

Em Mears

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Em is a skilled Software Engineer with 5 years of experience in modern C++ programming, as well as 2 years of Fullstack web development experience. Most recently she lead development of a web based custom modeling tool built with C++ and Rust that hosts users' project data in the cloud! Em is an innovative and efficient engineer with a passion for creating fast, efficient and clever solutions, and learning as much as she can.

Skills

Low level fast programs (C++, C, Rust), Full Stack Programming (Vue, JavaScript, Java, Python, TypeScript), Linux System Administration (Bash, DHCP, Systemd, Nix), Presentation (Powerpoint, Video Editing)

Experience

uml.cafe Modeling Platform *Lead developer,*

Nov 2023 - Current

Uml Cafe is a live, realtime multi-user, UML diagramming platform hosted on the web whose development was led by Em. She developed the protocol and API's used to interact with a UML project, and built the platform up from there. She wrote the entire Rust and C++ backend, and lead a small team of two in creating the frontend client. The platform is hosted live on <https://uml.cafe> with a concise demo video on the welcome screen. She maintains the server and provides regular updates.

Software Systems Engineer *MITRE, 202 Burlington Rd, Bedford MA*

October 2019 - Nov 2023

Software Systems Engineer for the Emerging Systems Engineering Technologies department at MITRE. The following is the description of the projects and tasks that she completed, most recent to least:

- A C++ model of a system to be used for testing, mostly working on the routing of data throughout it so it could integrate well with different open protocols and standards.
- A set of tools used for identifying important connections in graph models in MagicDraw of computer networks populated from SQL databases and Kafka brokers.
- Integrating a simulation environment with the modeling tool MagicDraw, this involved a set of static analysis tools that looked at the Abstract Syntax Tree of the simulation's code and populating diagrams and tables within the modeling software.
- A tool using proxmox the virtualization manager to spin up qemu virtual machines and set up a network based on configuration files supplied. The program would then run MITRE's caldera ("red team" hacker simulator) on the virtualized network and machines.

Thermodynamics Research *WPI, 100 Institute rd, Worcester MA*

June 2018 - June 2019

While working on the WPI senior year capstone project she was able to work in a lab and assisted with some image analysis algorithms written in python that were used and eventually cited in a [publication in Nature](#) to validate some non-equilibrium thermodynamics theory a staff member was working on.

Education

Worcester Polytechnic Institute:

Bachelors of Science in Physics with a minor in Computer Science
GPA: 3.75 Graduated May 2019 with High Distinction