

Mahir Labib Dihan

📍 Dhaka, Bangladesh ✉ mahirlabibdihan@gmail.com 🔗 mahirlabibdihan.github.io
☎ +880 1851-953433 in mahirlabibdihan 🌐 mahirlabibdihan

RESEARCH INTEREST

Natural Language Processing, Geospatial, Deep Learning, Human Computer Interaction,

EDUCATION

BSc Bangladesh University of Engineering and Technology

Feb 2020 - Mar 2025

Computer Science and Engineering

- CGPA: **3.97/4.00** (GPA 4.00/4.00 in the last 6 semesters); Rank: **8**
- Awarded the University Deans Scholarship for maintaining a CGPA over 3.75 during the 1st, 2nd, and 3rd years.
- Received the Departmental Merit Scholarship **five times** for being among the top students in the CSE department.

Thesis topic: MapQA: Systematic Annotation and Evaluation of Map Query Datasets for Foundation Models

- Received a full grant (1,00,000 BDT) from [RISE](#) to complete my thesis project.
- Two papers are currently under review at [ICML](#) and [ACL](#).

RESEARCH EXPERIENCE

DFCon: Attention-Driven Supervised Contrastive Learning for Robust Deepfake Detection

Oct 2024 – Jan 2025

MD Sadik Hossain Shanto, **Mahir Labib Dihan**, Souvik Ghosh, Riad Ahmed Anonto, Hafijul Hoque Chowdhury, Abir Muhtasim, Rakib Ahsan, MD Tanvir Hassan, MD Roqunuzzaman Sojib, Sheikh Azizul Hakim, M. Saifur Rahman

Selected among **top 3 finalists** at IEEE SP Cup 2025 | [arXiv](#) | [Competition](#)

- Finetuned advanced backbone architectures, such as **MaxViT**, **EVA-02** and **CoAtNet**, with specialized loss functions like supcon loss and focal loss for improved accuracy.
- Explored generative approaches, including **diffusion models**, **GANs**, **VAEs**, to generate deepfake images for training robust and generalized detection models.
- **Supervisor:** [Dr. Mohammad Saifur Rahman](#), Professor, CSE, BUET

MAPEVAL: A Map-Based Evaluation of Geo-Spatial Reasoning in Foundation Models

Nov 2023 - Dec 2024

Mahir Labib Dihan, Md Tanvir Hassan, Md Tanvir Parvez, Md Hasebul Hasan, Md Almash Alam, Muhammad Aamir Cheema, Mohammed Eunus Ali, Md Rizwan Parvez

Under review at [ICML 2025](#) | [Project Page](#) | [Github](#) | [arXiv](#)

- Introduced **MAPEVAL**, a novel benchmark designed to evaluate the geo-spatial reasoning capabilities of foundation models and AI agents in complex map-based scenarios.
- Evaluated **28** foundation models (e.g., **Claude-3.5-Sonnet**, **GPT-4o**, **Gemini-1.5-Pro**) across **700** multiple-choice questions from **180** cities in **54** countries.
- **Supervisor:** [Dr. Muhammad Aamir Cheema](#), Associate Professor, Monash University, Australia; [Dr. Mohammed Eunus Ali](#), Professor, CSE, BUET; [Dr. Md Rizwan](#)

Parvez, Scientist, QCRI

MAPQATOR: An Extensible Framework for Efficient Annotation of Map-Based QA Datasets

Apr 2024 – Mar 2024

Mahir Labib Dihan, Mohammed Eunus Ali, Md Rizwan Parvez

Under review at [ACL 2025](#) | [Project Page](#) | [Github](#) | [arXiv](#)

- Developed a web based application framework [MAPQATOR](#), that enables users to fetch and integrate place-related data using Maps API for creating geospatial QA datasets.
- **Supervisor:** [Dr. Mohammed Eunus Ali](#), Professor, CSE, BUET; [Dr. Md Rizwan Parvez](#), Scientist, QCRI

LLMSNIFFER: LLM Generated Code Detection

Oct 2024 - Dec 2024

Mahir Labib Dihan, Abir Muhtasim

Machine Learning Course Project | [Github](#) | [Youtube](#) | [Live Demo](#)

- Finetuned **GraphCodeBert** using **Supervised Contrastive Learning** for detecting LLM-generated code.
- Achieved significant performance improvements compared to prior works: [GPT-Sniffer](#) and [Whodunit](#).

NCO4CVRP: Neural Combinatorial Optimization for Capacitated Vehicle Routing Problem

Sep 2024 - Dec 2024

Md Ashrafur Rahman Khan, **Mahir Labib Dihan**, Wasif Jalal, Md Roqunuzzaman Sojib, Mashroor Hasan Bhuiyan

Algorithm Engineering Course Project | [Report](#) | [Presentation](#) | [Github](#)

WORK EXPERIENCE

Semion, Software Engineer

Mar 2025 – Present

Priyo, Software Engineer

Jul 2024 – Dec 2024

- **Built and deployed 3 websites** from scratch, handling frontend development and deployment pipelines.

Brainlytic, Fullstack Developer

Nov 2022 – Aug 2023

- Implemented Realtime Contest, Progress Tracking and Unsolved Problems Tracking feature. Also did some bug fixing and code refactoring.
- Worked on the backend, frontend, and database. Used React JS for the frontend, Node and Express JS for the backend, and Postgres as the database.

Fiverr, Freelancer

Feb 2021 – Jul 2021

- Worked on **30+ OpenGL Projects**. Mostly 2D games and simulations.
- Also worked on some C++, Java and Python projects.

COMPETITIONS

Participated in ACM ICPC Dhaka Regional 2024

Dec 2024

- 32nd in preliminary round among 2489 teams
- 76th in main round among 309 teams

Champion - BUET Intra University Programming Contest 2023

Jun 2023

2nd Runner Up - BUET GameJam 2023

Jan 2023

PROBLEM SOLVING

Expert on Codeforces, with over **1,300** problems solved across platforms like [Codeforces](#) (1000+), [LeetCode](#), [CodeChef](#), [HackerRank](#), [HackerEarth](#), [AtCoder](#), [CSES](#) etc. See my [StopStalk](#) profile for more details.

ACADEMIC PROJECTS

Interactive CS Learning Platform | [Github](#) | [Youtube](#) | [Live Demo](#)

Jun 2023 - Mar 2024

Information System Design and Software Development Course Project

- Developed a platform where users can solve CS problems using interactive canvases without any coding.
- **Skills:** React JS, Node JS, Express JS, Tailwind CSS, Material UI, Sequelize ORM, PostgreSQL, Docker, Github Actions, CI/CD, Postman, REST API

Reverse Engineering with Radare2 | [Github](#) | [Youtube](#)

Feb 2024 - Mar 2024

Computer Security Course Project

- Reverse-engineered a real-world malware named "Winnti" using Radare2 and reconstructed it into a C program from a shared library object file.
- **Skills:** Radare2, Python.

Simple C Compiler | [Github](#) | [Youtube](#)

Oct 2022 - Feb 2023

Compiler Course Assignments

- Developed a simple C compiler, incorporating key components such as Lexical Analyzer, Syntax Analyzer, Semantic Analyzer, Intermediate Code Generator, and Peephole Optimizer.
- **Skills:** C, C++, Flex, Yacc, Bison, Intel 8086 Assembly.

Tution and Coaching management system | [Github](#) | [Youtube](#)

May 2022 - Sep 2022

Database Course Project

- An ed-tech platform where tutors, students and coaching centers get connected to each other.
- **Skills:** React JS, Node JS, Material UI, Bootstrap UI, Oracle DB, Git

Football Player Database System | [Github](#) | [Youtube](#)

Jun 2021 - Jul 2021

Object Oriented Programming Language Course Project

- A desktop app made with JavaFX.
- **Skills:** JavaFX, JFoenix, Socket Programming, Scene Builder

DX-Ball | [Github](#) | [Youtube](#)

Nov 2020 - Dec 2020

Structured Programming Language Course Project

- A desktop game made with OpenGL.
- **Skills:** OpenGL 4.5, GLFW, GLEW, irrKlang, GLM, Stb, FreeType.

SKILLS

Programming Languages: C, C++, Java, Python, JavaScript, SQL, Bash, HTML/CSS

Web Development: React.js, Next.js, Node.js, Express.js, REST API, PostgreSQL, Firebase, Postman

Tools and Platform: LaTeX, Docker, Git, GitHub Actions, PyTorch, Google Colab, Kaggle

REFERENCES

Dr. Mohammed Eunus Ali

Professor, CSE, BUET

Email: mohammed.eunus.ali@gmail.com

Thesis Supervisor

Dr. Md Rizwan Parvez

Scientist, QCRI

Email: mparvez@hbku.edu.qa

Research Supervisor

Dr. Mohammad Saifur Rahman

Professor, CSE, BUET

Email: mr Rahman@cse.buet.ac.bd

Research Supervisor