Brooke Chalmers

✉ chalmers.b@northeastern.edu   📞 (207) 200-6829   🔗 https://breq.dev/   ⬡ github.com/breqdev

👤 she/her   🏠 Boston, MA & Portland, ME   💼 Available May–December 2024

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, Concurrent Systems, Cryptography, Networks*

Skills

Programming Languages: Python, Rust, TypeScript/JavaScript, C++, CSS, Java, MOS 6502 Assembly
Tools and Frameworks: Git, Linux (CLI), React, Node, Tailwind, Redis, ROS, Docker, Bash, VS Code

Work Experience

Amazon Robotics, Sensor System Development Co-op, North Reading, MA   July 2023–Dec 2023
- Create and document a DRAM tuning process for custom ARM-based compute modules
- Develop software to support thermal, vibration, and ingress protection testing of image sensors
- Design and implement a software library and test suite for hardware-accelerated image processing

Northeastern U. College of Arts, Media, and Design, Research Assistant, Boston, MA   Jan 2023–May 2023
- Researched Android internals, audio libraries, and C++ compilation tools
- Implemented a toolchain for compiling low-level audio applications for rooted Android phones
- Created example projects to demonstrate the toolchain's use in an educational environment

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 testing student submissions

Leadership Experience

Northeastern University Mars Rover Team, Engineering Lead   Sept 2021–Present
- Communicate with electrical, firmware, and software teams to establish deadlines and deliverables
- Lead development of an entirely new base station control interface leveraging React and TypeScript
- 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 2, Git, etc.
- Work with NUAV, Capstone groups, TEDxNortheastern, and other teams on campus to share knowledge
- Develop CI tooling enforcing correctness and style with feedback collected from various subteams

Northeastern University Wireless Club, Code Guru   Sept 2023 – Present
- Research workshop ideas and concepts related to software and electrical engineering
- Develop 2 workshops on embedded software development and low-level radio networking

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

Social Network Clone with Posts, Feeds, and Direct Messaging 🔗 ⬡   June 2021–Aug 2021
- Designed and implemented a frontend using React and Tailwind
- Implemented a backend in Node.JS and Koa and developed 100+ integration tests with Jest
- Leveraged S3 for object storage, Postgres for relational storage, and Redis for API rate-limiting
- Implemented a full login system with email verification and password reset functionality