

Md. Rifat Rahman

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EDUCATION

Bangladesh University of Engineering and Technology

B.Sc. in Computer Science and Engineering; GPA: 3.90/4.00

Dhaka, Bangladesh

Feb 2020 – Mar 2025

Notre Dame College

H.S.C in Science; GPA: 5.00/5.00

Dhaka, Bangladesh

Jul 2017 – Jul 2019

Bogura Zilla School

S.S.C in Science; GPA: 5.00/5.00

Bogura, Bangladesh

Jan 2009 – Mar 2017

SKILLS

Languages: C/C++, Java, Python, Javascript

Web Development: HTML, CSS, node.js, svelte

Database: Supabase

THESIS

New Results on Unique Neighbourhood Networks

Unique Neighbourhood Networks is a special type of graph class where no two vertices share the same neighbourhood. I have come up with a completely new formula to count the number of Unique Neighbourhood Networks (UNNs) given the number of vertices. I have also used the new formula to enumerate all the UNNs.

AWARDS & ACHIEVEMENTS

University Merit: Perfect GPA in Level-4 term-2 (Mar 2025)

University Merit: Perfect GPA in Level-4 term-1 (Jun 2024)

Dean's List: Selected in the Dean's List in 1st, 2nd and 4th year

Undergraduate Math Olympiad: 8th in undergraduate math olympiad 2025 in Dhaka South region

Regional Math Olympiad: Champion in regional math olympiad 2016, 2017, 2018. 1st runners up in 2019

National Math Olympiad: 2nd runners up in 2019

Regional Physics Olympiad: Selected in regional physics olympiad in 2016, 2018, 2019

Creative Talent Hunt: National level participant in creative talent hunt 2016

SOFTWARE PROJECTS

Conference Management System | [GitHub](#)

- A web-based application to manage conferences where people can submit their papers in a conference. The organizers can assign papers to reviewers. The reviewers can submit their reviews anonymously.
- Technologies Used:** Svelte, node.js, supabase

Feedforward Neural Network from scratch | [GitHub](#)

- Implemented feedforward neural network from scratch using python. I also implemented batch normalization, gradient optimizers, dropout to enhance the performance

Ray Tracing | [GitHub](#)

- Implemented a ray tracing engine to generate realistic images by simulating light interactions with objects in C++. Developed features such as reflection, refraction, and shadows to enhance visual accuracy.

Basic C Compiler | [GitHub](#)

- Developed a C compiler from scratch, beginning with the implementation of a symbol table. Designed and implemented a lexical analyzer for tokenizing input, followed by syntax and semantic analysis using Flex and Bison. Generated assembly code as the final output, which was executed on an emulator to evaluate the correctness of the compilation process.
- **Technologies Used:** C++, Flex, Bison, Assembly

Pacman | [GitHub](#)

- An interactive game in 2D graphics where you have to collect coins without getting caught.

HARDWARE PROJECTS

4-bit ALU Design

- An arithmetic logic unit was built using only basic gates and adders. The adders were modified in such a fashion that it can perform various instructions.

4-bit MIPS Design

- A software simulation of MIPS was implemented in logisim. The hardware implementation was also done to carry out the instructions.

Trespassing Alarm System

- An alarm system that can detect trespassing in multiple ways. ESP32 was used as a microcontroller to design the system.

REFERENCES

Dr. Md. Saidur Rahman

Member, University Grants Commission of Bangladesh

Professor, Department of CSE, BUET

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