Mason Bott

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Education

University of Colorado Boulder Aug 2022 - May 2026

B.A. in Computer Science, Minor in Mathematics *Boulder, CO*

- **GPA:** 3.96
- **Extracurriculars:** Competitive Programming, Server Development, Cybersecurity
- **Courses:** Computer systems, algorithms, data structures, database systems, data science, software development methods and tools, integral and differential calculus, discrete math, linear algebra, operating systems, cryptography, machine learning, human-computer interaction, programming languages

Experience

Co-Founder & AI Developer Feb 2023 – Present

AI Companion Project (Self-Initiated)

- Developing an AI companion with persistent memory using retrieval-augmented generation (RAG), leveraging transformer architectures, embedding models, and vector databases (faiss HNSW) for contextual retention.
- Designed a novel pipeline to connect causality relationship with memories to improve contextual relevance of memory retrieval.
- Collaborated with 3 developers via Agile workflows: code reviews, task tracking (Git), and weekly meetings.

Volunteer Coordinator Dec 2021 – May 2022

SECORCares *Parker, CO*

- Optimized care package assembly process via workflow analysis, reducing packing time by 30% while coordinating with other volunteers to serve 100+ weekly recipients

Projects

Sedmos — Advanced Graphing Calculator | *TypeScript, Svelte*

- Engineered real-time rendering of mathematical functions via coordinate transformations and event-driven updates, achieving smooth visualization for complex equations (e.g., vector fields, functions).
- Designed dynamic UI for infinite plotting with pan/zoom functionality. Used HTML Canvas API for pixel-perfect control over graph appearance and curve rendering.

Long term Memory in AI | *Flutter, Dart, Python*

- Applied state of the art research to a large language model using common sense relations to enhance memory with a graph-based memory timeline structure on the backend.
- Designed and developed a fluid chat interface with Flutter, allowing for multiple conversations with many agents, as well as a matching system to pair the user with agents.

Rush: A rudimentary shell | *Rust, Cargo*

- Created functionality to run processes and view their respective state.
- Used the Unix philosophy, including the use fork and process execution system calls.

ExpenseShare — Finance Management Web App | *Node.js, Express.js, PostgreSQL, Docker*

- Designed PostgreSQL database schema with secure authentication; optimized SQL queries and implemented unit tests covering 85% of critical workflows.
- Built RESTful API with Express.js handling user transactions; containerized backend services using Docker for deployment consistency.

Honors and Awards

Awards: Dean's List for 4 semesters, Life Scout
Scholarships: Hale esteemed scholarship
Competitions: 2nd place at HackCU 2024, 2nd place at FBLA web design state competition 2021

Technical Skills

Languages: C++, x86-64 AT&T assembly, Lua, Rust, Python, JavaScript, TypeScript, MySQL, Nix, Dart
Developer Tools: Git, Docker, AWS, VS Code, Vim, GDB, Linux, Direnv, Regex, Neovim, Linux, macOS
Frameworks and libraries: Svelte, Flutter, ExpressJS, PostgreSQL, Pandas, NumPy