

Pappuraj Bhattacharjee

Researcher | Software Engineer L1 | Quick Learner
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RESEARCH INTEREST

I am interested in **software engineering**, **artificial intelligence**, and **IoT/embedded systems**, with applications in **healthcare**, **autonomous systems**, and **smart infrastructure**. My goal is to develop **scalable and intelligent software solutions** that address real-world challenges through the integration of data-driven methods and system design.

EDUCATION

B.Sc in Computer Science & Engineering Dhaka University of Engineering & Technology (DUET), Gazipur	Mar 2019 – Jun 2023 CGPA: 3.06/4.00
Diploma in Computer Engineering Bangladesh Sweden Polytechnic Institute, Kaptai	Aug 2014 – Aug 2018 CGPA: 3.47/4.00

RESEARCH EXPERIENCE

Research Assistant HPRCC Lab, DUET, Gazipur Supervisor: Prof. Dr. Mohammad Abdur Rouf	Sept 2021 — June 2023
<ul style="list-style-type: none">UGC-funded project: IoT-based healthcare for disabled patients.Developed device with voice/gesture control and cloud connectivity.Co-authored conference paper (NCIM 2023).	
Research Assistant CSE Lab, DUET, Gazipur Supervisor: Mr. Khawja Imran Masud	Jan 2022 — June 2023
<ul style="list-style-type: none">UGC-funded research on IoT-based egg incubation and fertility detection.Developed system for monitoring and classifying egg fertility using embedded devices and deep learning.Co-authored conference paper (NCIM 2023).	
Research Collaborator Research Activator Lab	Jun 2024 — Present
<ul style="list-style-type: none">Conducted research in AI, machine learning, and IoT.Co-authored IEEE paper (ICCIT 2024) and ongoing journals on monkeypox detection and AI-based speed limit control using Raspberry Pi and IoT.Developed AI models and system architectures for research prototypes.	
Research Assistant MSiP Lab, Daejeon, South Korea Supervisor: Dr. Jia Uddin	Aug 2025 — Present
<ul style="list-style-type: none">Contributing to multiple ongoing journal papers, focusing on machine learning, IoT, and embedded systems.Developing an ML- and IoT-based embedded system for pothole detection.Working on an offensive scene detection system for non-18+ content filtering using machine learning.	

PUBLICATIONS

- Integrated Health-Care for Cripple and Abnormal Person in Home or Hospital**
Mohammad Abdur Rouf, Pappuraj Bhattacharjee, Laboni Labonna, Md. Murad Hossain, Jarin Tasnim Tamanna
2023 International Conference on Next-Generation Computing, IoT and Machine Learning (NCIM), 2023.
- Design and Development of an Efficient IoT-based Egg Incubation System**
Khawja Imran Masud, Pappuraj Bhattacharjee, Abu Saeid, Md. Golam Mostofa, Md. Obaidur Rahman
2023 International Conference on Next-Generation Computing, IoT and Machine Learning (NCIM), 2023.

Developing an IoT-based Motorcycle Safety and Monitoring System: An Efficient Solution

Pappuraj Bhattacharjee, Abu Saeid, Mst. Raonik Jannat, Khawja Imran Masud

International Conference on Computer and Information Technology (ICCIT), 2024.

Interpretability in Hate Speech and Offensive Language Detection: Leveraging Transformers with Explainable AI

Mohammed Amran, Asmita Das Gupta, Rituparna Chowdhury, Md. Hamid Hosen, Pappuraj Bhattacharjee, Naima Tasnia

International Conference on Computer and Information Technology (ICCIT), 2024.

Egg Fertility Detection and Classification of an IoT-based Egg Incubation System using Transfer Learning: A CNN-based Approach

Khawja Imran Masud, Abu Saeid, Mst. Raonik Jannat, Pappuraj Bhattacharjee, Md. Obaidur Rahman, Md. Rafiul Hasan *[Under review]*

Detection of Monkeypox Disease from Human Skin Images Using a Hybrid Deep Learning Model with Explainable AI (XAI)


Rituparna Chowdhury, Altaf Uddin, Arnab Saha, Pappuraj Bhattacharjee *[In progress]*

Efficient Attention-Integrated YOLO Architecture for Smart Pothole Detection and Driver Alert on Embedded Platforms

Pappuraj Bhattacharjee, Momotaz Begum, Jia Uddin *[In progress]*

WORK EXPERIENCE


Software Engineer

Project 2morrow Software Ltd., Banani, Dhaka 


May 2023 — Present

- Promoted from Associate to L1. Delivered backend, IoT, and fintech solutions; led teams and owned end-to-end modules.
- **Key Projects:**
 - **GoFast BD (Lead):** Designed and implemented backend and hardware for a smart metro ticketing system (QR & Visa card); presented prototype solution to Dhaka Mass Transit Company Limited for potential city-wide deployment.
 - **BulkPro:** Led backend development (60% contribution) for a CBS-integrated banking automation subsystem (CIF, CASA, loan processing); deployed at Dhaka Bank Limited.
 - **ExamOn:** Built backend and AI-driven proctoring for a platform supporting job applications, courses, and certification at scale.
 - **IoT Pro (Lead):** Developed IoT solution for city-wide ATM and branch power monitoring and energy management for banks.
- **Tech Stack:** Java, Spring Boot, Docker, Kafka, MySQL, Microservices, IoT, Machine learning, Kubernetes


Trainer & Programmer (Part-time)

Roboment R&D Lab, Gazipur (Hybrid) 

Feb 2019 — Present

- Delivered hands-on workshops and training in embedded systems, IoT, robotics, and machine learning for students and junior engineers.
- Developed and published **Easier Study Lite** , an Android app available on the Play Store, to support learning and productivity.
- Integrated various sensors and microcontrollers for client-specific robotics and IoT projects.
- Built custom devices and provided technical solutions for educational and industrial clients.
- **Tech Stack:** Arduino, Raspberry Pi, ESP-01, ESP32-CAM, ESP8266, ESP32, Python, Android, Java, Electronics, IoT, ML, Sensors

Software Engineering Trainee

Brain Station 23, Dhaka 

Nov 2022 — Dec 2022

- Developed mobile app features using Flutter and collaborated via GitHub.
- **Tech Stack:** Flutter, REST API, Firebase, Git

Industrial Trainee


MHSofts, Gazipur, Dhaka


Jan 2018 — Apr 2018


- Hands-on training in Java application development and troubleshooting, as part of Diploma in Computer Technology.
- **Skillset:** Java, Java Swing, Git

AWARDS & HONORS





2019 2nd runner-up of Bangladesh Smart City Expo 2019 

2022 Champion of Project Showcase in DUET Intra Programming Contest 2022 

2024 Expert Trainer for Workshop on IoT-Based Hardware & Software Simulation, Roboment R&D Lab 

2024 Champion at National Science and Technology Week 2024 Upazila Level Competition, Gazipur Sadar, Gazipur 

SKILL SETS

- **IoT, Embedded Systems & Robotics:** NodeMCU, ESP32, Arduino, Raspberry Pi; sensor interfacing, real-time data, hardware-software integration (MQTT, REST). Applied to robotics and home automation.
- **Machine Learning & AI:** Data analysis, computer vision, sensor data; TensorFlow, scikit-learn. Research focus on embedded ML for smart devices.
- **Electronics Design:** Circuit design, sensor integration, microcontroller programming, hands-on prototyping for embedded systems.
- **Programming Languages:** Python, C/C++, Java, Bash, Dart, SQL.
- **Mobile & Cross-Platform Development:** Android (Native), Flutter for device control, companion apps, remote monitoring.
- **Backend & API Development:** RESTful APIs, microservices, Spring Boot, Hibernate, JDBC, secure data management.
- **Databases & Cloud:** MySQL, MongoDB, SQLite, and Firebase for device telemetry and data logging.
- **DevOps & Deployment:** Docker, NGINX, Linux, Git, Kubernetes, CI/CD for automated deployments.
- **Development Tools:** IntelliJ, VS Code, Android Studio, Postman, Jira, Arduino
- **Concepts & Methodologies:** Embedded system design, edge computing, Agile, clean code.
- **Publishing Platforms:** Google Play Store , AppBajar , AppBrain , APKPure 








PROBLEM SOLVING SKILL (SOLVED 500+)

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| • Leetcode  | • Codeforces  | • HackerRank  | • Toph  |
| Solved: 340+ | Solved: 130+ | Solved: 20+ | Solved: 20+ |
| Maximum Rating: 1500 | Maximum Rating: 918 | Maximum Rating: 0 | Maximum Rating: 0 |

VOLUNTEER AND LEADERSHIP EXPERIENCE

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| • Vice President , DUET Innovation Society | • Application and Project Section , DUET Computer Society |
| • Trainer , Seminar on Android App Development | • Additional Robotics Section , DUET Computer Society |
| • Trainer , IoT Workshop at Research Lab Chattogram | • IT Secretary , Gungchill, DUET |
| • Trainer , Workshop on IoT at Roboment R&D Lab, Gazipur | • Vice President , DUET Innovation Society |

COMPETITIONS

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| • National High School Programming Contest 2015  | • NASA Space App Challenge 2021  |
| • Skill Competition 2015  | • DUET CSE Fest 2021 |
| • Skill Competition 2016  | • Learning and Earning Fair 2017, Rangamati, Chittagong Hill Tracts  |
| • MIST Robolution-19 | • National Science and Technology Week 2024 Upazila Level Competition  |
| • Bangladesh Smart City Expo 2019  | |
| • Digital Device and Innovation Expo 2019 | |
| • Hult Prize 2020 | |

REFERENCES

Dr. Mohammad Abdur Rouf

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Dhaka University of Engineering & Technology (DUET), Gazipur
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Dr. Jia Uddin

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