Brooke Chalmers

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🏠 Boston, MA & Portland, ME   📅 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: *Object-Oriented Design, Algorithms, Theory of Computation, Intro to Cybersecurity*

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

Personal Projects

Modular Retro Emulation Framework for Desktop and Web 🔗 ⓞ   Sept 2022–Present
  - Develop a project in Rust for emulating the Commodore 64, VIC-20, and other 6502-based machines.
  - Implement both GPU-accelerated desktop support and WebAssembly support for web deployment.
  - Organize a small team to extend support for additional systems and peripherals.

LiDAR-based Expressive MIDI Controller 🔗 ⓞ   Feb 2022–May 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 🔗 ⓞ   Sept 2021–June 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.

Leadership Experience

Northeastern University Mars Rover Team, Software Team Co-Lead   Sept 2021–Present
  - Lead development of an entirely new base station control interface leveraging React and TypeScript.
  - Communicate with electrical, firmware, and software teams to integrate various parameters into the UI.
  - Implement a low-latency system for video streaming over long-range radio using GStreamer and RTSP.
  - Conduct onboarding lectures and write reference materials covering React, ROS, Git, etc.

Red Storm Robotics at Scarborough High School, Team Captain   Sept 2019–June 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.

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.