

Md. Musharaf Hossain

Location: Dhaka, Bangladesh

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Research Interests: AI in Software Engineering, Computer Security

EDUCATION

Bangladesh University of Engineering and Technology (BUET)

B.Sc. in Computer Science and Engineering (CSE); CGPA: 3.80/4.00

Dhaka, Bangladesh

April 2018 – May 2023

Notable Courses:

Machine Learning, Computer Security, Computer Networks, Introduction to Bioinformatics, Computer Architecture, Microprocessors, Microcontrollers & Embedded Systems, Compiler Design, Operating Systems, Theory of Computation, Performance Database Systems, Data Structures and Algorithms

RESEARCH EXPERIENCE

Role-Based LLM Agents for Automated Software Engineering

This research at the Qatar Computing Research Institute (QCRI) explores large language model (LLM)-driven autonomous agents for automated software debugging and repair. The project evaluates frameworks such as OpenHands and Agentless on the SWE-bench benchmark. A novel multi-phase agentic pipeline with reproduction, feedback, and role-switching mechanisms achieved a 67.5% resolution rate on 200 real-world issues using the Qwen3-Coder model. The study contributes toward building scalable and reproducible agent-based software engineering workflows.

Effect of Smile on Facial Landmark Based Face Recognition

This research is about investigating the impact of smiles on facial landmark-based face recognition accuracy, particularly using traditional machine learning techniques. The study proposes some novel smile-based features to recognize smiling faces. It also demonstrates the performance of face recognition system in recognition of smiling faces using various machine learning classifiers.

Publication:

S. Dey, **M. M. Hossain**, A. M. Hasan, A. Rahman, T. Tarin, "Effect of Smile on Facial Landmark Based Face Recognition," *Proceedings of the 2023 IEEE Systems, Man, and Cybernetics (SMC)*, Oahu, Hawaii, October 2023. DOI: [10.1109/SMC53992.2023.10394510](https://doi.org/10.1109/SMC53992.2023.10394510).

TroBot: Trojan Attack Using Chatbot

This controlled cybersecurity study examines installer-based social engineering threats targeting AI chatbot users. Implemented a Nim-compiled reverse-shell payload within a functional chatbot installer and evaluated its stealth in a virtualized Windows sandbox. Results showed successful evasion of Windows Defender and stable remote persistence via Task Scheduler. The research highlights vulnerabilities in trusted installation processes and provides insights for mitigating chatbot-themed malware risks.

WORK EXPERIENCE

Software Engineer

ReliSource Technologies Ltd.

April 2024 – Present

Dhaka, Bangladesh

Programmer

Automated ICT System of Grameen Bank

June 2023 – March 2024

Dhaka, Bangladesh

ACADEMIC PROJECTS

EasyWork: A Software Project Management Tool

ReactJS, Django

This project aims to create a comprehensive platform for managing projects, tasks, sub-tasks, and milestones. It also features budget estimation by several popular methods including a machine learning approach. Costs and expenses management are also included.

Handwritten Text Recognition

Residual Network

This project focuses on handwritten text recognition, which involves converting handwritten text images into machine-readable text. The objective is to develop a deep learning model using TensorFlow that can accurately recognize and transcribe handwritten text. IAM Handwriting Database is used as Dataset.

An Effective Approach to the Retransmission Ambiguity Problem

NS3

A study to address the retransmission ambiguity problem in network simulations using NS3 and an approach to overcome the problem by modifying the default RTT and RTO estimation mechanisms.

EasyShop: An Online Shopping Platform

VueJS, NodeJS

This is an e-commerce platform designed to make online shopping easier, faster and more convenient. It offers different user interfaces for different kinds of users like customers, administrators, delivery partners etc.

TECHNICAL SKILLS

Languages	: C/C++, C#, Java, Python, JavaScript, TypeScript, HTML/CSS, Assembly, Latex
Frameworks	: .NET, Entity Framework, ReactJS, VueJS, NodeJS, Django, Bootstrap, JQuery
Cloud & DevOps	: Azure DevOps, Azure Service Bus, Event Bus, Azure Key Vault, Application Insights, Blob Storage
Databases	: Azure SQL, MS SQL Server, Cosmos DB, Oracle Database, MySQL
Libraries	: Sklearn, Pandas, Matplotlib
Miscellaneous	: Git, Docker, Shell Scripting, IIS Server, SSRS, REST APIs, Microsoft Office

HONORS & AWARDS

Dean's List Scholarship (2018, 2019): Scholarship granted to undergraduate students each year for their academic excellence.

University Merit & University Stipend: Scholarship granted to undergraduate students each semester for their academic excellence.

Dhaka Board Talent Pool Scholarship (JSC, SSC): Scholarships granted for outstanding performance in the respective board exams.