

# Mahedi Kamal

## Software Engineer

✉ +880 151 115 3440 | @ mahedikamal44@gmail.com | 🛡 user=UW8tYo0AAAAJ | 🌐 <https://mahedikamal.github.io>

### RESEARCH INTEREST

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Computer Vision, Robotics, Machine Learning

### EDUCATION

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**2023** BSc in **Computer Science and Engineering**, MILITARY INSTITUTE OF SCIENCE AND TECHNOLOGY, an affiliate of BANGLADESH UNIVERSITY OF PROFESSIONALS

CGPA 3.64 out of 4.00

**2018** Higher Secondary School Certificate (12th grade) in Science, JHENEAIDAH GOVT. K.C. COLLEGE  
GPA 5.00 out of 5.00, in the top 1.2 percent among 1,336,629 students

**2016** Secondary School Certificate (10th grade) in Science, JHENEAIDAH GOVT. SECONDARY SCHOOL  
GPA 5.00 out of 5.00, in the top 4 percent among 1,645,432 students

### PUBLICATIONS

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**Monocular Vision-Based Vehicle Distance Prediction utilizing Number Plate** | [IEEE](#)

- Two monocular vision-based techniques for vehicle distance detection are presented in this article. Initially, YOLOv5 is utilised to detect the license plate. Lastly, a regression model or an artificial neural network (ANN) model that uses the number plate's retrieved parameters as input is used to predict the distance.

**ANNA: A Deep Learning Based Dataset in Heterogeneous Traffic for Autonomous Vehicles** | [arXiv](#)

- The paper talks about a specially created dataset that, from Bangladesh's point of view, contains certain automobiles that aren't identified and aren't in the current dataset. Models were assessed using the Intersection Over Union (IOU) measure in order to verify the correctness of the data.

**Identifying Design Guidelines of Interactive Whiteboard Interfaces Through Usability Evaluation** | [Springer](#)

- Examining the whiteboards' interfaces to identify usability issues and offering potential design recommendations to enhance the usability of these embedded systems are the goals of this research. A user study and a heuristic evaluation (HE) were used to assess two interactive whiteboards in order to meet these goals.

**A Performance Analysis of Brain Tumor Classification from MRI Images using Vision Transformers and CNN-based Classifiers** | [IEEE](#)

- The purpose of this study is to train a few CNN and ViT models to identify different types of brain tumours and assess the models' accuracy, recall, and f1-score.

**AI Integrated Entertaining and Monitoring System for Daily Care of Elders** | *accepted ICCA 2024*

- A prototype companion robot for senior citizens is shown in this paper. Among the services offered by the proposed system are identification-driven visual emotion detection, mood-based entertainment, safety alarm notifications for strangers, rudimentary chat, and reminders of important appointments.

### MY WRITINGS

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**Programming in emu8086 with-brief-theory** | [Link](#)

- An effort to simplify the learning of assembly code for students. All the basic coding knowledge with example code is included for programming in 8086 microprocessor.

**CP template AND interesting problems** | [Link](#)

- Presenting interesting programming challenges and describing solution to promote problem-solving. Also some efficient algorithm implementation is given here using C++.

**CppToJs** | [Link](#)

- Guiding a programmer to learn JavaScript using the concept of C++ programming. purpose is, if a programmer already knows C++ then learning JS should be easy. [not completed yet]

**MFC tutorial** | [Link](#)

- A MFC (Microsoft Foundation Class) tutorial to teach how to use dynamic link libraries(DLL) for having multiple language support in software.

## EXPERIENCE

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### Frontier Semiconductor

*Software Engineer*

Dhaka, Bangladesh

Oct 2023 – Present, Full-time

- Devoloper of Windows application using Microsoft Foundation Class (MFC) Library to control robots that is used in the wafer fabrication industry.
- Worked with Chromatic confocal technology which is based on the principles of chromatic dispersion and confocal theory. Laser confocal microscopy was used to calculate surface roughness.

### Safewheel

*Back-end Engineer*

Dhaka, Bangladesh

Mar 2022 – May 2022, Internship

- Technology like TypeScript, GraphQL, TypeORM, and Express are used to create back-end of a medicine website.

### Robi Axiata Limited

*Trainee*

Dhaka, Bangladesh

Jan 2022 – Feb 2022, Industrial Trainee

- Joined a training course where professional telecom engineers from one of the largest telecom companies in Bangladesh trained us.

## CONTEST PROGRAMMING

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1. 4 Star at CodeChef and Specialist at CodeForces.
2. Position 76 within Bangladesh in a Codeforces Global Round — [Link](#)
3. Global rank 95 and country rank 5 in CodeChef Starters 32 Division 2 — [Link](#)
4. Ranked 45 in ICPC Dhaka Regional 2020 (organized in 2021 due to Corona) — [Link](#)
5. Overall 800+ problems solved

## PROJECTS

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### Twin robot | [GitHub](#)

- A robot that can tell jokes, answer questions, detect feelings, detect strangers, move the neck, and send notifications in the app. Technology: Python, OpenCV, ML library, flask server, flatter app, Raspberry Pi

### OpenGL-3D-car | [GitHub](#)

- A 3D car that can be controlled (forward, backward, left, right) using arrow keys. C programming with OpenGL Graphics Library.

### Online-Business-Management-System | [GitHub](#)

- Created a commercial website for selling products where customers can order products and owners can receive orders and monitor delivery through the page. PHP, HTML, CSS, and JS with Oracle database are used.

### GREEExercise | [GitHub](#)

- Opensource project to help the student become familiar with GRE. Helps to practice AWA and vocabulary and use the GRE calculator. Technology used: JS, HTML, CSS

### GRE-word | [GitHub](#)

- A Java swing project to help students to learn some GRE words. Here one can make a customized word list and see learning improvement through a graph.

### funnyJS | [GitHub](#)

- Some JS-based projects, the purpose of this project is to challenge my JS programming skill.

### Socket-programming in C | [GitHub](#)

- An application that can communicate between two Windows PC through text message. Private messaging system.

## EXTRACURRICULAR ACTIVITIES

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**Mentoring:** Mentoring our junior batch in MIST for contest programming (Taking [class](#) at the Computer club, [setting problems](#) for regular junior-contest )

**Organizing Events:** An active member of the organizing committee of IUPC-2018 at MIST, NCPC-2019 at MIST, and CodeWar-2020 (MIST internal contest).

**Online contribution:** Made tutorial for [LightOJ](#), which is a popular problem solving site in Bangladesh. Tutorials are: [Coin Change\(iv\)](#), [Counting Triangles](#), [Discovering Gold](#). Contributing to programming world by answering questions asked in [Stackoverflow](#)(Reputation 189, silver 2, bronze 10)