Shafayat Hossain **Majumder**

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https://mrmajumder.github.io | LinkedIn | GitHub

EDUCATION

Bangladesh University of Engineering & Technology
Bachelor of Computer Science and Engineering
Department of Computer Science and Engineering

April, 2018 - Present

Level-4, Term-1, **CGPA**: 3.78/4.00

Dhaka Residential Model College
Higher Secondary Certificate (HSC)
Division of Science

July, 2015 – July, 2017

GPA: 5.00/5.00 (93%)

PUBLICATIONS

22nd **IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM 2022)**

An Empirical Study of Code Smells in Transformer-based Code Generation Techniques, Mohammed Latif Siddiq, **Shafayat Hossain Majumder**, Maisha Rahman Mim, Sourov Jajodia, and Joanna C. S. Santos

RESEARCH EXPERIENCE

University of Notre Dame, Indiana, USA
Detection of Code Smells in Transformer-based Code Generation Models
Voluntary Student Research Assistant

March, 2022

- Volunteered for **S²E lab** on a research work for detecting **code smells in transformer-based code generation datasets**, and to determine how it impacts the code generation model as a whole.
- Analyzed, parsed & categorized code smells for nearly **0.7 million files** using tools like **pylint & bandit**.
- **Wrote flex & python scripts** to detect & categorize code smells.
- **Published a paper** on the findings in **SCAM 2022 research track**.

Concordia University, Montreal, Canada
Cloud Security
Voluntary Student Research Assistant (Ongoing)

May, 2022

- Collaboration project on **security & vulnerability of cloud technologies**, specifically Docker.
- Performed **dissection of docker images** to analyze its contents.
- Analyzing & testing various vulnerability detection methods, and performing literature review.

Bangladesh University of Engineering & Technology, Bangladesh
Security & Privacy of Blockchains
Student Research Assistant (Ongoing)

May, 2022

- Undergraduate research on **security & privacy of blockchains**, especially healthcare blockchains.
- Studied various blockchain networks extensively, including various **consensus protocols**, **fault tolerance mechanisms, connectivity protocols, network operation, anonymity, authenticity** etc.
- **Implementing test blockchain network** for understanding the network's various operations.

ACADEMIC PROJECTS

August, 2022

Contest.io: Online Contests Hosting Platform
Node.js, Express.js, React.js, MongoDB

Created an *online voting and contest hosting solution* that aims to make contest hosting and vote management easier for **various types of contests**; e.g., Photo, video, polls etc. Also includes various **privacy and security features** such as **anonymity** of voters, **selecting & blocking** participants, **contest types** according to varying

privacy features. Performed extensive **requirement analysis, system design phase** prior to building the said software.

Better Throughput Performance Using Adaptive Fragmentation in IEEE 802.11 MAC Layer　　　　　　　　　　　　　　　　**February, 2022**
Network Simulator 3(NS3), C, Python, GNUPlot

Compared "no-fragmentation" to an "adaptive fragmentation" approach of MAC Layer frames (MPDUs) for measuring **Quality of Service (QoS)** improvements in a noisy **Wireless LAN** network.

Toll Management System (with Unified Payment Integration)　　　　**February, 2022**
Python, Django REST, React.js, Oracle SQL　　　　　　　　　　　　　　　　GitHub

Designed a toll collection & management system **with a team of 6 people**. Went through an extensive **requirement analysis, system design & documentation phase** for developing the said software. Generated in the process: **BPMN, Mock UI, Class & ER, Interaction & State diagrams.**

Smart Cart　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**July, 2021**
C, AtMega32, Atmel Studio, Proteus 8, Arduino　　　　　　　　　　　Demo Video

Prototyped an autonomous cart that **follows a point-of-interest** by **auto collision avoidance** with a **team of 4 people**. Designed a fully functional software simulation and later, built a working hardware prototype.

Hotel Management System　　　　　　　　　　　　　　　　　　**December, 2020**
Django, Bootstrap, Python, Oracle SQL　　　　　　　　　　　GitHub, Demo Video

Developed a prototype hotel management system on the web with full functionality with a **team of 2 people**. The database of the project was **designed extensively following the relevant ER diagrams**.

Dynamite District: Java-Based Multiplayer Game　　　　　　　　　**January, 2019**
Java, JavaFX　　　　　　　　　　　　　　　　　　　　　　　GitHub, Demo Video

Developed a multiplayer shooting game playable over a WLAN network. **Built using OOP principles & server-client networking**. Supports collision & game physics inside a **2D map**.

Kill Thorne: A C-Based Shooting Game　　　　　　　　　　　　　　　　**July, 2018**
C, iGraphics Custom Library　　　　　　　　　　　　　　　　　GitHub, Demo Video

Developed a 2D point-and-shoot game with **multiple levels of difficulty**. Built using a **custom graphics library** written in C. Supports **collision handling & local ranking**.

SKILLS

Languages	Java, Python, C, C++, SQL, Shell, JavaScript
Databases	Oracle, MySQL, MongoDB, Firebase
Frameworks	Django, JavaFX, React.js, Express, Node.js, WordPress
Web Technologies	HTML, CSS, SASS, BootStrap, JSON
Cloud Technologies	Docker, Kubernetes, Google Apps Script
Technical Writing	LaTeX, Beamer, Overleaf
Problem Solving	CodeForces (highest ranking: 1587), SPOJ
Testing	JUnit, GDB
Operating Systems	Windows, Flavors of Linux (Ubuntu, Linux Mint, Kali), ChromeOS
Others	Git (GitHub), NS3, XV6, GNUPlot, OpenGL

ACHIEVEMENTS

University Cyber Drill 2022
National CTF Competition, Uni: 3rd, National: 21st

Dean's Award, BUET (2020, 2021)
For outstanding academic performance

Technical Scholarship (2017-2023)
Scholarship for outstanding engineering students

Class Representative (L2T2 & L3T1)
Served for **two consecutive terms**

Government Scholarship, Bangladesh (2017-2023)
For outstanding performance in Higher School
Certificate Examination, **Region Position**: 22

Government Scholarship, Bangladesh (2015-2017)
For outstanding performance in Secondary School
Certificate Examination, **Region Position**: 167

BUET Architecture Admission Test (2017)
Acquired **merit position** 2 in the whole country

Creative Talent Hunt 2016 (ICT & Math)
Qualified for National Selections

College Final Examination (2016)
Straight As, **merit position** 2 in whole class

HIGHLIGHTED ACADEMIC COURSES

Undergraduate Courses, Bangladesh University of Engineering and Technology

- CSE-405   Computer Security
- CSE-423   Fault Tolerance Systems
- CSE-453   High Performance Database Systems

LANGUAGES

English	French	Bangla	Hindi	Arabic
Fluent	DELF A1	Native	Listening, Speaking	Reading, Writing

PERSONAL INFORMATION

Name	Shafayat Hossain Majumder
Bengali Name	শাফায়াত হোসেন মজুমদার
Date of Birth	26th December, 1998
Nationality	Bangladeshi
Present Address	Shyamoli, Dhaka, Bangladesh