KIRTAN PATEL

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Software Engineer with a systems and backend focus, experienced in multithreaded C/C++ systems, distributed services, and performance optimization.

TECHNICAL SKILLS

Languages: C, C++, Python, Java, JavaScript/TypeScript.
Backend & Cloud:REST APIs, FastAPI, Node.js,SQL (PostgreSQL).AWS, Docker
Frontend-React, React Native, HTML, CSS
Foundations-Data Structures, Algorithms, OOP, Design Patterns
Tools-Git, Linux/WSL, GDB, VS Code, Jira

EXPERIENCE

React Native Software Developer Intern — Resilience Inc
November 2025 - Present

- 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
- Resolved production memory leaks and async race conditions, **lowering error** reports by **40%**
- Containerized backend services using Docker, improving deployment consistency

Teaching Assistant - (C/C++ Programming & MATLAB)-University of Illinois Chicago
August 2024 – Present

- Assisted 250+ students with **C/C++, and debugging** in structured lab environments
- Reviewed code for correctness, readability, and performance
- Strengthened communication and collaboration through guided problem solving

PROJECTS

Multithreaded Web Server -Systems Programming(C, Concurrency, Thread Pool) -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 (C++, Python,Sockets) -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 — Kafka-Style Distributed Log Service (Java) - 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 using controlled benchmarks

BIOTRACK – Full-Stack Conservation Platform (FastAPI, React, PostgreSQL) -Biotrack

- Delivered **20+ REST endpoints**, reducing average response time from **220ms to 130ms (40%)**
- Structured a scalable PostgreSQL schema for **10k+ records**, with indexing improving lookup speed by **45%** .

EDUCATION

University of Illinois at Chicago
Bachelor of Science in Computer Science — Expected May 2026
Relevant Coursework: Operating Systems, Computer Networks, Distributed Systems, Systems Programming, Data Structures, Algorithms

ACHIEVEMENTS AND 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)