

MOHAMMAD SHAMIM AHSAN

+880 1765 102 940 | shamim19119@gmail.com

[LinkedIn](#) | [GitHub](#) | [MyWebsite](#)

ABOUT ME

Want to explore and learn new things. Passionate about working on Computer Networks & Security. Always enjoy working with hard-working & enthusiastic people and have a strong commitment to research.

EDUCATION

Bangladesh University of Engineering & Technology	April, 2018 - May, 2023
Bachelor of Computer Science and Engineering	
Department of Computer Science and Engineering	CGPA: 3.64/4.00
St. Joseph Higher Secondary School, Dhaka	July, 2015 – July, 2017
Higher Secondary Certificate (HSC)	
Division of Science	GPA: 5.00/5.00 (90.3%)
Bangladesh Navy School and College, Chittagong	January, 2013 - April, 2015
Secondary School Certificate (SSC)	
Division of Science	GPA: 5.00/5.00

RESEARCH EXPERIENCE

Bangladesh University of Engineering & Technology	May, 2022 - March 2023
Title: Detecting User Activity from Encrypted IoT Traffic	
<i>Undergraduate Research Assistant</i>	
Supervisor: Dr. Md. Shohrab Hossain (BUET)	Collaborator: Dr. Anupam Das (NC State University, USA)
<ul style="list-style-type: none">Implemented a methodology called “<i>packet-based signature generation & detection system</i>” for automatically extracting packet-level signatures from their network traffic and detecting events of smart home devices.Used Java at a large scale as the project codebase was in Java.Needed to write Python, Shell-script and C++ programmes.Monitored network traffic using Wireshark.Used 4 datasets: PINGPONG, UNSW, YourThings, Mon(IoT)r.Outperformed the average recall and precision of the existing system.Worked as first author; contributed <i>significantly</i> in writings.	
Bangladesh University of Engineering & Technology	January, 2023 - April 2023
Title: Randomization in Double Coverage Algorithm on a Line for Online k -Server problem	
<i>Undergraduate Research Assistant</i>	
Supervisor: Dr. Md. Saidur Rahman (BUET)	Collaborator: Dr. Abu Reyan Ahmed (Colgate University, USA)
<ul style="list-style-type: none">Studied exact algorithms, approximate algorithms, randomized algorithms, online algorithms, heuristics and metaheuristics, and low memory algorithms.Worked on the implementation of randomization techniques to find k-competitiveness on the well-known Double Coverage Line algorithm.Used the Potential Function Method and Interleaving Move Style for competitive analysis of the algorithms.Studied some algorithms in different metric spaces.Worked as first author; the core idea, analysis & proof was mine.	

***This paper is **submitted** in the International Symposium on Mathematical Foundations of Computer Science (**MFCS**) 2023

ACADEMIC PROJECTS

Image Caption Generator using CNN and LSTM	February, 2023
Python, Flickr dataset	Github
Implemented an image caption generation architecture with a team of 2 people where I rolled as a leader . In this project,	

- Recognized the context of an image and annotated it with relevant captions using **deep learning** and **computer vision**.
- **CNN** was used to generate a vectorized representation of an image. Then, **LSTM** used the information from CNN to help generate a caption of the image.
- Implemented **Greedy** and **Beam search** strategies and evaluated our architecture using **BLEU** and **METEOR** metrics.

Spacey: Online Space Rental Platform

August, 2022

MongoDB, Express.js, Rest.js, Node.js, CSS

[Github](#)

Created an online platform with **a team of 3 people** where property owners can rent their places or free spaces which helps travelers or business companies to find a home/storage to use. Also designed **BPMN, Mock UI** (using **Figma**), **Class, ER, Interaction**, and **State diagrams**. Since this kind of platform has not been established significantly in the under-developing countries, like Bangladesh, we aimed for making this easier and popular to people.

TCP CERL: congestion control enhancement over wireless networks

February, 2022

Network Simulator 3(NS3), C, Python

In this project,

- Studied the **TCP-CERL** technique for enhancement of congestion control which is the sender-side modification of **TCP-Reno**.
- Implemented this technique in NS3. The implementation that the authors of the paper did was in NS2.
- Tested on two wireless networks: **Wi-Fi** and **LR-WPAN**. Then, calculated various **performance metrics** such as throughput, end-to-end delay time, delivery-ratio and loss-ratio.

Super Mario (Microcontroller project)

July, 2021

C, Atmel Studio, Proteus 8

This is a Proteus **simulation-based** Microcontroller project. Developed a game similar to the super mario using **ATmega32, LED green Dot Matrix** and **LCD display**.

MediSheba

October, 2020

Django, HTML, CSS, Oracle SQL

[Github](#)

Developed an online medical system with **a team of 3 people** where doctor, patient and blood-bank are the main modules. Django is used here as a framework in Back-end and HTML, CSS are used here as Front-end. The (oracle-based) database of the project was **designed extensively following the relevant ER diagrams**.

MAJOR ASSIGNMENTS

- **SEED-LABS Attacks** July, 2022
Implemented some SEED-LABS attacks such as **Buffer overflow, CSRF, XSS, SQL injection** and **Morris worm**.
- **Bangla Handwritten Character Recognition using CNN** February, 2023
Designed own CNN model from scratch using python and tested on the **NumtaDB** dataset.

PRESENTATIONS

- **Conference** presentation in IEEE Computer Society Bangladesh Chapter Summer Symposium 2023 (**IEEE CS BDC SS**), **Topic:** Randomization in Double Coverage Algorithm on a Line for Online k -Server problem.

SKILLS

Languages	C, C++, Java, Python, Shell script, JavaScript, SQL
Frameworks	Django, React.js, Express, Node.js
Databases	Oracle, MongoDB
Web Technologies	HTML, CSS, Bootstrap
Operating Systems	Windows, Ubuntu, WSL
Technical Writing	LaTeX, Beamer, Overleaf
Others	Git (GitHub), NS3, XV6, Docker, OpenGL, MS Word, MS Excel, MS PowerPoint

ACHIEVEMENTS

Dean’s List Award, Bangladesh University of Engineering & Technology For outstanding academic performance in 4 th year (with average GPA: 3.97/4.00)	2022- 2023
Government Scholarship, Bangladesh For outstanding performance in Higher Secondary Certificate Examination Region position: 83	2017- 2022
Government Scholarship, Bangladesh For outstanding performance in Secondary School Certificate Examination Region position: 135	2015- 2017
College Final Examination Merit position: 1 (in whole college)	2016

HIGHLIGHTED ACADEMIC COURSES

Undergraduate courses, Bangladesh University of Engineering and Technology	
● CSE-321	Computer Networks
● CSE-405	Computer Security
● CSE-471	Machine Learning
● CSE-461	Algorithm Engineering
● CSE-423	Fault Tolerant Systems
● CSE-453	High Performance Database Systems

LANGUAGES

English	Bangla	Hindi
Professional Working Proficiency	Native	Listening & Speaking