

# Sheik Murad Hassan Anik

Ph.D. Candidate & Graduate Research Assistant, Virginia Tech

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## Education

### Ph.D. in Computer Science and Applications, Virginia Tech

December 2023 (Expected)

- Relevant courses: Advanced Software Engineering, Cyber-Physical Systems, Deep Learning, Security Analytics

### M.Sc. in Computer Science and Applications, Virginia Tech

December 2022

- Relevant courses: Data Analytics, Information Security, Statistics, Web & Mobile Application Development

### B.Sc. in Computer Science and Engineering, Ahsanullah University of Science & Technology

January 2016

- Relevant courses: Artificial Intelligence, Digital Image Processing, Pattern Recognition, Information System Design

## Work Experience

### Graduate Assistant, Virginia Tech

August 2018 to current

- Working as a research assistant in NiSE (iNnovations in Software Engineering) group
- Led research paper writing based on software engineering and building engineering research projects
- Instructed over 400 students in Software Development, Data Structures & Web Application Development courses

### Lecturer, AUST

April 2016 to August 2018

- Instructed 450+ students on Micro-controller, Arduino, and, Raspberry Pi based systems in the MSD course
- Guided 200+ students on Introduction to C, Java, data structures & algorithms courses

### Software Engineer, Qubix Lab

February 2015 to May 2015

- Led a four-person team to develop an information collection system in a Government project following agile methodology
- Used PHP, HTML, JavaScript, and, MySQL to enable mass data-collection automation of local industries

## Projects

### Characterization of automation configuration issues in smart home systems

Ongoing

- Accumulated 450 automation configuration issues faced during the development of smart home systems
- Conducted a manual investigation for issue classification, finding patterns in issues and their respective solutions

### Occupant profile generation in smart buildings: Machine learning approach

December 2022

- Applied 6 state-of-the-art machine learning models for automatic building occupant characteristics classification and prediction
- Demonstrated the feasibility of ML techniques in occupant behavior characterization with data from 5686 U.S. households
- Work published in the [Energy & Buildings Journal, Elsevier, 2023](#)

### Distributed, cost-effective, and, portable IoT data infrastructure

May 2022

- Developed e prototypes of IoT-based wireless sensing system and deployed 50+ sensing nodes to individual houses
- Utilized REST API to collect & analyze over 2 million records from deployed devices for research
- Work published in the [Journal of Building Engineering, Elsevier, 2022](#)

### Fully functional Star Trek model ship systems developed for TrekModeler

December 2021

- Developed entire software systems for multiple Star Trek model ships with Arduino
- Provided electrical circuit setup guidance for IR-controlled functionalities of model ships

### Exposing vulnerabilities of machine learning models with adversarial attack

December 2019

- Developed adversarial ML attack tool to expose vulnerabilities of facial recognition and road sign detection systems
- Utilized PyTorch library of Python with in-demand public datasets - CelebFaces, VGG-Face2, YOLOv3, and, Lisa

### Heavy aerial lifting multi-copter

December 2013

- Designed H-copter, X-copter, and, Hex-copter from scratch equipped with MultiWii flight controller
- Used Arduino and Raspberry Pi to do tasks like aerial photography, live object detection, and, object grab-release

## Skills

**Programming Languages** Python, Java, C, C#, PHP, JavaScript

**Databases** MySQL, MS-SQL, PostgreSQL

**Frameworks/Libraries** Pandas, Scikit-learn, PyTorch, ReactJS, JQuery, ASP.NET, OpenGL, OpenCV

**Tools** Git, Docker, Matlab, Android Studio, Visual Studio, Eclipse, PowerBi

## Achievements & Leadership

2021 **Secretary**, Association for Bangladeshi Students at Virginia Tech

Blacksburg, VA

2016 **Dean's Award**, all semesters at AUST

Dhaka, Bangladesh

2015 **2nd Position**, inter-university project show, BUET

Dhaka, Bangladesh

2014 **General Secretary & Vice Precedent**, Computer Science & Engineering Society, AUST

Dhaka, Bangladesh

2014 **1st Position**, inter-university project show, AUST

Dhaka, Bangladesh

2013 **1st Position**, in two intra-university project competitions, AUST

Dhaka, Bangladesh