Alessandra Simmons

alessandra@adrs.pub · Boston, MA
adrs.pub · github.com/MixedMatched · linkedin.com/in/alessandra-simmons
Available: May 2025 - August 2025

Education

Northeastern University, Boston, MA — Sep 2022 - Present
Khoury College of Computer Sciences — Expected: May 2026
Bachelor of Science in Computer Science and Philosophy
Dean's List | Dean's Scholarship
GPA: 3.76/4.0

Related Coursework: Computer Systems, System Security, Theory of Computation, Advanced Logic, Computer Networks, Logic and Computation, Object-Oriented Design

Computer Knowledge

Operating Systems: Linux (Fedora, Debian, Arch), Windows
Programming Languages: Rust, C, C++, Java, Lean, Scala, Verilog, Python, Scheme/Racket

Experience

Desktop Software Engineer (Algorithms) · Formlabs Inc. · Boston, MA — Sep 2024 - Dec 2024

- Working on the desktop slicing software for Formlabs' SLA and SLS 3D printers, an application written in **C++** and QML
- Adding capabilities for using Constructive Solid Geometry (CSG) for model design, involving computation geometry and interfacing with embedded systems

Research Assistant · Northeastern University · Boston, MA — Jan 2024 - Apr 2024

- Created a system, written in Python, for giving students automatic feedback on homework
- Organized project into different roles and assigned those roles among myself and a team

Projects

Formalizing Game Theory — Dec 2023

- Devised a formalization of Game Theory Concepts in the **Lean 4** proof language
- Wrote example games and example proofs for documentation purposes

ALU Generator — Nov 2023

- Wrote an implementation of an Arithmetic Logic Unit generator in Scala using **Chisel**
- Included functionality for arithmetic add, sub, and mult as well logical and, or, xor, and not
- Synthesized the design on an **Xilinx Artix-7 FPGA** and verified its functionality

Fourbee CPU — Feb 2023

- Authored a simple, 4-bit instruction set architecture
- Built an implementation of the instruction set architecture using **Verilog**

Citrus — Jun 2022 - Jan 2023

- Created an **Open-Source Rust** library for Computer Algebra, for use in embedded systems
- Devised an adaptable model for rewriting mathematical expressions based on a rules engine
- Implemented numerous mathematical expression parsing algorithms

Omega — Aug 2019 - Dec 2020

- Remodeled major aspects of computer algebra processing in **Open-Source**, **C++** **embedded** graphing calculator **firmware**
- Assisted with management and project direction in a team of up to 10 people

Interests

Reading Brandon Sanderson and David Graeber · Playing Bass, Piano, and Guitar · Replaying Pokémon in Spanish