Md Shahedul Haque

MS in CS @ Virginia Tech | Graduating in Fall 2025

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Summary

5+ years of experience in machine learning, data analysis, data visualization, hypothesis testing, predictive modeling, and applying Artificial Intelligence to facilitate healthcare.

Professional Experience

Virginia Tech   Aug. 2022 – Dec. 2025
Graduate Research Assistant   *Arlington, VA, USA*
- Explored 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.

Children's National Medical Center   May 2024 – Aug. 2024
Research Trainee   *Washington DC, USA*
- Explored and exploited vulnerability of Machine Learning models deployed in medical fields
- Key skills: Federated Learning (FL), Fairness in AI, Data heterogeneity, Model and hyperparameter fine-tuning, NVFlare, MONAI, nnUNet, SciPy.

Loosely Coupled Technologies Sdn Bhd   May 2021 – Aug. 2021
Junior Software Developer   *Dhaka, Bangladesh*
- Designed front end with AngularJS and implemented the server side of web applications using Node.js
- Wrote web services in MSSQL through stored procedures and performed on (client's) demand basis integration and development using Visual Studio
- Key skills: Javascript, Relational Database Management System (RDBMS), Software Development Life Cycle (SDLC), Version Controlling, Project Management, Team Work.

Education

Virginia Tech   Arlington, VA, USA
MS student in Computer Science, current CGPA 3.88/4.00   *Aug. 2022 – Dec. 2025*
Bangladesh University of Engineering and Technology(BUET)   Feb. 2016 – Feb. 2021
BSc in Computer Science and Engineering, CGPA 3.29/4.00   *Dhaka, Bangladesh*

Data Science and Machine Learning 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

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
- Performed DBScan and k-means algorithms to cluster data without using library functions

Software Development Projects

Online Product Locator (Web) Application | *DJango, MySQL, HTML/CSS, Git*   Nov. 2018 – July 2019
- BackEnd and database - Python(DJango), MySQL; FrontEnd - HTML and CSS
- Followed Software Development Life Cycle(SDLC) in this project

Online Retail Management Application | *Java, JavaFX, Oracle, HTML/CSS*   Sep. 2017 – Dec. 2017
- BackEnd and database - Java, Oracle SQL; FrontEnd - HTML and CSS

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: LaTeX, Linux Shell Scripting
Developer Tools: Git, Visual Studio, Visual Studio Code, PyCharm, NetBeans, Code::Blocks
Libraries: Scikit-learn, pandas, NumPy, Matplotlib, SciPy, Seaborn
Simulation Tools: CISCO Packet Tracer, ns2, Proteus
Operating Systems: Windows, Linux, MacOS

Publications

MedLeak: Multimodal Medical Data Leakage in Secure Federated Learning with Crafted Models (**CHASE**), 2025

WiFi Received Signal Strength (RSS) based Automated Attendance System for Educational Institutions: (**NSysS**), 2024

On Age Prediction from Facial Images in Presence of Facial Expressions: (**IJAPR**), 2021

Honors and Awards

- Served as a campus representative officer for the Arlington campus of VT for the Graduate Student Council for a year

- Board scholarship until graduation from the Bangladesh govt. in Higher Secondary School Certificate (HSC) Examination

No work authorization or visa sponsorship is required.