

# Mitesh Agarwal

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**Summary: Software Engineer with 3+ years of experience delivering high-performance distributed systems, cutting latency, and scaling data pipelines. Strong track record of redesigning architectures, optimizing services, and shipping production-grade solutions across multiple cloud platforms.**

## WORK EXPERIENCE

- iSimcha Health, LLC** | *Software Engineer* | San Jose, CA October 2025 - Present
- Built 10+ HIPAA-compliant RESTful APIs using **FastAPI** securing 35,000+ patient records across 20+ clinics by implementing **JWT**.
  - Designed drop-in OpenAI API replacements to harness open-source LLMs within local Kubernetes clusters, reducing operational AI costs by **40%**.
- NC State University** | *Software Engineer* | Raleigh, NC May 2025 - October 2025
- Restructured **AWS** cloud architecture by leveraging Redis, **Celery** and **AWS S3** to increase scalability and reduce document processing time in Python service from **240** minutes to **5** minutes.
  - Improved data consistency by **30%** by implementing a centralized **Redux**-based global state store to replace local state store.
- Fathom Science, Inc** | *Software Engineer Intern* | Raleigh, NC May 2024 - August 2024
- Spearheaded backend development of **Java Spring Boot REST** APIs serving marine data, reducing manual data retrieval time by **50%** and improving response time through **Redis** caching.
  - Developed a **React.js** dashboard consuming these APIs with dynamic filters and interactive maps, cutting load times by **60%**.
  - Deployed containerized services using **Docker** + **Kubernetes** manifests, improving reliability, environment parity, and rollout testing for the engineering team.
- Capgemini (Client: Cox Communications, USA)** | *Software Engineer* | Mumbai, India June 2021 - July 2023
- Modernized legacy monolith into a high-performance microservices architecture, slashing API latency by **40%**, by implementing inter-service communication using Spring Boot and **gRPC**.
  - Automated legacy batch-processing workflows by building **AWS Glue** and **EMR** pipelines, enabling near real-time reporting for **1M+** subscriber records and cutting data availability delays from 24 hours to under 2 hours.
  - Optimized data layer performance, reducing query execution time by **50%**, by refactoring inefficient **SQL** queries and implementing composite **indexing**.
  - Implemented consolidated **AWS CloudWatch** Dashboards with custom metrics, integrated alarms, and **Splunk** logging, enhancing monitoring and observability across **12+** services.

## PROJECTS

- NutiQuest (Full-Stack Web Development)** | *React.js, TypeScript, MongoDB, Django, Gemini LLM*
- Led the development of a cloud-hosted application integrating **Gemini LLM** for barcode-based food recognition, enabling nutrition and sustainability analysis with **95% accuracy**.
  - Utilized Gemini's **2.5 Flash** model for recommending missing nutrients based on past consumption history.
- Custom Load Balancer (Distributed Systems)** | *GoLang, Net/HTTP, GoRoutines*
- Architected and implemented a high-performance **HTTP load balancer in Go**, using goroutines and channels to support **10k+ concurrent connections** with round-robin request scheduling.
  - Built fault tolerance mechanisms (server health checks, automatic failover, retry logic), reducing downtime by **90% during backend failures** in test scenarios.

## EDUCATION

- North Carolina State University**, Raleigh, NC | *Master of Computer Science* August 2023 - May 2025  
Courses: Software Engineering, Design & Analysis of Algorithms, Object-Oriented Design & Development **GPA: 3.89/4.0**
- University of Mumbai**, India | *Bachelor of Engineering in Information Technology* August 2017 - May 2021  
Courses: Computer Networks, Database Management Systems, Deep Learning, Algorithms **GPA: 9.32/10.0**

## SKILLS

- Programming Languages** : Python, Java, C++, JavaScript, TypeScript, SQL, GoLang, Ruby
- Frameworks & DB** : Flask, React.js, Express.js, Spring Boot, Django, FastAPI, Rails, MongoDB, MySQL, PostgreSQL, Redis
- DevOps & Tools** : Linux, Postman, Docker, Jenkins, Github, Kubernetes, Putty, Jira, Splunk, Celery
- Cloud Technologies** : AWS (S3, Lambda, Glue, EC2, DynamoDB, EMR, RDS, CloudWatch, Route 53)
- Cloud Certifications** : Microsoft Certified Azure and Data Fundamental (AZ-900 and DP-900), Google Cloud Digital Leader