Foysal Khandakar Joy

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[My Site](#) | [Github](#) | [LinkedIn](#)

Education

University of Dhaka   **2016 - 2020**

B.Sc. in Robotics and Mechatronics Engineering | CGPA 3.15/4.0
Courses: Fundamentals of programming, Object Oriented Programming, Calculus, Statistics, Linear Algebra, Data Structures & Algorithms, Artificial Intelligence, Human-Robot Interaction, Robot Learning
Clubs: Information & Research secretary at RMEDU Students Club, Member at Competitive Programming Club

Thesis/Projects

- **Robot Navigation from Natural Language Instructions**: This project combined Natural Language Processing (NLP) with web application. Users could give complex navigation instructions via speech, which were converted to text using a speech-to-text API. The model then predicted the correct sequence of locations and displayed the optimized path on a map. For example, given the instruction: Go to place A, receive a product, deliver it to place B, and get approval from place C beforehand, the model accurately identified the sequence as A $\rightarrow$ C $\rightarrow$ B, even though the order of mention was different. The model, trained using a bi-directional LSTM architecture, achieved 95% accuracy, with the dataset generated both manually and automatically through scripting.

Competitions

- **Meta Hackercup 2022**, passed the qualification round, advanced to Round 1 and 2, solving 2 problems in each round.
- **Google QUEST Q&A Labelling**, to improve automated understanding of complex question answer content. **226th** place among **1571** teams
- **ICPC 2019 Asia Dhaka Regional**, **80th** place among **150+** teams
- **ICPC 2019 Asia Dhaka Regional Preliminary**, **74th** place among 1800+ teams
- **NSU Cybernauts National Programming Contest 2019**, **24th** among 59 teams

Work Experience

Creative Crowdfunding Protocol of Kickstarter ↗   **February 2024 - Present**

Backend Software Engineer

- Separated and scaled image synchronization service to process data faster using AWS SQS and Lambda. Users can import thousands of data along their images of individual items from previous platform without interrupting the server.
- Introduced recommendation of items based on users activities. It works like how the other users behaved with the related items.
- Worked on setting up the continuous integration of different phases like development, staging, production of the application from GitHub to AWS EC2.
- Refactored the codebase to make DB queries and data manipulation more robust.
- Improved the database schema and relationships to facilitate easier queries based on user requirements. Optimized categories-subcategories relation recursively which was very time consuming.

  NodeJS, PostgreSQL, AWS, EC2, Lambda, S3, RDS, SQS

Elife Tech Inc ↗   **Nov 2022 - Jan 2024**

Backend Engineer

- Owned several services, designed the database schema for new features, and developed highly efficient Function as a Service (FaaS) using Python, AWS Lambda, and AWS EventBridge.
- Automated ride creation, cancellation, and updating by establishing a pipeline between partner platforms and the eLife platform, reducing manual work by 80%. This has led to a 60% cost reduction.
- Improved the pipeline processing time by 20 times faster and enhanced data comparison with a modified workflow.
- Made it possible to create thousands of rides on our platform within a short time constraint by introducing Kafka.

  Python, MySQL, AWS, SQS

Microsec Pte. Ltd. ↗   **Mar 2022 – Aug 2022**

Software Engineer(Backend)

- Owned and maintained the threat-manager microservice of the MicroIDS product. This microservice consumes reports of user activity and interaction on the edge devices. Based on the report analysis it decides whether to take any action on an individual device or bulk number of devices. Actions include isolating devices, updating firmware and security of the communication among devices etc.
- Coordinated with the other microservice team, along with the frontend and edge-device teams for any changes or modification required to synchronize all services.
- Engineered and proposed new features based on discussions with clients.
- Maximized the processing speed of reports consumed from other microservices and published through RabbitMQ.
- Initiated and designed the database schema for the threat mitigation feature, focusing on maintaining efficiency.

  Django, Flask, REST APIs, Docker, Docker-compose, PostgreSQL, RabbitMQ

Datasoft Manufacturing & Assembly ↗   **Oct 2020 - Mar 2022**

IoT Software Engineer

- Developed the web backend using Python (Django) and firmware of IoT devices using C and C++.
- Modified the firmware of a GPS-enabled device to improve the accuracy of data transmission. The device occasionally transmitted incorrect GPS coordinates due to inherent accuracy limitations. To address this, I implemented a spatial data comparison algorithm, which analyzed the GPS data patterns and filtered out inconsistent or suspicious data, thereby improving the reliability of the transmitted location information.
- Developed RESTful APIs using Django and implemented MQTT protocols for device-to-application communication. These applications gathered and displayed device data, allowing users to control devices remotely
- Helped reduce costs by 30% for manual visits to check meters and create billing.
- Managed and guided interns in researching and fixing issues in an existing project.

  Python, C/C++, Django, Django-Rest, MQTT, MySQL

Technical Skills

Languages	Python, Go, JavaScript, `C/C++`
Dev Frameworks	Flask, Django, Django Rest Framework (DRF), NodeJS, ReactJS
ML Frameworks	Tensorflow, PyTorch
Databases	PostgreSQL, MySQL
Clouds	AWS (EC2, S3, RDS, Lambda, EventBridge)
Containers	Docker, Docker-Compose
Others	Ubuntu, Git

Volunteer Experience

Bangladesh Open Source Network ↗   **January 2017 - December 2020**

Trainer

- trained school and college students on sport programming who participated in Inter School and College Programming Contest 2019 (Sylhet Region, Bangladesh).
- trained teams for International Robot Olympiad 2018 where a team won gold.
- taught school kids scratch programming following MIT scratch

Bangladesh Mathematical Olympiad-BdMO ↗   **December 2016 - December 2019**

Academic Member

- trained high school students on different topics of mathematics like Number theory, Geometry, Combinatorics in the rural areas of Bangladesh.
- Worked as judging director in different district wise regional round