

# Caleb John Morse

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## EDUCATION

**University of Kansas (KU)** – *Bachelor of Science in Computer Science*

(GPA 3.6)

**Expected Graduation:** May 2028

**Relevant Coursework:** Software Engineering, Digital Logic Design, Programming in Python

Kansas Blockchain Institute | Association for Computing Machinery (ACM)

## SKILLS

**Languages:** C, JavaScript, Python, SQL, TypeScript, Java, Bash, HTML5, CSS3

**Frameworks:** React, Node.js, Next.js, Playwright, TailwindCSS

**Tools:** Git, GitHub Actions, CI/CD, Prisma, Ghost Inspector, Gemini API, OpenAI API, Docker, Vercel, Railway, Cursor

**Concepts:** API Integration, Database Management, Automated Testing, Full-Stack Development, Embedded Systems

## EXPERIENCE

**Padlock** — Undergraduate Researcher | Lawrence, KS |

Aug 2024 –Present

- Conduct research on **software supply-chain security**, focusing on **dependency risk modeling** and **TypeScript type-safety analysis**.
- Contributed TypeScript analysis and compiler configuration work to a mirror-modeling tool **analyzing 1,000+ npm packages** for dependency risks and type safety.
- Assisted in improving a TypeScript-based static analysis system to enhance compiler diagnostics, type coverage, and vulnerability detection across open-source ecosystems.

**Rooted Software** — Web Application Development Contractor | Remote |

Jun 2024 –Present

- Utilized Cursor's **AI-powered development environment** to refactor and modernize legacy codebases, improving maintainability and readability across core web modules.
- Improved release reliability by developing automated **unit and end-to-end tests** in JavaScript and performed ongoing maintenance and bug fixes.
- Built a **structured translation framework** leveraging JSON configuration and build scripts to reduce localization errors and accelerate multi-language product releases.

**University of Kansas Intramural Sports** — Supervisor | Lawrence, KS |

Aug 2025–Present

- Oversaw intramural leagues and events by managing game operations, enforcing rules, and ensuring safety
- Supervised and trained **50+** officials, providing real-time guidance and conflict resolution

## PROJECTS

**ClearChat – Slack Moderation Bot (Hack KU)**

Apr 2025

- Built **AI-powered Slack moderation system** using TypeScript, Node.js, Prisma, and OpenAI API, achieving **93% accuracy, 2% false positives, and ~5% missed detections**
- **Architected** three-tier moderation pipeline combining keyword caching, AI analysis, and GPT-4o-mini context review, reducing inference costs by **>95%**
- Designed relational database schema with **PostgreSQL + Prisma ORM** and engineered in-memory caching layer, reducing database queries by **95%**
- Processed **100k+ Slack messages/month** for **<\$6/month**, demonstrating scalable and cost-efficient architecture.

**Personal Portfolio Website x ClearChat** — [calebmorse.vercel.app](https://calebmorse.vercel.app)

Sep 2025

- Built a responsive portfolio using Next.js, TypeScript, and TailwindCSS, featuring smooth-scroll navigation and dynamic project sections
- Developed an **interactive blockchain demo** featuring real-time mining, hash validation, and persistent PostgreSQL storage.