

# Mainul I. Mahi

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[github.com/Luniam](https://github.com/Luniam)

## EDUCATION

### BRAC University, Dhaka, BD - B.Sc. in CSE

JAN 2014 - APR 2018

- Notable courses: Algorithms, Data Structures, Artificial Intelligence, Automata, Compilers, Operating Systems, Database Systems, Computer Graphics etc.

## WORK EXPERIENCE

### IOT Team Lead, Inovace Technologies

JAN 2021 - Current

- Lead an IOT team of electrical and computer engineers.
- Lead new research and development of existing and new IOT products.

### Software Engineer, Inovace Technologies

APR 2018 - JAN 2021

- Developed REST APIs and front-end applications for multiple projects ranging from human resources management software to IOT device communication server.
- Worked with the R&D team to improve IOT device efficiency, e.g. using MQTT instead of HTTP as the communication protocol, implementing OTA firmware update feature.

## SELECTED PROJECTS

### IOT Device Communication Server

Laravel, VUE JS

- Architected a complete redesign of the log processing code. Log processing went from **≈2 seconds** to **≈100 milliseconds**.
- Scaled to handle **≈7000 concurrent** biometric IOT devices.
- Implemented an in-memory cache mechanism in place of a DB operation on a table with **≈ 20 million** rows. Made it **≈98% faster** with **≈3% more memory** consumption.

### Industrial OEE Monitoring Server

Laravel, VUE JS

- Was part of the design and development team of a large scale industrial OEE monitoring application.
- Managed the partitioning of the time series tables in the database for high scalability and faster reporting.

### MQTT Server

Spring Boot

- Designed and implemented a device communication server based on the MQTT protocol.
- Handles **≈500 concurrent** biometric attendance devices.

### Kafka Consumer Application

Spring Boot

- Took part in the design and development of a web server that listens to multiple kafka topics on databases spread in multiple servers, which then prepares ETL tables from the data.

### Interactive Algorithms Website

JavaScript, JQuery, D3 JS

- Built an interactive website(personal project) where students can learn about common data structures and algorithms through animations. Website still in progress. [URL](#)

## LANGUAGES AND TECHNOLOGIES EXPERIENCE

- **Languages and Frameworks:** PHP, Java, Python, Spring Boot, Laravel, AngularJS, VUE JS
- **Database and Data Processing:** MySQL, PostgreSQL, Apache Kafka, VerneMQ, Eclipse Mosquitto
- **Scientific Computing:** MATLAB, NumPy, SciPy, Matplotlib
- **CI Tools:** Jenkins
- **Others:** Redis, Docker, Nginx

## EXTRACURRICULAR ACTIVITY

- Former amateur boxer at the Bangladesh Amateur Boxing Federation.