

# Fahmid Al Rifat

+(880)-1774550000 | [alrifatfahmid2@gmail.com](mailto:alrifatfahmid2@gmail.com) | <https://fahmidar.github.io/> | [GitHub](#)

## PROFESSIONAL EXPERIENCE

---

**United International University** | *Lecturer*

July 11, 2023 - Present

- As a lecturer of computer science at United International University, I instruct courses such as Data Structure and Algorithm, Engineering Ethics, and Digital Logic Design and contribute to academic development by guiding projects and research. Additionally, I am actively involved in various clubs.

**Security and Software Engineering (S2E) lab** | *Graduate Research Assistant*

February, 2022 - July, 2023

- Working in the intersection of language models, their application, and security and also prompt engineering, code generation, code comment classification, etc.
- Worked on three peer-reviewed research papers.

## EDUCATION

---

**Bangladesh University of Engineering and Technology**

March, 2017 - May, 2023

Bachelor of Science in Computer Science and Engineering

CGPA (Majors): 3.75/4.00

Department of Computer Science and Engineering

CGPA (Last year): 3.91/4.00

Awarded Dean's List Scholarship, 2022-23 session

CGPA (Actual) : 3.65/4.00

**Dhaka Residential Model College**

February, 2015 - February, 2017

Higher Secondary Certificate (HSC)

Graduated with High Honours in Science

GPA: 5.00/5.00

**Rangpur Zilla School**

February, 2013 - February, 2015

Secondary School Certificate (SSC)

Graduated with High Honours in Science

GPA: 5.00/5.00

## RESEARCH PROJECTS

---

**Exploring the Effectiveness of Large Language Models in Generating Unit Tests**

*Cyber-Security, Automated unit test generation, GitHub Copilot*

September, 2022

- Conducted empirical study on GitHub Copilot for automated unit test generation under **Professor Joanna C. S. Santos** at the University of Notre Dame, USA.
- Collaborated in the S2E lab, exploring generative models' capabilities for unit test generation, currently under JSS review. Enhanced skills in data preprocessing, generative models, and global research methodologies and anticipating future contributions to the field of security.
- Explored effectiveness of Codex, GPT-3.5-Turbo, and StarCoder.

**Cover Image Selection for RGB Image Steganography using Genetic Algorithm**

*Cybersecurity, Image steganography Genetic algorithm, Optimal method*

March, 2022

- Pursuing a thesis project under the guidance of **Dr. M. Sohel Rahman**, Professor of Computer Science and Engineering at Bangladesh University of Engineering and Technology (BUET).
- Research aims to develop an optimal method for selecting cover photos for image steganography using a genetic algorithm. enhancing the security of image steganography and creating a secure method for hiding information within images.

## Static analysis in the context of the container domain

*Cybersecurity , Static analysis , Containerized environments , Security vulnerabilities*

March, 2022

- Participating in a collaborative research endeavour with **Dr. Md. Shohrab Hossain** from the Department of Computer Science and Engineering at Bangladesh University of Engineering and Technology, and **Suryadipta Majumdar**, Assistant Professor at the CIISE.
- The research aims to come up with a method for static analysis in containerized environments by looking into different static analysis tools and methods for finding security holes in containerized environments.

## PROFESSIONAL PROJECTS

---

**Icece Buet Website** | *Laravel, CSS, PHP*

May , 2022 | [Website](#)

- Led development and maintenance of a full-stack web application for the International Conference on Electrical and Computer Engineering.
- Acted as primary developer, implementing new modules, integrating a payment gateway, and overseeing ongoing maintenance and updates.

**Raven-claws E-commerce Website Development** | *Wordpress, CSS, PHP*

November, 2020 | [Website](#)

- Developed a full-stack e-commerce web app for Raven-Claws Company, a well-known multi-purpose online shop.
- Enhanced functionality with subscription-based reviews, sales and admin recommendations.

## ACADEMIC PROJECTS

---

**Dormitory management system** | *Node.js ,React , MongoDB*

May, 2022 | [GitHub](#)

A Node.js-based web application for efficient dormitory management, encompassing dining, room allocation, automation and various features benefiting students, provost, service personnel, and dining managers.

**Hall management system** | *Django , MongoDB*

January, 2022 | [GitHub](#)

A web application for managing functionalities of a dormitory. This application helps student, provost, staffs to complete and keep track of dormitory related process easily under Dr. Md. Mostofa Akbar, CSE, BUET.

**Defending Black Hole Attack** | *Network Simulator 3(NS3) , C , Python , GNU-Plot*

January, 2022 | [GitHub](#)

Improved AODV protocol in Network Simulator 3 to mitigate the impact of black hole attacks, supervised by Dr. Md. Shohrab Hossain.

**Smart Cart** | *C, Arduino, ATmega 32, Atmel Studio, Proteus 832*

November, 2021 | [YouTube](#)

Our team developed a functional smart cart prototype with automatic collision detection and handling capability. Implemented through software simulation and small-scale hardware using AT-Mega32 and Arduino, it has potential practical applications.

**Travel Agency BD** | *Django, Oracle SQL, HTML, CSS*

November, 2021 | [YouTube](#)

Developed a web application for Travel Agency BD, providing tourism services with accommodation, travel packages and database development, under the guidance of Dr. Muhammad Abdullah Adnan, CSE, BUET.

**Mili Militia Pro** | *Java , JavaFx , Socket programming*

November, 2020 | [GitHub](#)

Developed a server-client multiplayer adventure game under the supervision of Md. Tarikul Islam Papon, enabling users to create and join battle rooms with a variety of weapons.

**NFS Kill Trone** | *C++, iGraphics Custom Library*

November, 2018 | [YouTube](#)

Under the supervision of Md. Shohrab Hossain, developed a graphical adventure game was developed utilizing a custom game engine.

## OTHERS PROJECTS

- **Digit Recognition with CNN** | *Python , C++* January , 2023 | [GitHub](#)
- **Code Commets Classifications NLP** | *Bert, Fast Text, Weka* January, 2023 | [GitHub](#)
- **Expectation Maximization Model** | *Python , C++* January, 2023 | [GitHub](#)
- **Hamiltonian Cycle detection and Tree Decomposition** | *Python , C++* January, 2023 | [GitHub](#)
- **Rastering, Ray Tracing and Antialiasing Pipeline** | *OpenGL ,Python , C++* May, 2022 | [GitHub](#)
- **Cryptography Hybrid Model** | *Python , Socket programming* May, 2022 | [GitHub](#)
- **Morris Worm** | *Python , C++* May , 2022 — | [GitHub](#)
- **Memory Managing, Scheduling feature in Xv6** | *MIT Xv6 code-base* January, 2022 | [GitHub](#)
- **Mancala, Casper-Finder-HMM and Puzzle AI** | *C++ , Java* January, 2022 | [GitHub](#)
- **Information-System-Design** | *Draw.io , Power-Point* January, 2022 | [GitHub](#)
- **Full Working Compiler** | *Flex , Bison , EMU 8086* September, 2021 | [GitHub](#)
- **4 bit MIPS pipeline** | *Proteus 832, Logisim* September, 2021 | [GitHub](#)
- **File Transfer TCP** | *Java , Socket programming* January, 2021 | [GitHub](#)
- **Data Structure And Algorithm** | *C,C++* January, 2021 | [GitHub](#)
- **Numerical Methods solving tool** | *python, numpy, pandas* April, 2019 | [GitHub](#)
- **Word-Count-JavaFX** | *Java, JavaFX* January, 2019 | [GitHub](#)
- **Text-Sliding-iGraphics** | *C++ , iGraphics Custom Library* November, 2018 | [GitHub](#)
- **Analog-Clock-iGraphics** | *C++ , iGraphics Custom Library* November, 2018 | [GitHub](#)

## HIGHLIGHTED ACADEMIC COURSES

---

- **CSE-409** Computer Graphics
- **CSE-405** Computer Security
- **CSE-423** Fault-Tolerant Systems
- **CSE-471** Machine Learning
- **CSE-215** High-performance Performance Database Systems

## ACHIEVEMENTS

---

### Achievements in Capture the Flag (CTF) Competitions

- Placed Top 10 in the National Cyber Drill 2023
- Placed Final Round in the Leetcon CTF
- Placed Final Round in the SUST CTF

**Mathematical Olympiad** -Position: 3<sup>rd</sup> - Regional

**Victory and Independence Day Art And Literature Competition Award** - Position: Top 1

## SCHOLARSHIPS

---

### **Dean's List Scholarship, BUET, 2022-23**

Students obtaining an average GPA of 3.75 or above in two consecutive terms.

### **Technical Scholarship, BUET, 2017-22**

Complimentary scholarship for regular engineering students.

### **Government Scholarship, BANGLADESH, 2015-17**

Awarded For Outstanding Performance in Secondary School Certificate Examination.

## EXTRA-CURRICULAR ACTIVITIES

---

### **Cyber-Security Club - Vice President**

- Planning and organizing workshops and Capture the Flag (CTF) competitions .
- Led a team of members to participate in Cyber-security events, providing mentorship and guidance
- Collaborated with professors and industry professionals to provide resources and opportunities.

**Attended green brick project organize by UNDP Bangladesh**

**ESPL Mobile Legend tournament runners-up (2020-21)**

## TECHNICAL SKILLS

---

**Languages:** Java, C, C++, Python, Matlab, JavaFX, Gnu-Plot, Bash, Assembly

**Database:** Oracle, MySQL, SQLite, MongoDB

**OS:** Windows, Linux (Kali, Ubuntu, Seed-Lab)

**Version Control:** Git (GitHub)

**Frameworks:** JavaFX, Django, Node.js, React

**Web Technology:** HTML, CSS, PHP, Bootstrap, WordPress, JSON, XML

**Graphics Technology:** AutoCAD, Photoshop, Illustrator, PowerPoint, Premier Pro, Kine-Master

**Compiler IDE:** Flex, Bison, EMO 8086

**Micro-Controller:** Arduino, ATmega 32, Atmel Studio, Proteus 832

**Technical Writing:** L<sup>A</sup>T<sub>E</sub>X, Beamer, Overleaf

**Other:** Networking Simulator 3 (NS3), iGraphics, Cisco-Packet-Tracer, PyTorch, OpenGL

## CERTIFICATES

---

### **Informatics Olympiad**

**Problem Solving** - Codeforces, Hackerrank, Choco-solver (CSP)

**Animation, Digital Marketing** - 10 min school

**Advance Photography, Graphics Design** - Ghuri Learning

## REFERENCES

---

### **Dr. M. Sohel Rahman**

Professor, Department of Computer Science and Engineering

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.

**Email:** sohel.kcl@gmail.com

**Phone:** +8801552389480

**Relation:** Undergrad Thesis Supervisor

### **Dr. Joanna Cecilia da Silva Santos**

Assistant Professor, Department of Computer Science and Engineering

University of Notre Dame, IN, the United States of America.

**Email:** joannacss@nd.edu

**Relation:** Research Advisor

## PERSONAL DETAILS

---

**Fahmid Al Rifat**

Department of Computer Science and Engineering

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.

**Email:** alrifatfahmid2@gmail.com

**Phone:** +8801774550000

**Father's Name:** Farid Ahmed

Secretary, Ministry of Primary and Mass Education,

Government of the People's Republic of Bangladesh

**Email:** faridahmed61@yahoo.com

**Phone:** +8801711571538

**Mother's Name:** Farhana Yasmin

BSc in Civil Engineering, MSS

**Phone:** +8801726234061

**Brother's Name:** Tahmid Al Sifat

Adamjee Cantonment College , Dhaka

**Present Address:** 9/18 Iqbal Road, Mohammadpur , Dhaka .

**Permanent Address:** Vill: Char Ahmedpur Upz: Monohardi , Dt: Narsingdi