Ethan Reece

✉ contact@ethanreece.com 📞 (208) 515-2094 📍 Richardson, TX in /in/-ethanreece- ⑃ codeberg.org/ethanreece

Skills

Programming Languages	Rust, C++, C, C#, JavaScript, Java, Python
DevOps and System Administration	Nix, Linux, Git, Docker, Proxmox, Terraform, GitHub Actions
Layout and Web Development	Typst, React, HTML, CSS, ASP.NET, Express.js, LaTeX

Education

Master of Science in Computer Science (Systems Track)　　　January 2026 – December 2026 (Expected)
The University of Texas at Dallas   Richardson, TX　　　　　　　　　　　　　　　　　　　　Current GPA: 4.000

Bachelor of Science in Computer Science　　　　　　　　　　　August 2022 – December 2025
The University of Texas at Dallas   Richardson, TX　　　　　　　　　　　　　　　　　　　　GPA: 3.825

- Computer Science Fast Track Program (Systems Track, started Spring 2025)
- Collegium V Honors Program, National Merit Scholars Program
- Cum Laude
- Dean's List, Jonsson School of Engineering and Computer Science (Fall 2025, issued March 2026)
- Dean's List, Jonsson School of Engineering and Computer Science (Spring 2025, issued September 2025)

High School　　　　　　　　　　　　　　　　　　　　　　　　May 2022
Cole Valley Christian Schools   Meridian, ID　　　　　　　　　　　　　　　　Unweighted GPA: 4.0

- Finalist, National Merit Scholarship (issued February 2022)
- AP Scholar with Distinction (issued January 2022)
- Perfect Score, AP Computer Science (issued January 2021)

Experience

Foam Party Technician   Contract　　　　　　　　　　　　　August 2025 – September 2025
Bubble Fizz　　　　　　　　　　　　　　　　　　　　　　　　　Plano, TX

- Assisted with machine set up and tear down during foam and bubble parties. Monitored machines while in use.

Research Intern   Volunteer Role　　　　　　　　　　　　　June 2025 – August 2025
Syssec Lab, The Erik Jonsson School of Engineering and Computer Science at UT Dallas
Richardson, TX　　　　　　　　GNU Make, GDB, TypeScript, React, Express.js, MongoDB, Docker, Python, GitLab

- Traced GNU Core Utilities using a Valgrind tool by modifying the test suite.
- Added features to a graph visualization platform designed for viewing system events.
- Documented issues through GitLab.

Programming Workshop Instructor   Contract　　　　　　　　September – December 2023
Frankford Middle School   Dallas, TX　　　　　　　　　　　　　　　　　　　　JavaScript

- Taught JavaScript to middle school students with other instructors.

Software Engineering Intern   Internship　　　　　　　　　　June – August 2023
R-Technics, Inc.   Boise, ID　　　　　Azure DevOps, Docker, GitHub Actions, C#, ASP.NET, MAUI, UIKit, Nix, GCC

- Tested macOS builds of a C#/MAUI program and began platform-specific implementations (August 2025).
- Automated builds for a server application with Docker (January 2024).
- Worked on build automation for FFmpeg and OpenSSL using GitHub Actions and a cross-compilation toolchain.

Software Engineering Intern   Internship　　　　　　　　　　June – August 2023
Scrumfish Software   Nampa, ID　　　　　　　C#/ASP.NET, JavaScript/React, Microsoft SQL Server, GitHub, Jira

- Rewrote a book-viewing web UI to support document viewing, sharing, and annotation.
- Implemented API endpoints for multifactor authentication and document conversion.
- Documented all activities through Jira and GitHub pull requests.

Software Engineering Intern   Internship　　　　　　　　　　June – August 2022

Scrumfish Software Nampa, ID	C#/ASP.NET, Microsoft SQL Server, GitHub, Jira

- Automated updates of email templates in an SQL database using PowerShell scripts, working directly with the client (January 2023).
- Implemented API endpoints for data operations.

Software Engineering Intern   Internship   June – August 2022
R-Technics, Inc.   Boise, ID   Azure, Windows Server, C#, ASP.NET

- Developed a C# program to fetch song lyrics and metadata from an API for integration with the main product.
- Oversaw server upgrades and ensured smooth transitions for running programs.

Crew Member   Part-Time   June – August 2021
SONIC   Meridian, ID

- Rapidly cooked orders including sandwiches and fried goods.
- Restocked and cleaned the kitchen as needed.
- Coordinated tasks with other team members to ensure teamwork efficiency.

Crew Member   Part-Time   June – August 2020
McDonald's   Meridian, ID

- Recorded orders and took payments.
- Cooked french fries. Prepared drinks and frozen goods.
- Cleaned the kitchen as needed.
- Coordinated tasks with other team members to ensure teamwork efficiency.

Robotics Team Member   Unpaid   August 2014 – April 2019
Team #1790   Meridian, ID   Git, C#/WPF, Python

Projects

`flake-manager`: **Programming Workspace Composition Tool**   July 2025 – Present
Productivity   Nix Flakes/flake-parts/devenv, Linux, Git

- Creates intelligent development environments that automate setup and keep consistent tool versions across platforms.
- Extends `devenv`'s per-project toggles with editor and AI integrations including syntax checking, grammar checking, formatting, and linting.
- Exposes helper functions for consumer flakes to compartmentalize input usage without infinite recursion errors.
- Used in my own projects for personal and university activities.

Résumé Generator   August 2024 – Present
Productivity   Typst, Nix Flakes/flake-parts/devenv, Linux, Git

- Manage many résumés by moving shared components to a central collection of modules. Each résumé picks and customizes its own set of modules. Updating one module will update data across all résumés that use the module.
- Ensure consistent formatting by printing components through reusable Typst functions.
- Automate dependency and workspace management to prepare all tools needed to update the résumés, including a lightweight text editor, previewer, and grammar checker. Lock versions of all tools using Nix Flakes to ensure consistency across different setups. Configure build steps for seamless integration with my NixOS-based web server.
- Enable multilingual support through linguify.

`configuration-manager`: **Modular Multi-System Configuration Tool**   July 2024 – Present
Productivity   Nix Flakes/flake-parts/devenv, Linux, Terraform, SOPS, Git

- Exposes modules for individual software components and use-cases to form complete device configurations with strong reproducibility guarantees, rollback capabilities, and unified modifications.
- Compartmentalizes organization-specific configurations into their own profiles and allows private extensions to improve security when handling sensitive data.
- Builds an intelligent and well-integrated environment with keyboard-centric window management, command line hints and status printouts, web browsing with UX enhancements and Tor/I2P integrations, secrets encryption, AI features, terminal-based text editing, and other useful applications.

- Focuses on a CLI-based workflow for its powerful automation capabilities and improved productivity for both programmers and AI agents.
- Used in my devices for personal, university, and work activities.

Homelab Administration   2020 – Present
Productivity   Linux, Docker, NixOS, Terraform, Git, Proxmox, Hetzner, Cloudflare, SOPS

- Contain my files, tasks, projects, passwords, and other data on a self-managed server machine.
- Host websites publicly using a VPN running on Hetzner to work around apartment network limitations.
- Orchestrate program configurations through Docker Compose and NixOS. Automate deployment of DNS settings and Hetzner configurations using Terraform integrations.
- Simplify deployment and use of separate operating systems through the Proxmox hypervisor.

CS 6324 Software Vulnerabilities   March – April 2026
Course Project   The University of Texas at Dallas   C, Bash, Python, Typst, Nix Flakes/devenv, GitLab, Linux, GNU Make

- Attacked vulnerable C programs that had buffer overflow and format string vulnerabilities, using techniques such as return-oriented programming.
- Wrote a detailed report showing the memory layout, explaining why the attacks worked, and suggesting defense mechanisms.

CS 6324 Encrypted File System   February – March 2026
Course Project   The University of Texas at Dallas   Java, Typst, Nix Flakes/devenv, GitLab, Linux, GNU Make

- Stores data in encrypted 1 KiB blocks using AES-CTR to hide patterns while allowing selective reads and writes.
- Protects data integrity using per-block HMAC-SHA256 values.
- Limits brute-force attacks using PBKDF2-HMAC-SHA256 for key derivation, with use of different keys for data, metadata, and HMAC.
- Self-implemented CTR, HMAC, and PBKDF2.
- Used object-oriented programming principles to abstract data structure complexities behind an API for creating, reading, and modifying files.

RISC-V Vector Processor (Peanut Micro LLC)   August – December 2025
Senior Project   The University of Texas at Dallas   Vitis HLS, RISC-V, C++, Linux, NixOS, Git, GCC

- Designed a vector processor prototype using HLS with a team of CS and ECE students, focusing on the RISC-V multiply, compressed, and vector extensions.
- Completed the decode stage with my partner while learning the RISC-V spec.
- Led the CS team completion of reports and presentation materials. Maintained communication with team members and course leadership, planned document completion through time estimates and meetings, and tracked progress to ensure that all materials met their deadlines.

CS 6396 Group Project on Round-Robin Scheduling   August – November 2025
Course Group Project   The University of Texas at Dallas   Python, Linux, Typst, Git

- Implemented a round-robin scheduler for a Linux-based robot, storing state for in-progress actions.
- Used Python's type safety features to enforce memory data structure while limiting scope for each function.
- Visualized program architecture using a state machine diagram.

ARM CFI   July 2025 – August 2025
Research Lab Project   Syssec Lab   GNU Make, Python, Nix Flakes/flake-parts, Valgrind, Linux, GitLab

- Extended the GNU Core Utilities test suite to trace the programs using a Valgrind tool.

ProvViz   June 2025 – August 2025
Research Lab Project   Syssec Lab   TypeScript, React/Sigma.js, Tailwind CSS, Express.js, Docker Compose, GitLab

- Added label customization options to the system event visualization platform.
- Refactored the monorepo with properly shared libraries and formatter support, and adjusted related infrastructure.
- Documented bugs and to-do items on GitLab and in-file comments.

CS 6378 Group Project on Fault-Tolerant Distributed Database Systems   April – May 2025
Course Group Project   The University of Texas at Dallas   Rust/Tokio/Serde, Nix Flakes, TCP, Linux, GitHub, LaTeX

- Duplicates key-value pairs across three servers to tolerate up to two failures, using an architecture based on the one in Amazon Dynamo. Servers connect cyclically, and three adjacent servers store data assigned to a certain hash value, two of which allow writing. When one server fails, the neighboring servers will connect to each other until the server recovers. Upon recovery, the server receives and applies the missed transactions.
- Demonstrated total ordering of transactions, even under a high load. A coordinator node spawns servers and simulated clients on different machines. A REPL interface interprets commands to add data, show data, and simulate failures and recoveries.
- Responds to queries asynchronously using the Tokio runtime to boost performance.
- Translates raw TCP data to Rust objects using Serde to ensure type safety.

CS 4459 Projects on Hacking and Reverse Engineering   January – May 2025
Course Projects   The University of Texas at Dallas   Python/pwntools, x86 Assembly, GDB, Linux, Git, C

- Analyzed vulnerable C programs using GDB, Radare2, and other tools. Exploited them with pwntools using buffer overflow, return-oriented programming, shellcode injection, and other techniques.

CS 6378 Projects on Distributed Systems Ordering Protocols   January – April 2025
Course Projects   The University of Texas at Dallas   Rust, Nix Flakes, TCP, LaTeX/TikZ, Guix, Linux, Git

- Implemented causally ordered delivery of messages sent between nodes in Rust using the protocol described by Raynal and Schiper in "The causal ordering abstraction and a simple way to implement it."
- Later, implemented totally ordered delivery of messages using a sequencer-based implementation based on the "Causal ABCAST Protocol" described by Birman in "Lightweight causal and atomic group multicast."
- Wrote reports with diagrams of the program architecture using LaTeX with TikZ.

CS 4347 Project on Database Implementation   August – December 2024
Course Project   The University of Texas at Dallas   PHP, MySQL, Tailwind CSS, Nix Flakes/devenv, LaTeX/TikZ, Guix

- Learned basic theoretical database concepts. Created a basic Twitter clone using PHP, MariaDB, Tailwind CSS, Nix, and devenv.
- Wrote a report using LaTeX and TikZ containing diagrams and tables for ER, database schema, system architecture, interface requirements, data dictionary, business rules, 3NF normalization, database initialization code, setup instructions, and screenshots.

CS 4341 Group Projects on Digital Logic   January – May 2024
Course Group Projects   The University of Texas at Dallas   Verilog, Python

- Designed an arithmetic logic unit (ALU) with a group using Verilog and Python.
- Implemented ALU functions as circuits in a lab environment with a group.

CS 4348 Project on Scheduling Algorithms   January – May 2024
Course Project   The University of Texas at Dallas   C, Linux

- Reads a list of jobs and outputs the result of scheduling them using First Come First Serve (FCFS) and Round-Robin (RR).

CS 4348 Project on Mutual Exclusion   January – May 2024
Course Project   The University of Texas at Dallas   C, Linux

- Simulated doctor visits using semaphores to ensure they happen with mutual exclusion.

CS 4348 Project on Simulating a CPU and Memory   January – May 2024
Course Project   The University of Texas at Dallas   C, Linux, Pijul

- Simulates a CPU and memory in C using threads and pipes. The program loads a file with instructions into the memory and executes them.

CS 3377 Projects on Various Linux and C functions   August – December 2023
Course Projects   The University of Texas at Dallas   C, Linux

- Wrote programs demonstrating signals, sockets, semaphores, threads, pipes, and other functions.

CS 2340 Project on MIPS Assembly   January – May 2023
Course Project   The University of Texas at Dallas   MIPS Assembly

- Learned MIPS assembly basics. Wrote a basic Tetris clone.

Score Tracker
Senior Project   *Cole Valley Christian Schools*

May 2021 – March 2022

JavaScript/Express.js, CSS, PostgreSQL, GitLab, Dokku

- Stores and displays scores for high school sports games. Provides a panel for coaches to submit updates.
- Uses cookie-based user authentication and secure password storage practices.
- Automated deployment using Dokku with GitLab CI/CD.

ZipVersionControl
Robotics Team Project   *Team #1790*

June 2017 – April 2019

C#/WPF, Python, Git

- Enables basic Git functions on Zip archives. Designed to synchronize `.ev3` files for FIRST LEGO League between different computers and allow modifications on separate programs.

Volunteering

Contributor
OpenStreetMap

August 2024 – Present

openstreetmap.org/user/Sudoer777

- Submitted over 3500 contributions through Street Complete.

Volunteer
Food Not Bombs

July – September 2025

Dallas, TX

- Led an effort to give unhoused populations access to food and household products.

Volunteer
Sandwich Sundays

June 2025 – August 2025

Dallas, TX

- Helped leaders and other volunteers run biweekly efforts to give those struggling financially access to food, clothes, and household products.

Organizations

Leader
Tri-M Music Honor Society

August 2018 – May 2022

Cole Valley Christian Schools

- Led the group's coordination of music-related events as President, Vice-President, and Secretary.
- Improved meeting efficiency by enforcing Robert's Rules of Order.

Band Member
Band

July 2016 – May 2022

Cole Valley Christian Schools

- Performed in marching band, pep band, and concert band as a trombonist.
- Performed three times in the Boise State University (BSU) All-Star Honor Band and once in the BSU Blue Thunder High School Honor Marching Band.

Robotics Team Member
FIRST Tech Challenge   *Cole Valley Christian Schools*

August 2021 – January 2022

Java/Android, EasyOpenCV

- Programmed an Android-based robot to navigate around a field and move objects to score points.
- Detected object placement at the beginning of the match using EasyOpenCV.

Robotics Team Member
FIRST LEGO League   *Team #1790*

August 2014 – April 2019

Git, C#/WPF, Python

- Programmed a LEGO robot to autonomously navigate a board and complete challenges. Improved precision to <1 cm variation per meter using sensor feedback and mechanical design techniques.
- Created functions to translate real-world distances to motor rotations. Designed a menu to quickly run match and sensor calibration programs.
- Wrote a utility to synchronize robot programs between computers by extracting them to a format compatible with Git.
- Helped the team receive many awards, including the state championship, regional championships, and state programming awards.