

Manan Lalwani

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[Portfolio](#) | [LinkedIn](#) | [GitHub](#)

Incoming Computer Science student at UIUC with hands-on experience building full-stack, real-time, algorithmic, and security-focused applications using TypeScript, Python, Java, and modern web technologies. Seeking a software engineering internship to solve challenging technical problems and build reliable, user-focused systems.

EDUCATION

University of Illinois Urbana-Champaign

Aug 2026–May 2030

Bachelor of Science in Computer Science

EXPERIENCE

NoHack LLC | Cybersecurity and AI Intern

Apr 2025–Jun 2025

- Built a Flask application and REST API that trained on baseline web, security, and system logs and flagged anomalous events for review.
- Combined UniXcoder embeddings, Isolation Forest, and rule-based checks to detect SQL injection, XSS, directory traversal, brute-force attempts, and privilege escalation.
- Added log normalization, duplicate-pattern reduction, batch inference, severity scoring, model save/load, and optional summaries for analysts.

William Fremd High School | Computer Science Peer Tutor

Aug 2023–May 2026

- Tutored 50+ students in AP Computer Science A and Principles through one-on-one help with Java, debugging, projects, and exam preparation.
- Used code tracing and guided questions to help students find bugs, understand program behavior, and break larger problems into manageable steps.

PROJECTS

Fremd Maps | [Demo](#) | [GitHub](#) | [Write-up](#)

2026

TypeScript, Astro, Leaflet, Fuse.js, Web Workers, Workbox, Vitest, Playwright, Cloudflare Workers

- Built and deployed an offline-first indoor-navigation PWA covering two school floors, with fuzzy room search, nearest-bathroom routing, cross-floor guidance, turn-by-turn directions, and responsive mobile and desktop layouts.
- Implemented wall-aware routing across 230 nodes, 11,599 wall segments, and 7 stairway portals using RBush-indexed visibility graphs and weighted A* search; added traffic-zone costs, stair penalties, and LRU caching while keeping graph construction under 3 seconds.
- Offloaded graph construction and pathfinding to a Web Worker with a main-thread fallback; added debug overlays, navigation-data validation, and CI testing with Vitest and Playwright across Chromium, Firefox, and WebKit, then deployed through Cloudflare Workers.

SketchFlow | [Demo](#) | [GitHub](#)

2026

React, TypeScript, Vite, Node.js, Express, Socket.IO, PostgreSQL, Prisma, Redis, Docker

- Built a full-stack collaborative whiteboard in a pnpm monorepo with synchronized strokes and shapes, live cursors, pressure-sensitive input, undo history, and installable PWA support.
- Implemented Socket.IO sync with optimistic Zustand state and worker-backed OffscreenCanvas rendering; added gesture-based pan/zoom, shape detection, and offline operation queues with conflict resolution.
- Added PostgreSQL/Prisma persistence, Redis coordination, Clerk authentication, Zod validation, and OpenTelemetry/Sentry observability; enforced quality with 40 automated test suites and GitHub Actions checks for Docker, gitleaks, dependency audits, and releases.

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, TypeScript, Kotlin, SQL

Web & Backend: React, Node.js, Express, Flask, Socket.IO, REST APIs, WebSockets

ML & Data: PyTorch, Transformers, scikit-learn, PostgreSQL, Redis, Prisma

Tools: Linux/Unix, Docker, Git, CI/CD, Playwright, Vitest, OpenTelemetry, Workbox