

Md Shahedul Haque

MS in CS @ Virginia Tech | Graduating in Fall 2025

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EDUCATION

Virginia Tech

MS student in Computer Science, current CGPA 3.88/4.00

Arlington, VA, USA

Aug. 2022 – Dec. 2025

Bangladesh University of Engineering and Technology (BUET)

BSc in Computer Science and Engineering, CGPA 3.29/4.00

Dhaka, Bangladesh

Feb. 2016 – Feb. 2021

EXPERIENCE

Graduate Research Assistant

Virginia Tech

Aug. 2022 – Dec. 2025

Arlington, VA, USA

- Explore security and privacy issues of machine learning models
- Key skills: Intrusion Detection System (IDS), Generative Adversarial Network (GAN), Federated Learning (FL), Reinforcement Learning (RL), Split Learning, Feature Engineering, Model Explainability, PyTorch, TensorFlow, Scikit-Learn, Python, R.

Research Trainee

Children's National Medical Center

May 2024 – Aug. 2024

Washington DC, USA

- Find out and exploit vulnerability of Machine Learning models deployed in medical fields
- Launch attack on privacy-preserving machine learning models to harm the fairness and performance
- Key skills: Federated Learning (FL), Fairness in AI, Data heterogeneity, Model and hyperparameter fine-tuning, NVFlare, MONAI, nnUNet, SciPy.

Junior Software Developer

Loosely Coupled Technologies Sdn Bhd

May 2021 – Aug. 2021

Dhaka, Bangladesh

- Design front end with AngularJS and implement the server side of web applications using Node.js
- Write web services in MSSQL through stored procedures
- Perform on (client's) demand basis integration and development using Visual Studio
- Communicate with the Malaysian business team to reflect the aspired changes in development
- Key skills: Javascript, Relational Database Management System (RDBMS), Software Development Life Cycle (SDLC), Version Controlling.

CONFERENCE PUBLICATIONS

Shanghao Shi, Md Shahedul Haque, Abhijeet Parida, Marius George Linguraru, Y. Thomas Hou, Syed Muhammad Anwar, Wenjing Lou: IEEE/ACM Conference on Connected Health: Applications, Systems, and Engineering Technologies (**CHASE**), 2025

Tahmid Hussain, Tashin Ahmed, Md Shahedul Haque, Mohammad Rifat Ahmmad Rashid: Collective Wisdom in Language Models: Harnessing LLM-Swarm for Agile Project Management: Submitted to Open-World Agents (**OWA**, **NeurIPS**), 2024

Sidratul Muntaha Khan, Mehreen Tabassum Maliha, Md Shahedul Haque, Ashikur Rahman: WiFi Received Signal Strength (RSS) based Automated Attendance System for Educational Institutions: Submitted to International Conference on Networking, Systems, and Security (**NSysS**), 2024

JOURNAL PUBLICATIONS

Md. Shahedul Haque Shawon, Sagor Biswas, Nirob Arefin, Tanmoy Sarkar Pias, Ashikur Rahman: On Age Prediction from Facial Images in Presence of Facial Expressions: International Journal of Applied Pattern Recognition (**IJAPR**), 2021.

PRESENTATION

15th Research, Education & Innovation Week 2025

Washington DC, US

Student poster on "Harvesting Private Medical Records in FL Systems with Crafted Models"

Apr. 2025

Exposed the vulnerability of federated learning models in the medical domain

6th International Conference on Networking, Systems and Security (NSysS)

BUET, Dhaka

Student poster on "Effect of Facial Expressions on Age and Gender Detection"

Dec. 2019

Addressed the issue of deviation while predicting age from facial image with expression

SELECTED PROJECTS

Environmental Pollution Prediction & Visualization | *SQLite, TensorFlow, flask*

Jan. 2023 – May 2023

- Combined DBMS and ML to predict and visualize air pollution
- Conducted data mining and data cleaning to handle missing data and unwanted outliers

Crime Prediction Using ML Methods | *TensorFlow, Keras, scikit-learn, geopandas*

Aug. 2022 – Dec 2022

- Handled tabular data and made prediction using default libraries and a NN to compare the performance
- Conducted extensive data preprocessing techniques and EDA to help the models learn better

Online Product Locator (Web) Application | *Django, MySQL, HTML/CSS, Git*

Nov. 2018 – July 2019

- Developed a full-stack web application with Django serving as toolkit for building Web APIs with HTML/CSS as the frontend
- Followed Software Development Life Cycle(SDLC) in this project

Computer Security Attack Simulation | *Seed Ubuntu, CSRF Lab Site, XSS Lab Site*

Apr. 2019 – Aug. 2019

- Exploited various vulnerabilities by CSRF, stored XSS attack similar to Samy Worm that hit Myspace in 2005
- Hands on experience with Buffer Overflow Attack

Pattern Recognition Algorithms Implementation | *Python, pandas, NumPy, Matplotlib*

June 2020 – Nov. 2020

- Implemented 2-class classifiers using Basic perceptron algorithm, Reward and punishment (RP) algorithm and Pocket algorithm as well as multi layer neural network
- Exhaustive search, 2D logarithmic search and Hierarchical search techniques are used for Template Matching
- Performed DBScan and k means algorithms to cluster data without using library function

Obstacle Avoiding Automated Car | *C, IoT, Proteus, AVRDUDE*

Mar. 2018 – Aug. 2018

- Designed PCB without using any external library
- Micro controller & Microprocessor based project to sensor obstacle and deflect the movement of car

Online Retail Management Application | *Java, JavaFX, Oracle, HTML/CSS*

Sep. 2017 – Dec. 2017

- Developed a robust web application with Java and JavaFX framework with HTML/CSS
- Implemented RDBMS to handle data

Simplified C Compiler | *C, Flex, Bison, bash*

Mar. 2018 - Aug. 2018

- Developed a simplified compiler for a subset of C language covering variables, conditions, functions, recursions and symbol table
- Performed lexical analysis using Flex and syntactic analysis using Bison

TECHNICAL SKILLS

Languages: Python, C, C++, Java, SQL, JavaScript, R, HTML, CSS, MATLAB, Assembly

Databases: Oracle, MSSQL, MySQL, SQLite

Frameworks: PyTorch, TensorFlow, Keras, Node.js, Django, JavaFX, Bootstrap, OpenGL

Scripting: L^AT_EX, Linux Shell Scripting

Developer Tools: Git, Visual Studio, Visual Studio Code, PyCharm, NetBeans, Code::Blocks

Libraries: Scikit-learn, pandas, NumPy, Matplotlib, SciPy

Simulation Tools: CISCO Packet Tracer, ns2, Proteus

Operating Systems: Windows, Linux, MacOS

HONORS AND AWARDS

- Served as a campus representative officer for the Arlington campus of VT for the Graduate Student Council for a year
- Instructed Mathematics & Programming to high school students for national-level competitive college entrance exam
- Board scholarship until graduation from the Bangladesh govt. in Higher Secondary School Certificate (HSC) Examination