Ethan Zhang

✉ ethanz4@illinois.edu
📞 650-380-4671
🞛 github.com/edzdez
in linkedin.com/in/ethanz4
🔗 edzdez.github.io

Education

University of Illinois Urbana-Champaign — **Champaign, IL**
Bachelor of Science, Mathematics & Computer Science; GPA: 4.0 / 4.0 — August 2023 – May 2027

Coursework: Programming Languages; Compiler Construction; Systems Programming; Algorithms; Data Structures; Probability Theory; Graph Theory; Abstract Algebra; Real Analysis; Topics in Automated Deduction.

Skills

Languages: C++; Rust; Haskell; Go; Typescript; Elixir; C#.

Tools: Bash; Linux; Git; Protobuf; Bazel; CMake; GNU Make; Vim; LaTeX.

Libraries: Abseil; gRPC; GenServer; Megaparsec; Gtk; Qt.

Experience

Google — **Cambridge, MA**
Associate Software Developer Intern, YouTube Live Infrastructure — May 2025 – August 2025
- Developed an internal tool to automate the debugging of captions for YouTube livestreams and TV broadcasts.
- Designed and implemented both a command-line interface and an **Angular frontend** to present SRV3, WEBVTT, and CEA-608 caption data, integrating with the already existing livestream-monitoring console.
- Defined a **protobuf-based RPC service** and wrote **C++** handlers for the core application logic.
- Configured authorization policies and set up a credential-forwarding strategy for secure HTTP-to-RPC dispatch.
- Created reusable infrastructure and internal documentation to support future livestream-investigation tools, which was tested by onboarding another intern's project.

John Deere — **Urbandale, IA**
Software Engineering Intern — May 2024 – August 2024
- Developed machine and device compatibility flows for a **Node.js microservice** in the license management system, enabling dynamic selection of features and delivery methods based on hardware specifications.
- Built and maintained user-facing features for license purchase and assignment flows in a **full-stack React application**.
- Collaborated with internal identity teams and an external service provider to enable Single Sign-On (SSO) and user / group provisioning, improving access management for the licensing and sales teams.
- Contributed to all phases of the **Scrum** development cycle, including sprint planning, backlog refinement, daily stand-ups, sprint reviews, and retrospectives.

University of Illinois Urbana-Champaign — **Champaign, IL**
Course Assistant, CS 173: Discrete Structures — January 2024 – May 2025
- Graded honors homework and wrote problems for the final exam (Spring 2024).
- Supported grading infrastructure by debugging and improving the **Haskell** autograder (Spring 2024).
- Assisted students with problem sets in weekly tutorial sections and office hours.
- Participated in a faculty hiring interview for a new CS Theory professor (Spring 2025).

Projects

sway-easyfocus
- Developed a system tool in **Rust** for efficient window focusing in the Sway window manager, using **IPC sockets** for communication and Gtk for the user interface.
- Received 22 stars on GitHub, over 6,500 downloads on crates.io, and inclusion in the Nix package repository.

TCProxy
- Collaborated in a team of four to build a performant TCP reverse proxy in **Rust**.
- Led the design of a domain-specific configuration language for filter rules and implemented its compiler.

scheme-ish
- Collaborated with a partner to build an interpreter for a Scheme-inspired programming language in **Rust** with minimal external dependencies.
- Implemented core features including arithmetic operations, variable bindings, conditionals, and closures.