

# Umar Mohammad

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## Experience

### Graduate Teaching Assistant (CSC - 4520 Design and Analysis of Algorithms)

Aug 2023 – Present

Georgia State University

Atlanta, GA, United States

- Enhanced learning outcomes for 90 students by crafting 20+ comprehensive **algorithmic coding** questions.
- Delivered 60+ hours of instruction and problem-solving sessions, improving my programming and communication skills.

### Software Engineer

Jul 2021 – May 2023

Basketo Finance

Hyderabad, TG

- Contributed to developing a dynamic cryptocurrency marketplace at a fast-paced startup, focusing on crypto baskets.
- Enhanced user engagement by **30%** by designing intuitive **React** based user interfaces for custom dashboard creation.
- Implemented CoinGecko API integration using **Axios**, optimizing real-time pricing accuracy of 50+ cryptocurrencies.
- Enhanced MongoDB database performance by **40%** with distributed **Redis caching** and clustering, improving query speed.
- Integrated MetaMask in wallet system, achieving a 20% rise in transaction efficiency and enhancing wallet functionality.
- Led **code reviews** for a 10,000+ line codebase and managed **CI/CD deployments**, proving leadership in code quality.

### Software Engineer Intern

Jan 2021 – Jun 2021

Capgemini

Hyderabad, TG

- Contributed to **Healthcare Scheduling App**, connecting 3000+ patients with 50+ doctors, streamlining appointments.
- Streamlined data management using **Spring Data JPA** with MySQL on **AWS EC2** for efficient storage and rapid retrieval.
- Developed an autocomplete feature by implementing real-time data synchronization between **MySQL** and **Elasticsearch**.
- Configured Debezium with MySQL's binary log to capture row-level changes, streaming them to an **Apache Kafka** topic.
- Developed **Spring Boot** producers for data publishing and consumers for efficient data retrieval from Kafka topics.
- Actively involved in code reviews and authored test classes, significantly boosting overall test coverage from **43% to 88%**.

## Technical Skills

**Languages & Web Technologies:** Java, JavaScript, Python, C++, React, Next.js, Redux, Node.js, jQuery, PHP

**Back-end & Testing:** Spring Boot, Spring MVC, Spring Security, Spring Data JPA, REST APIs, Selenium, JUnit, Mockito

**Cloud, OS & DevOps:** AWS, Amazon S3, RDS, EC2, Linux, Jenkins, Git, Docker, Lambda

**Databases & Tools:** MySQL, PostgreSQL, SQL Server, Kubernetes, Apache Kafka, Elastic Search

## Education

### Georgia State University

Aug 2023 – Dec 2024 (Expected)

Master of Science in Computer Science; GPA: 3.77/4.00

Atlanta, GA

### Vel Tech University

Jul 2017 – May 2021

Bachelor of Science in Computer Science and Engineering; CGPA: 3.60/4.00

Chennai, TN

## Projects

### Secure Chat System with Elliptic Curve Cryptography and ElGamal Encryption

Oct 2023 – Dec 2023

- Developed a secure chat application using ElGamal and Elliptic Curve Cryptography in **Java** for end-to-end encryption.
- Designed a user-friendly interface with **Java Swing**, enhancing interaction in a multi-threaded chat environment.
- Implemented key generation and exchange mechanism facilitating cryptographic operations in real-time with key pairs.
- Engineered a **multi-threaded architecture**, supporting concurrent client connections, using **Java sockets** and threads.
- Enhanced application robustness, ensuring performance in diverse network conditions, through **socket programming**.
- Optimized data serialization, minimizing latency and boosting integrity by using Java's Object Input and Output Streams.

### ElectionGuard - Blockchain-Powered Voting System

Jun 2020 – Dec 2020

- Designed a scalable voting system for university elections with 1000+ registrations and 600+ concurrent voters.
- Implemented a voter registration module with **Node.js**; used SMS verification via Twilio for voter ID authenticity.
- Deployed smart contracts on the blockchain for transparent vote tallying and automatic transaction handling.
- Partnered with a senior research scholar to leverage **AutoEncoders** model to detect irregular voting patterns.
- Hosted the application on **AWS**, optimized performance with Linux tool http; ensured consistent system uptime.

## Hackathon Achievements and Open-Source Contribution

- Hackathon Winner - Best solution for **Interoperability** - \$25,000 LUXE NFT (North Division) by Hack the Inevitable.
- Hackathon Winner - Most Creative Use Case for the Invoices API by Square: **Software Development**.
- Contributed to open-source projects at LibreHealth, developing modular components, **RESTful APIs** using **Spring Boot**.