

Vidhaan Kothari

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Education

University of Massachusetts Amherst

Amherst, MA

B.S. in Computer Science, Minor in Business — GPA: 4.0/4.0

May 2027

- **Relevant Coursework:** Algorithms, Data Structures, Programming Methodology, Web Programming, Object-Oriented Programming, Computer Systems, Advanced Database Systems, Software Design, Probability & Statistics, Linear Algebra

Experience

ChitChat Workplace

Boston, MA

Software Engineering Intern

May 2025 – Aug 2025

- Built real-time messaging system (1:1) using **WebSockets** and event-driven architect with **<50ms** end-to-end latency.
- Designed scalable **AWS** backend using EC2, API Gateway, and DynamoDB to support high-concurrency traffic securely.
- Implemented **JWT-based authentication** and authorization flows for secure message delivery and user access control.
- Optimized **DynamoDB** indexing and access patterns, reducing API response times by **20%** under peak load consistently.
- Debugged production issues under load, analyzing logs and system behavior to restore service reliability with precision.

Human-Centered AI Research – Smartwatch Interfaces

Amherst, MA

Undergraduate Research Assistant

May 2025 – Aug 2025

- Built structured prompt-to-**SVG** generation pipeline using **GPT-4** and **Claude Opus** for smartwatch visualizations reliably.
- Implemented constraint-aware layout logic to ensure consistent rendering across varied user data inputs under constraints.
- Designed evaluation framework with **10 quantitative metrics** measuring interpretability, consistency, and visual fidelity.
- Iterated on prompt optimization and validation logic to improve output reliability and latency for production deployment.

IEExchange — Brainworx Infovision

Remote

Backend Developer Intern

May 2023 – Aug 2023

- Refactored high-traffic **SQL** queries using indexing and normalization, improving dashboard load times by **15%** consistently.
- Optimized query execution plans through restructuring and access-pattern analysis under production workloads efficiently.
- Built **Python** automation to classify and route support emails, reducing average response time by **20%** significantly overall.
- Diagnosed and resolved database deadlocks and slow transactions via log analysis, reducing system downtime by **10%** overall.

Projects

Chronexis (Github) | TypeScript, Node.js, MongoDB, Gemini API, Monte Carlo Simulation

- Built predictive project risk simulation engine using **Monte Carlo** (800 runs) methods to model delivery timelines, failure probabilities, and resource bottlenecks for predictive blueprinting system that won top hackathon track award.
- Designed backend services to ingest project parameters and generate probabilistic forecasts via **Gemini API**, producing risk heatmaps and execution scenarios recognized as best predictive blueprinting solution at competitive hackathon event.

SwipeSwap | Python, FastAPI, PostgreSQL, scikit-learn

- Built swipe-based recommendation engine modeling implicit user feedback (signals) to learn personalized item rankings.
- Implemented content-based similarity scoring with feature extraction and **REST APIs** to dynamically adapt suggestions and support peer-to-peer transactions using vector embeddings and similarity metrics across evolving user preferences.

Finter (Github) | React, Node.js, AWS, Stripe, PostgreSQL

- Architected ticketing platform event creation, tiered pricing, real-time attendee tracking, and **Stripe**-based payments.
- Designed **ACID**-compliant backend and data models ensuring transactional integrity, concurrency safety, automated ticket delivery, and integrated retry logic with scalable queuing to handle peak purchase loads under real-world traffic spikes.

UMass Junction (Github) | React, Firebase, Node.js, Full-Stack Development

- Built campus-wide event discovery platform enabling real-time event listings, updates, and attendee engagement for UMass students at scale with production-grade performance and reliability guarantees across diverse campus organizations.
- Designed scalable frontend and backend architecture with **React** and **Firebase**, supporting concurrent users and live data.

SKILLS

Languages: Python, Kotlin, Swift, Java, TypeScript, SQL, Go, C, C++, Dart, HTML/CSS

Frameworks/Libraries: React, Node.js, Next.js, Android SDK, Express, FastAPI, Flask, Django, Spring, PyTorch, Pandas

Cloud/Database: Amazon Web Services (AWS), Google Cloud Platform (GCP), MongoDB, MySQL/PostgreSQL, Redis

Tools: Git, Docker, CI/CD, Prometheus, Grafana, MLflow, OpenAI, Jenkins, Jira, Linux, JUnit, Espresso, Jest, Splunk, Agile