# RAJ SHAH

Raleigh, NC (Open to Relocate)

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## EDUCATION

- **North Carolina State University**                                      January 2021 - Present
  *Masters of Science in Computer Science;* **GPA 4.0**                                  *Raleigh, NC*
  Coursework: Network Security, DBMS, Machine Learning, and Data Analysis, Software Engineering, Cryptography

- **Dhirubhai Ambani Institute Of Information and Communication Technology**    July 2014 - June 2018
  *Bachelor of Technology in Information and Communication Technology; GPA: 8.19/10*         *Gandhinagar, India*

## TECHNICAL SKILLS

- **Languages & Frameworks**: Java, Spring Boot, JavaScript, NodeJS, Express, Angular, Python, Go, bash, React, Bootstrap, SQL
- **Software & Libraries**: Redis, RabbitMQ, AWS, Docker, Jenkins, Git, MongoDB, Postman, JMeter, BeautifulSoup, Pandas
- **Strengths**: Software Development, System Design, Object Oriented Programming, Database Management, Data Structure & Algorithms

## EXPERIENCE

- **North Carolina State University**                                      January 2021 - Present
  *Graduate Research Assistant*                                              *Raleigh, NC*
  - Conceptualised and developed a web app and RESTful service for SimStudent, an ML agent which aids the learning of students, using Java, Spring Boot, Angular, Docker & MySQL.
  - Fine-Tuned it to support concurrent users and implemented service for health checking servers and sticky routing users to appropriate servers.

- **General Electric**                                                June 2018 - November 2020
  *Software Engineer*                                                     *Bengaluru, India*
  - Worked on architectural redesign and development of Wind Cost Model, an application that models the cost of service agreements. Developed the core application using Spring Boot, Angular, NodeJS, and other AWS services.
  - Modeled the authentication and authorization scheme around the OAuth 2 protocol and implemented it through a microservice using Spring Boot and JWT.
  - Abstracted (away) the logic for obtaining authorization token, reverse proxying, and request compression into a separate NodeJS server so that it could be easily reused by other teams.
  - Designed the architecture of a service for sending targeted email, text message, and push notifications based on user location. Implemented this service using AWS Lambda, AWS SQS, SNS, Spring Boot, AirShip.
  - Performed Dockerization of local development environment and automated deployment using Jenkins for Wind Cost Model resulting in significant reduction of on-boarding and deployment time.
  - Created a service to enable dynamic CRUD operations without any boilerplate reducing the average time taken to build a basic CRUD API by 83%. Multiple teams across GE use this service for prototyping especially during hackathons.
  - Accomplished a performance gain of more than 30% for certain core APIs by adding a caching layer, optimizing queries, and appropriately indexing the database.
  - Migrated Wind Cost Model from Cloud Foundry to AWS. Utilized SQS & SNS to improve the workflow of report generation removing customer wait time.

- **General Electric**                                                January 2018 - June 2018
  *Software Engineering Intern*                                            *Bengaluru, India*
  - Built a notification system as a service to manage notifications across apps, using RabbitMQ, NodeJS, Express, MongoDB.
  - Handled the end-to-end development of a product catalog web app using Angular, NodeJS, Express, and MongoDB.

## PROJECTS

- **Feature Hunt**: Envisioned and developed a feature collection platform where users could share/vote/discuss feature requests and product owners could organize them, using React, Jest, React-Testing-Library, JavaScript, Flask, MongoDB, and GitHub Actions
- **Big Box Retailer Data Service**: Designed and implemented a database service for a Costco like store using MariaDB & Spring Boot. Performed partitioning, indexing, and query optimizations to improve performance
- **Graft**: Developed a Raft based distributed Key Value store in Go, did a manual implementation of the consensus algorithm Raft using Go Routines
- **Non Volatile Virtual File System**: Java-based File System, kept track of free and allocated blocks using a File Allocation Table and stored information about each file using a File Entry Table
- **API Rate Limiter**: Developed an API rate limiter in NodeJS using Express and Redis
- **Realtime Chat Room Application**: Developed a real time chat room application using Spring Boot, Web Sockets and RabbitMQ

## LEADERSHIP & AWARDS

- Full Tuition Scholarship at North Carolina State University
- 2 Impact Awards at General Electric
- Led knowledge sharing sessions across GE for sharing software engineering practices and concepts