

Tony Mathen



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EDUCATION

MS in Computer Science	Santa Clara University, CA	Sept 2021 - Jun 2023
BE in Computer Science	Dr. Babasaheb Ambedkar Marathwada University, India	Aug 2015 - May 2019

WORK EXPERIENCE

Frugal Innovation Lab, Santa Clara University	Santa Clara, CA
Research Assistant <i>Node.js, Typescript, MySQL, Flutter, Firebase</i>	Jan 2023 - Present

- **GoodBuys** : Engineering a solution, aimed at enabling consumers to find ethically produced goods, thereby promoting sustainable consumption and production.
- Developed **REST APIs**, **web scrapers** and mobile application for finding ecolabels for different brands.
- **Rose Academies** : Designing a user-friendly mobile app to provide healthcare resources for differently-abled individuals, utilizing Flutter, Firebase, and **Google Cloud Functions**.

INRIX, Inc.	Seattle, WA
Software Engineer Intern - Backend <i>Java (Dropwizard), Kafka, AWS</i>	Jun 2022 - Sept 2022

- Engineered the **first real-time** web application for vehicular traffic visualization using GPS data helping acquire **4** customers. This application identifies back-of-queue traffic incidents, saving monitoring infrastructure for clients.
- Developed REST APIs in **Java** to process GPS points from a Kafka feed and render **1M+** vehicles on a map in real-time.
- Scaled the application with **AWS ElastiCache** and multithreading, enhancing read/write speed and reducing delay by **30.77%**.
- Engineered the 'Playback' feature using **AWS S3** and APIs empowering users to analyze and visualize historical traffic data.
- Created CICD workflow using GitHub Actions, **AWS ECS**, and **EKS** streamlining development and deployment.




TATA Consultancy Services Limited	Chennai, India
Software Engineer - Systems <i>Azure Functions, Logic Apps, Service Bus, Python, Java</i>	Jul 2019 - Aug 2021

- Designed messaging solutions using **Azure Logic Apps and Service Bus** to streamline real-time messaging system for a UK-based retailer. Implemented message transformation and enrichment using **Azure Functions** and **Java**.
- Developed a new Kafka integration pattern using IBM App Connect Enterprise to streamline 15+ legacy consumer flows, saving **\$65K**.
- Reduced integration job deployment time by **40%** using custom Ansible modules, optimizing the CICD pipeline and saving engineering efforts.
- Implemented a secure file transfer solution with SFTP and **Azure VM** for efficient file transfers, replacing legacy MQFTE solution, saving licensing and support fees.

OPEN SOURCE

Linux Foundation, LFX Mentorship <i>Hyperledger Fabric, Golang, gRPC</i>	Jul 2023 - Present
• Integrating BDS consensus protocol with Hyperledger Fabric as part of LFX Mentorship .	

PROJECTS

- Distributed Hashtable using Chord protocol**  | *Java · RMI*
- Developed a highly available and scalable distributed key-value store by implementing the Chord protocol. Implemented **consistent hashing** for the distribution of keys and replication of factor 2 to make the system fault-tolerant.
- Bully Algorithm: Leader Election in Distributed Systems**  | *Java (Socket, Thread) · Docker*
- Implemented the Bully algorithm using socket programming in Java. Dockerized the distributed nodes and incorporated message passing, leader election, and heartbeat functionalities using the Thread library.
- FundMe - Crowd Funding Application**  | *Java (Springboot) · MongoDB · Angular · Docker · Kubernetes*
- Created a web application by implementing the **repository pattern** to start and support crowdfunding projects. Features include user authentication using Firebase, an admin dashboard to approve projects, and a reward system to disburse funds.

SKILLS

Programming Languages: Java, Go, Python, JavaScript, TypeScript
Databases: MongoDB, MySQL, PostgreSQL, Redis
Frameworks and Platforms: ReactJS, Next.js, Springboot, Kafka, RESTful API
Cloud & DevOps: Jenkins, Ansible, Git, Shell, Docker, Kubernetes, Azure, AWS (EC2, Lambda, ECS, EKS, S3, RDS)