

Md Mahedi Hasan Rigan

PhD Student @ UT Arlington

Research Areas: CV, Multi-Modal LLMs, LLMs, 3D Vision, Security & Privacy, GenAI, Ubiquitous Computing

Location: Arlington, TX, USA

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[Website](#) | [LinkedIn](#) | [GitHub](#)

Education

The University of Texas at Arlington

Aug 2025 - Present

Ph.D. in Computer Science

Advisor: [Dr. Faysal Hossain Shezan](#) | **CGPA:** 4.0/4.0

Bangladesh University of Engineering and Technology (BUET)

Apr 2018 - May 2023

B.Sc. in Computer Science and Engineering

CGPA: 3.76/4.0

Work Experience

Graduate Research Assistant, Cyber Guard Research Lab, UT Arlington

Aug 2026 - Present

- Research in **VLMs**, **3D Reconstruction**, **Audio GenAI Models**, and **Security of AI Models**.
- Investigating vulnerabilities in *4D Gaussian Splatting* and developing adversarial defenses, and designing techniques to protect music from unauthorized *audio generation models*.

Senior Software Engineer, [Samsung Research Bangladesh \(SRBD\)](#)

Jun 2023 - Aug 2025

- Built an **AI-powered assistant** using **RAG** and **AI agent** techniques, enabling smart content creation, contextual search, and video-to-note generation.
- Reduced text input time in **Samsung Notes** by **10%**, improving overall efficiency.
- Developed an extension converter to update old file formats to the latest version.
- Designed a user-friendly **quick tool** for easy access to essential and frequently used functions, ensuring a smooth user experience.

Publications

Published

1 **MVPISplat: Multi-View Photometric Inconsistency for Defending 3D Gaussian Splatting Attacks** 2026

Md Mahedi Hasan Rigan, Nicole Meng, Miao Yin, Yingjie Lao, Faysal Hossain Shezan

Accepted in [NeurIPS 2026](#)

2 **Adversarial Defense in Gaussian Splatting Using 3D Gaussian Filtering** 2026

Md Mahedi Hasan Rigan, Nicole Meng, Miao Yin, Yingjie Lao, Faysal Hossain Shezan

Accepted in [CVPR 2026 Workshop \(SPAR-3D\)](#)

3 **H2OPulse: Smartphone-Assisted Vein Evaluation for Early Recognition of Dehydration** 2025

Towhid Muhammad, Md Mahedi Hasan Rigan*, Olid Hasan Bhuiyan, Tanzima Hashem, Md Mahbubur Rahman (*equal contribution)*

Accepted in [ACM IMWUT 2025](#) | [Paper link](#)

4 **Detecting Stealthy Web Bots: A Behavioral Analysis Framework for OpenWPM Automation** 2025

Shakil Ahmed, Md Mahedi Hasan Rigan*, Md. Shohrab Hossain, Anupam Das (*equal contribution)*

Accepted in [IEEE TDSC 2025](#) | [Paper link](#)

Under Review

5 **Prune Less, Pay More: Imperceptible Budget Inflation Attacks on Token Pruning in Vision-Language Models** 2026

Md Mahedi Hasan Rigan, Pranita Khanal, Faysal Hossain Shezan

Submitted to [ICLR 2027](#)

6 AUDIOLOCK: Cross-Representation-Aware Defense Against Unauthorized Generative AI Exploitation of Music 2026

Promit Basak*, Md Mahedi Hasan Rigan*, Jonathan Petit, Faysal Hossain Shezan (*equal contribution)

Submitted to [USENIX Security 2027](#)

7 HydraLite: A Lightweight On-Device System for Early Dehydration Detection Using Hand Vein Imaging 2026

Masnoon Muztahid, Md. Miraj Hasan, Tanzima Hashem, Md Mahbubur Rahman, Tausif Amim Shadly, Md Olid Hasan Bhuiyan, Md Mahedi Hasan Rigan, Towhidul Islam, Sabeena Ahmed

Submitted to [AAAI Social Impact Track 2027](#)

Academic Projects

University Management System

[GitHub](#)

Developed a user-friendly university management system with a **distributed Cassandra database** for efficiency and scalability, using *Kubernetes, Docker, React, and ExpressJS*.

TetrisMasterAI

[GitHub](#)

Implemented **deep reinforcement learning** (Q-learning with fully connected layers, replay memory, and a custom environment) to master Tetris, using *Python, PyTorch, and NumPy*.

Rubik's Cube Solver

[Video](#)

Designed a Rubik's Cube solver with cube detection, orientation, and solving steps, using *ATmega32, Arduino, servo motors, and a color sensor*.

Teaching & Academic Service

- **Graduate Teaching Assistant**, UT Arlington (Aug 2025 - Apr 2026): *CSE 4380: Information Security; CSE 5315/4345: Numerical Methods*
- **Reviewer**, Conference on Neural Information Processing Systems (**NeurIPS**) 2026
- **Reviewer**, International AAAI Conference on Web and Social Media (**ICWSM**) 2027

Awards

Graduate Dean's Research Assistantship Recipient, UT Arlington (Summer 2026)

Samsung Research Bangladesh AI Proof of Concept (PoC) Contest (2025) - 2nd Runner Up

Icon Engineer (2024): Awarded for outstanding contribution to Samsung Research Bangladesh.

[Certificate](#)

Excellence in SW Certificate Test (2023): Samsung Electronics.

[Certificate](#)

National Cyber Drill (2021) - 20th Position

Dean's List Scholarship (2018-2022): Awarded for academic excellence at BUET.

Merit Talent Scholarship (2017): Higher Secondary School Certificate, Dhaka Board.

Technical Skills

Programming Languages: Python, JavaScript, C#, Java, C++ , Assembly

Deep Learning Frameworks: PyTorch, TensorFlow, Keras, CUDA libraries

Machine Learning Frameworks: Scikit-learn, XGBoost, LightGBM, SciPy

Libraries: Hugging Face Transformers, OpenCV, NumPy, Pandas, Matplotlib, Seaborn

Web Development: React, Bootstrap, Django, REST, HTML, CSS, Node.js

Developer Tools & Platforms: Git, Docker, Kubernetes, .NET, UWP

Database Management: Cassandra, MySQL, SQLite, Oracle