Cole Johnson

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EDUCATION

University of Southern California — Los Angeles, CA
Bachelor of Science, Computer Science — August 2021-May 2025

Honors and Awards: National Merit Finalist, Presidential, University, and Tuition Exchange Scholarships

University of Edinburgh — Edinburgh, Scotland
Computer Science Exchange — Spring 2024

EXPERIENCE

Kolo (https://kolo.ai/en**)** — Los Angeles, CA
AI/ML Engineer — June 2024 - March 2025

- Increased inference speed by 2x and reduced memory usage by 40% for an AI drive-through assistant by fine-tuning a custom LLM with Unsloth for real-time orders and POS integration.
- Built an end-to-end AI conversation service by integrating a LlamaIndex/PostgreSQL backend with a ReactJS front-end, delivering a seamless, user-facing platform for context-aware chat.
- Constructed robust data pipelines to crawl, clean, and store over 50 GB of expert content in databases, enabling accurate and context-specific AI responses.

Skyguard (https://skyguard-theta.vercel.app/**)** — Los Angeles, CA
Software Engineering — January 2025 - May 2025

- Engineered data pipeline on Raspberry Pi server that synchronized and streamed camera frames with GPS data, providing real-time input required for a YOLO-v8 landmine detection model to aid first responders in demining Ukraine.
- Automated Raspberry Pi networking and boot scripts (dhcpcd, hostapd), creating a self-configuring system that cut manual setup and reduced deployment time from several minutes to under 30 seconds.

Juvo+ (https://www.linkedin.com/company/juvoplus) — Los Angeles, CA
Software Engineering — November 2022 - March 2023

- Developed Python solution leveraging time-series analysis to predict seasonality for Amazon products, achieving a seasonality index accuracy of 95%.
- Implemented confidence scoring system integrating advertising costs, historical data length, and Out of Stock frequency, enabling Marketing and Demand planning teams to make data-driven decisions.

Error Corp (https://www.error-corp.com) — College Park, MD
Research Intern — May 2022 - August 2022

- Utilized the quantum toolkit QuTiP's GRAPE algorithm to optimize quantum control pulses aimed at reducing decoherence in quantum systems for quantum computing startup at University of Maryland.

PROJECTS

Chimera (https://github.com/cjohnson451/projectchimera) — Fall 2025

- Created a full-stack investment analysis platform where a team of AI agents, using LangGraph, debate financial data to generate explainable, auditable investment memos.
- Built with a React/TypeScript frontend and Python/FastAPI backend, using a ChromaDB vector database for a long-term memory system and a PostgreSQL database for processing real-time market data.

RV64I CPU Emulator in Rust (https://github.com/cjohnson451/rv64emu) — Spring 2025

- Engineered a full-stack RISC-V system emulator in Rust, featuring a CPU with privileged architecture and a Supervisor-level MMU for page-based virtual memory and interrupt handling.
- Implemented I/O device support by simulating a UART and building a paravirtualized device interface using the Virtio specification.

Portal Game — Fall 2023

- Developed a 3D puzzle game from scratch entirely in C using SDL2. Implemented real-time rendering, custom view matrices for portal views, and a multichannel audio system. Utilized linear algebra techniques to handle dynamic camera perspectives and seamless perspective shifts.

SKILLS

C/C++, Rust, Python, Java, JavaScript, SQL, Pytorch, Git, Docker, Kubernetes, machine learning, operating systems