KIRTAN PATEL

+1 630-720-2202 | kirtannpatel2003@gmail.com | Linkedin | Github | Portfolio

SUMMARY

Software Engineer with experience building scalable systems and distributed applications using C++, Java, and Python. Strong foundation in systems programming, networking, and performance optimization in Linux and cloud environments.

TECHNICAL SKILLS

- **Languages**: C, C++, Python, Java, JavaScript/TypeScript
- **Databases & Cloud**: PostgreSQL,SQL,AWS,Docker
- **Frameworks & APIs**: FastAPI, Node.js, React, REST APIs
- **Core Concepts**: Data Structures, Algorithms, OOP, Design Patterns
- **Tools**: Git, Linux, GDB, VS Code, Jira

EXPERIENCE

Resilience Inc **Nov 2025 - Present**

React Native Software Developer Intern

- Resolved production **memory leaks** and async **race conditions**, **lowering error** reports by **40%**
- Reworked **backend API request flows**, cutting peak traffic **latency by 30%** at production scale
- **Improved** UI render **performance** by **25%** through memoization, render batching, and optimized state management
- Containerized backend services using Docker on Linux/WSL, improving deployment consistency across environments

University of Illinois Chicago **Aug 2024 - Present**

Teaching Assistant (C/C++ Programming & MATLAB)

- Assisted 250+ students in **C/C++ labs**, guiding debugging, Git workflows, and Linux-based development
- **Reviewed code** for correctness, readability, and performance
- Strengthened communication and collaboration through guided problem solving

PROJECTS

FlashSaleGuard - Inventory Reservation System | FlashSaleGuard

- **Designed a high-concurrency inventory reservation system** using **Redis atomic counters and TTL-based reservations** to prevent overselling during flash-sale traffic
- **Implemented idempotent order confirmation logic** to guarantee **exactly-once order creation** under concurrent requests
- **Load-tested with 10,000+ concurrent requests**, achieving **zero oversell** and validating **system correctness and reliability**

Multithreaded Web Server | Multithread Web Server

- Engineered a **multithreaded** HTTP/1.1 server in C using a thread pool and bounded queue, achieving **5×** throughput under **concurrent load**
- Added **rate limiting, routing, and dynamic worker** scaling to maintain stability under **heavy traffic**
- Designed **synchronization** using mutexes and condition variables to ensure **thread-safe request handling**

ClusterStore | Clusterstore

- Implemented a hash-partitioned distributed **key-value** store supporting **concurrent reads and writes** across multiple nodes
- Designed low-latency TCP messaging, reducing inter-node overhead by **35%**
- Built a Python load-testing **framework** handling **thousands** of **requests/sec,** improving throughput by **25%**
- Implemented **timeouts** and **retries** to maintain consistency during **partial node failures**

LogForge | LogForage

- Built a distributed **log service** in Java with partitioned, append-only logs and offset-based message replay
- Designed a custom **TCP protocol** supporting concurrent producers and consumers with **disk-backed persistence**
- Implemented **crash** recovery via log replay and validated performance under load

EDUCATION

University of Illinois at Chicago **May 2026**

Bachelor of Science, Computer Science

- **Coursework:** Operating Systems, Computer Networks, Distributed Systems, Systems Programming, Data Structures, Algorithms, Database Systems

ACHIEVEMENTS & CERTIFICATIONS

- **Dean's List:** University of Illinois Chicago (Multiple semesters)
- **JPMorgan Chase:** Software Engineering Virtual Experience (Kafka, Spring Boot)
- **Walmart USA:** Advanced Software Engineering Virtual Experience (Forage)