

# SAMRAT DUTTA

Software Engineer

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## Skill Highlights

- Backend development with Java, Maven, Openliberty and NoSQL databases. Deployment and scaling with Docker and Kubernetes.
- Frontend development with ReactJS and Carbon framework.
- Artificial Intelligence, Machine Learning, Large Language Model (LLM) and prompt engineering.
- Android app development with Java.
- IoT technologies, ML on edge devices.

## Work Experience

**Software Engineer** – 07/2022 to Now

**IBM - India Systems Development Lab (ISDL), Bangalore**

- Developed robust and large-scale microservices for IBM Storage Defender using **Java**, **Maven**, and **OpenLiberty**, as well as **GoLang** and **Python (Django)**, leveraging **MongoDB** for database. Contributed about 25% code in a major microservice.
- Deployed microservices architecture using **Docker**, **Kubernetes**, and **ROSA/Openshift clusters**, ensuring seamless performance and scalability.
- Developed modern, responsive, front-end web-apps for IBM Ceph as a Service using **ReactJS** and **Carbon** framework, maintaining **accessibility** for keyboard and screen-reader users.
- Worked with several other technologies and languages such as **Machine Learning**, **LLMs**, and **prompt engineering** on several POC.
- Collaborated effectively with a globally distributed team spanning multiple time zones, fostering seamless communication and coordination to achieve project objectives and deadlines.
- Implemented best coding practices, including security measures, comprehensive test cases and adherence to industry standards for development.

### Other Technologies

- Machine Learning, NLP, DNNs, LSTM
- Data analysis with Numpy, Pandas, Matplotlib
- Encryption and cryptography
- HTML, CSS, JS
- IoT
- Long-range communication systems

**Android App Developer (Intern)** – 06/2021 to 07/2021

**Ardent Computech, Durgapur**

- Built prototype of a job portal android app with Flutter and Firebase Firestore.

## Education

**Bachelor of Technology: Computer Science And Engineering** – 08/2018 to 06/2022

*Dr. B. C. Roy Engineering College (MAKAUT), Durgapur - CGPA: 8.97*

## Projects and Research Papers

**DisasChat: An End-to-End Encrypted Off-Grid LoRa-Based Smartphone Communication System for Disaster and Crisis Scenarios**

<https://ieeexplore.ieee.org/document/10040007>

- February 2022 - May 2022
- Key Technologies: LoRa, ESP32, AES, Curve25519

**SecLoRa: A Secure LoRa Based Communication System for Residential Smart-grids**

<https://ieeexplore.ieee.org/document/9972521>

- May 2022 - August 2022
- Key Technologies: LoRa, ESP32, AES Encryption

**Chronological Verification of the Collatz Conjecture with Mathematically Proven Sieve** (under peer review)

- May 2023 – November 2023
- Key Technologies: Number theory, bit manipulation, algorithms

**Cowisecare – An App to Find Medical Help Related Leads**

<https://cowisecareapp.web.app>

- April 2021 - July 2021
- Key Technologies: Android (Java), Python, Firebase

**Onymochat - Anonymous And Encrypted Chat Application**

<https://github.com/SamratDuttaOfficial/onymochat>

- September 2021 - October 2021
- Key Technologies: Encryption, Tor Network, Flask, Tkinter

**Indoor Context Recognition Using Heterogeneous Pollution Sensors**

- November 2021 - March 2022
- Key Technologies: Deep Neural Networks (DNN), Tensorflow, ambient sensors, Arduino, IoT.