025

GPA: 3.89/4.00, Honors Program, Dean's List all semesters

Relevant coursework: *Fundamentals of CS I & II (accelerated)*, *Object-Oriented Design*, *Algorithms*

Scarborough High School, Scarborough, ME

Sept 2019–May 2021

Maine School of Science and Mathematics, Limestone, ME

Sept 2017–May 2019

National Merit Scholar, Maine All-Star Math Team in 2018 and 2019 seasons

Skills

Programming Languages: Python, Rust, TypeScript/JavaScript, CSS, Java, C++, MOS 6502 Assembly

Tools and Frameworks: Git, Linux (CLI), React, Node, Tailwind, Redis, ROS, Docker, Bash, VS Code

Work Experience

Khoury College of Computer Sciences, Teaching Assistant, Boston, MA Sept 2022–Dec 2022

- Provided one-on-one assistance to students in an accelerated fundamentals of computer science course.
- Conducted labs, planned assignments, and graded submissions for 70 students as part of a small team.
- Implemented and deployed infrastructure in Rust used for demonstrating student submissions.

Texas Instruments Inc., Manufacturing Specialist Operator, South Portland, ME June 2021–Aug 2021

- Operated 20 semiconductor photolithography machines in a cleanroom environment.
- Scheduled and batched work, monitored equipment for malfunctions, and performed basic maintenance.
- Proposed an optimization to automated materials stocking which was enacted site-wide.

Extracurricular Involvement

Northeastern University Mars Rover Team, Software Team Co-Lead Fall 2021–Current

- Led development of an entirely new base station control interface leveraging React and TypeScript.
- Communicated with electrical, firmware, and software teams to integrate various parameters into the UI.
- Conducted onboarding lectures and wrote reference materials covering React, ROS, Git, etc.

Red Storm Robotics at Scarborough High School, Team Captain Fall 2019–Spring 2021

- Founded a new VEX Robotics team, recruited members, and organized meetings.
- Trained teammates on embedded programming with C++, use of Git, and software documentation.
- Contributed 300+ lines of code and tests to the popular OkapiLib robotics library.

Personal Projects

Modular Retro Emulation Framework for Desktop and Web 🔗 🐙 Fall 2022–Spring 2023

- Developed a project in Rust for emulating the Commodore 64, VIC-20, and other 6502-based machines.
- Implemented both GPU-accelerated desktop support and WebAssembly support for web deployment.

LiDAR-based Expressive MIDI Controller 🔗 🐙 Spring 2022

- Designed a musical instrument with a LiDAR sensor to track the position of the user's hands.
- Implemented a rule-based strategy in Python to process point cloud data and control Ableton Live.

Addressable LED Choker and Companion Android App 🔗 🐙 Fall 2021–Spring 2022

- Built several necklaces using addressable WS2812B LED strips and various ARM microprocessors.
- Devised a resilient serial protocol for selecting an animation and providing parameters.
- Developed an app with React Native to send animation commands over USB or Bluetooth.