

Nafis Karim

Lecturer

Department of Computer Science and Engineering (CSE)

BRAC University

Dhaka, Bangladesh

Phone: +880-1950030037 • Email: nafiskarim1999@gmail.com

GitHub: NafisMahi • LinkedIn: nafis-karim-1805027

EDUCATION

Bangladesh University of Engineering and Technology (BUET)

Dhaka, Bangladesh

BSc. in Computer Science and Engineering

May 2019 – June 2024

CGPA: 3.81/4.00 (3.97 in final year, 3.93 in first two years)

Notre Dame College (NDC)

Dhaka, Bangladesh

Higher Secondary School

Jul 2016 – Oct 2018

GPA: 5.00/5.00

St.Joseph Higher Secondary School and College(SJS)

Dhaka, Bangladesh

Secondary School

Jan 2008 – May 2016

GPA: 5.00/5.00

RESEARCH INTEREST

Cybersecurity, Machine learning, Natural Language Processing

RESEARCH EXPERIENCE

- **Enhancing Cyber Threat Intelligence with Transformer-Based Models: A Comparative Analysis with Few-Shot Learning (Undergraduate Thesis)** May 2023- July 2024

Supervisor: Dr.Md Shohrab Hossain, Professor, CSE, BUET

- Traditional firewalls containing default threat detection schemes are no longer capable of detecting new threats,hence the emergence of cyberthreat intelligence.This work focuses on the use of LLMs(specifically BERT,RoBERTa) for the detection of the common and significant cyberthreat entities, based on knowledge of these entities and events in the cyber-security domain. We establish the fact that LLMs are superior to the traditional NLP techniques when it comes to Named Entity Recognition(NER) and also provide a comparative analysis with few-shot learning tested on OpenAi ChatGPT 3.5, 4.0 and Google's Gemini.

- **Extracting MITRE techniques from unstructured cyber threat reports using Large Language Models** Ongoing

Supervisor: Dr.Md Shohrab Hossain, Professor, CSE, BUET

- The approach begins with the automated collection of these reports from top cybersecurity platforms such as Threat- post, Comodo News, and Securelist, using advanced web scraping techniques facilitated by Selenium. Our goal is to establish the fact that LLMs can markedly improve the extraction and categorization of these techniques, offering CTI practitioners a more efficient and precise tool for threat analysis.

- **Investigating Signal Processing and Memory Potential in Detached Inert Brains**

Supervisor: Dr. A.B.M Alim Al Islam, Professor, CSE, BUET

Mar 2021 - Present

- - Co-authored a manuscript for submission on processing signal in inert goat brains with response to external stimuli
- Performed microcontroller interfacing, visualization, and regression analysis

RELEVANT COURSEWORKS

Computer Security, Machine Learning, Bioinformatics Algorithms, Simulation and Modeling, Computer Graphics, Artificial Intelligence, Operating Systems, Computer Networks, Data Structures and Algorithms, Database Systems, Software Engineering, Information System Design, Numerical Methods, Discrete Mathematics, Object Oriented Programming, Linear Algebra, Probability and Statistics

ACADEMIC PROJECTS

- **Connect Scholars(Database Project)** *Dec 2021 - Feb 2022*

Project link : <https://ConnectScholars>

- A journal management tool inspired by Google Scholars
- **Tools and Technology :** Django, Oracle, Python, Bootstrap, HTML5, CSS3

- **Foodfly(Software Development Project)** *June 2023 - Aug 2023*

Project link : <https://FoodFly>

- An online food delivery platform inspired by foodpanda
- **Tools and Technology :** React, MongoDB, Mysql, Nodejs

- **Non-invasive Mechanical Ventilator(Microcontroller Project)** *June 2022 - Aug 2022*

Project link : <https://Non-Invasive-Mechanical-Ventilator>

- **Tools and Technology :** C++

- **Nmap - Computer Security Project** *June 2023 - Sep 2023*

Project link : <https://Computer-Security-Project>

- Various features of the network scanning tool, Nmap are explored and studied as part of the CSE 406- Computer Security Sessional project.
- **Tools and Technology :** Nmap

- **Neural style transfer using Convolutional neural networks(CNN)** *Nov 2023 - Feb 2024*

Project link : <https://NeuralStyleTransfer>

- Artistic style transfer from one given style image to a given content image, Inspired by the paper from Gatys et al. Image style transfer using Convolutional neural networks
- **Tools and Technology :** Python, PyTorch

- **sub-C Compiler** *June 2022 - Sep 2022*

Project link : <https://Compiler>

- A C compiler that performs some lexical, syntax and semantic error checking with the help of Flex (lexer) and Bison (YACC parser) and then converts the C code to 8086 assembly language code.
- Generates x86 assembly for a correct source program.
- **Tools and Technology :** yacc, flex, bison

– **Ray Tracing Project**

May 2023 - Aug 2023

Project link : <https://RayTracing>

- In the project, we generated realistic images for a few geometric shapes using appropriate ray tracing techniques
- **Tools and Technology :** C++

– **Operating Systems Sessional Project**

Dec 2022 - Feb 2022

Project link : <https://OperatingSystems>

- In the project, various functionalities of the xv6 Operating system are implemented.
- **Tools and Technology :** C++

SKILLS

- **Programming :** Python, PyTorch, Tensorflow, C/C++, Java, JavaScript, SQL, Bash, HTML, CSS, Intel 8086 Assembly Language
- **Tools :** Git, VS Code, Latex, Logisim, Cisco Packet Tracer
- **OS :** Linux, Windows
- **Designing :** Figma
- **Languages :** English(Professional), Bengali(Native)
- **Performing Arts :** Music, Instrumentalist(Guitars)

ACHIEVEMENTS

- Got Dean's List Award in 2 out of 3 completed levels so far(Level 1 - CGPA 3.86, Level 2-3.97, Level 4(upto 4-1) - 3.94)
- Got University Stipend in 4 out of 7 semesters so far
- Achieved talentpool scholarship in both SSC AND HSC examinations
SSC : 12th position in Dhaka Board
HSC : 33rd position in Dhaka Board
- **Student Poster Champion :** 8th International Conference on Networking, Systems and Security
- **Student Poster Champion :** 10th International Conference on Networking, Systems and Security
- **ISCEA Ptak Prize Scholarship :** International Supply Chain Case Competition Winner
- **1st Bangladesh Junior Science Olympiad (BdJSO) :** Winner
- **8th DRMC National Science Festival :** Winner(Mathematics-Secondary Group)
- **9th DRMC National Science Festival :** Winner(Mathematics, Physics-Secondary Group)

REFERENCES

1. Prof. Dr. Md. Shohrab Hossain
 - Position: Professor of CSE
 - Institution: Bangladesh University of Engineering and Technology
 - Email: mshohrabhossain@cse.buet.ac.bd
 - Phone: 01819250196

2. Prof. A.B.M Alim Al Islam

- Position: Professor of CSE
- Institution: Bangladesh University of Engineering and Technology
- Email: alim_razi@cse.buet.ac.bd
- Phone: 01817533953

3. Prof. Dr. Md. Saidur Rahman

- Position: Professor of CSE
- Institution: Bangladesh University of Engineering and Technology
- Email: saidurrahman@cse.buet.ac.bd
- Phone: 01819482136

4. Md. Ashraful Islam

- Position: Lecturer of CSE
- Institution: Bangladesh University of Engineering and Technology
- Email: mdashraful@teacher.cse.buet.ac.bd
- Phone: 01765229009