Raj Shah

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EDUCATION

- **North Carolina State University** — Raleigh, NC
  Masters of Science in Computer Science; **GPA 4.0** — *Jan. 2021 - Present*
  Coursework: Computer & Network Security, DBMS, Automated Learning and Data Analysis, Software Engineering, Cryptography, Graph Data Mining
- **Dhirubhai Ambani Institute Of Information and Communication Technology** — Gandhinagar, India
  Bachelor of Technology in Information and Communication Technology; GPA: 8.19/10 — *July. 2014 - June. 2018*

TECHNICAL SKILLS

- **Languages & Frameworks**: Java, SpringBoot, 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, Objet Oriented Programming, Database Management, Data Structure & Algorithms

EXPERIENCE

- **North Carolina State University** — Raleigh, NC
  Research Programmer, Graduate Research Assistant — *Dec 2020 - Present*
  - SimStudent is a java based ML-agent used as a synthetic tutee for students to learn by teaching
  - Spearheaded the development of Web SimStudent. Developed a protocol for transforming the existing java based desktop application to a web based application and developed it using Spring Boot, Angular & MySQL
  - Made it support concurrent users and implemented service for health checking servers and routing users to appropriate servers (as routing needed to be sticky).
- **General Electric** — Bengaluru, India
  Software Engineer — *June 2018 - November 2020*
  - Conceptualised and developed Wind Cost Model, an application that models cost of service agreements between GE and wind farm owners. Technologies used: Spring Boot, Angular, Node and other AWS services
  - Setup OAuth2 authentication and authorization for the cost modelling application
  - Created a reverse proxy service using Node that acted as an entrypoint for incoming requests
  - Developed Raven, a service for sending targeted email, text message and push notifications based on user location. Technologies used: Spring Boot, RabbitMQ, UrbanAirShip
  - Performed Dockerization of local development setup 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 boiler plate (used for prototyping in hackathons across GE)
  - Accomplished a performance gain of more than 30% for certain core APIs by adding a caching layer, optimizing queries and appropriately indexing the database
  - Led migration from Cloud Foundry to AWS. Utilized SQS & SNS to improve the workflow of generating reports resulting in removal of wait time for customers
- **General Electric** — Bengaluru, India
  Software Engineering Intern — *Jan 2018 - June 2018*
  - Developed a notification system for handling push notifications. Technologies used: JavaScript, NodeJs, Express, Spring Boot
  - Handled the end to end development of a product catalog web app. Technologies used: Angular 6, NodeJS, Express
- **Dhirubhai Ambani Institute Of Information and Communication Technology** — Gandhinagar, India
  Teaching Assistant for Data Structures & Algorithms, Research Assistant
  - Developed a Twitter Sentiment Analyser
  - Created Python script for collecting, cleaning and processing more than 1 Million tweets

PROJECTS

- **Big Box Reatiler Database 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

- Led knowledge sharing sessions across GE for sharing software engineering practices and concepts
- 2 Impact Awards, General Electric
- International Rank 5, International Mathematics Olympiad 2012