Joseph Zou

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EDUCATION

Vanderbilt University Nashville, TN
Bachelor of Arts in Computer Science *Aug. 2021 – May 2025*

EXPERIENCE

Software Engineer Intern June 2024 – April 2025
Kinetik Care *Queens, NY*
- Developed an internal admin portal using Retool, integrating key company services to centralize client onboarding and manage the full organizational dataset for the implementation team.
- Collaborated with internal APIs to map and analyze relationships between Transportation Providers, Brokers, and Health Plan partners, improving data visibility and operational efficiency.

Software Engineer February 2024 – August 2024
Vanderbilt University Medical Center - Department of Biomedical Informatics *Nashville, TN*
- Led the full life-cycle development of a full-stack React Native application, managing technical architecture, product design, user research, UI/UX, testing, and seamless database integration via the RedCap API.
- Implemented a machine learning–powered object detection system, deployed via Docker, to accurately count pills in blister packs.
- Ensured HIPAA compliance and robust data privacy by leveraging RedCap software and adhering to strict healthcare data protection regulations.

Software Engineer November 2023 – Present
Mother to Mother *Nashville, TN*
- Led development of a fully integrated progressive web application and admin portal using React, Firebase, Prisma ORM, and SQL, deployed on AWS EC2 with RDS, replacing **10+ years** of fragmented spreadsheets and paper records.
- Migrated **a decade of historical data**, creating a single source of truth for donor, recipient, and inventory data, improving accessibility and scalability.
- Delivered and continue to maintain a mission-critical platform supporting **5,000+ children and families**, streamlining workflows, reporting, and decision-making for long-term impact.

Undergraduate Teaching Assistant
Vanderbilt University *Nashville, TN*
- **CS 2201: Program Design and Data Structures** — Supported instruction, facilitated office hours, and assessed programming projects in **Python**. *Jan 2025 – Apr 2025*
- **CS 3265: Database Management Systems** — Served as a teaching assistant, providing student support and evaluating coursework in **SQL**. *Aug 2024 – Dec 2024*

PROJECTS

PassWin | *AWS, React, MongoDB, Chrome Extension* June 2020 – Present
- Developed a zero-knowledge password manager Chrome extension with 6 active users, implementing Argon2id-based key derivation, AES-GCM encryption, and a custom session-based authentication pipeline.
- Deployed on AWS EC2 with Nginx reverse proxy, SSL/TLS, MongoDB Atlas, and CI/CD via GitHub Actions, delivering a secure, production-ready service with end-to-end encrypted data storage.

DeskMate | *Python, Tkinter, Design Patterns* March 2021 – Present
- Developed a lightweight desktop application with animated digital sprites providing productivity tools (Pomodoro timer, weather, dictionary), running persistently in the background on startup.
- Implemented State and Singleton patterns, integrated third-party APIs, and optimized caching and scheduling for smooth, scalable, and non-blocking UI performance.

TECHNICAL SKILLS

Languages: Java, Python, C++, TypeScript, SQL, Bash, HTML/CSS
Frameworks / Libraries: React, Node.js, Next.js, Material-UI, Tailwind CSS
Tools / Platforms: Git, Docker, AWS, Vite, Prisma ORM, MongoDB, MySQL, Retool