

# Md Jahirul Islam

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## Professional Summary

Computer Science 1st year PhD student at Kennesaw State University, specializing in machine learning privacy and adversarial robustness. During my Master's studies, I conducted research on Virtual reality immersive technologies which was funded by the U.S. Department of Defense and Army Research Lab. Published in IEEE VR and peer-reviewed venues. Extensive experience developing ML models for real-world systems including VR headsets and adversarial defense frameworks, and Computer vision technologies. Proven track record of addressing national interest challenges in defense, public safety, and health tech.

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Personal Portfolio

[github.com/Jahirul1404092](https://github.com/Jahirul1404092)  
[Google Scholar Page](#)  
[Technical Videos on Youtube](#)

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## Educational Credentials

- **Philosophy of Doctorate (PhD) in Computer Science** January 2025 - Cont.  
Kennesaw State University, GA, USA CGPA up to now: 4.00/4.00  
**Research:** AI Security and Privacy in Remote Sensing
- **Masters in Computer Science, AI concentration** December 2024  
Kennesaw State University, GA, USA CGPA: 4.00/4.00  
**Thesis:** Real-time feedback-driven framework for automated cybersickness detection and mitigation  
Funded by US Army Research Lab
- **Bachelors of Science in Computer Science and Engineering** August 2021  
Chittagong University of Engineering & Technology, Bangladesh CGPA: 3.12/4.00  
**Thesis:** Smart water quality monitoring and controlling system

## Research Area

AI Security and Privacy in Remote Sensing, Adversarial attack & Robustness in ML, Application of ML/AI, Computer Vision, Virtual Reality, Human Computer Interaction, Robotics & IoT, Biomedical Imaging and Optics

## Technical Skills

- **Programming Languages:** C, C++, C#, JAVA, Python
- **Deep Learning Framework:** Scikit-learn, TensorFlow, Keras, PyTorch, OpenCV, CNN
- **Database & Tools:** MySQL, NoSQL, Firebase
- **Others:** Git & Github, Docker, AWS, GCP, Robotics(IoT), Unix, Unity, Android application development, flask, Selenium, Latex, Blender

## Research Experience

- **Graduate Research Assistant at ASTAI-lab, Kennesaw State University** [\[Link\]](#) January 2025- Cont.  
– Research: Machine Learning privacy, developing robust model against adversarial attack
- **Graduate Research Assistant at HIX-lab, Kennesaw State University** [\[Link\]](#) August 2023- December 2024  
– Research: Cybersickness prediction with physiological data (HR, EDA, Head and Eye-tracking)  
– Developed DNN model using RNN, GRU, LSTM, CNN-LSTM, Resnet, NHITS [\[Link\]](#)  
– Deployed models to **Snapdragon** chip with **UNITY SDK** in **Meta Quest 3** to predict Cybersickness realtime  
– Worked with **Hp Omnicept Reverb G2, VR Headsets, Emotibit, ESP32**, Virtual-Reality, Mixed-Reality  
– Developed framework for real-time Cybersickness detection and mitigation using CS time series data
- Participated to several user study as a participant including labs and **Facebook** research team

## Professional Experience

- **Machine Learning Engineer (Computer Vision, Full-time)** at **Chowagiken** January 2023 - July 2023
  - Developed Car Image Segmentation model using Yolov6.[\[Link\]](#)  
In web application deployed that model, used **Flask** for API. For production, used **Docker** to dockerize the whole application, deployed on the client's **GCP** computing server and also used **GitHub Action** for CI/CD.
  - Developed Image Anomaly detection application for potato company [\[Link\]](#)  
In this project, classified defected potatoes using CNN feature extractor architecture based **Pathcore** and **Padim**, for auto segmenting used **DINO** and **SAM**
  - Fine-tuned Yolov8, YoloX, RTMDet, and other SOTA models on several image dataset
  - Developed functionalities for SMPL model 3d & depth map generation in Blender
  - Developed image preprocessor, maintaining delivery deadline, and politeness in Japanese working culture

## Publications

1. S. Sharmin, **M. J. Islam**, "MediBox+: A Smart Dispenser with Mobile App for Enhancing Medication Adherence", Submitted to [EICT 2025](#)
2. **M. J. Islam**, K. A. Islam, "Robust Physically Realizable Backdoor Attack", Submitted to [TPS 2025](#)
3. S. Ravikumar, **M. J. Islam**, "Comparative Analysis of Defense Approaches against Adversarial Attacks on Remote Sensing Applications", Submitted to [ICMLA 2025](#)
4. S. Noboudem, R.K. Rogannagari, **M. J. Islam**, "Evaluating Transferability of Adversarial Attacks Between Models of Different Architectures", Published to [Digital Commons KSU 2025](#)
5. **M. J. Islam**, R. Islam, "Towards Optimized Real-time Cybersickness Detection framework Using Deep Learning for Standalone Virtual Reality Headsets", Published to [IEEEVR 2025](#)
6. **Islam, Md Jahirul**, "Real-Time Feedback-Driven Framework For Automated Cybersickness Mitigation," Published to [Digital Commons KSU 2024](#)
7. **M. J. Islam**, R. Islam, "Towards Optimized Cybersickness Prediction for Computationally Constrained Standalone Virtual Reality Devices", Funded by US Department of Defense. Published to [IEEEVR 2024](#)
8. MS Alam, **MJ Islam** et al. "Sudoku solver using bruteforce algorithm with backtracking approach", Published to [Digital Commons KSU 2023](#)
9. **M. J. Islam**, Asaduzzaman, "Smart Water Quality Monitoring and Controlling System", Proceedings of the 5th International Conference on Electrical Information and Communication Technology (EICT), pp. 56, 17-19 December 2021, Khulna, Bangladesh [EICT 2021](#)

## Recent Completed Projects

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1. **Optimized Hybrid Load Balancer for dynamic network traffic distribution and performance enhancement** [\[Link\]](#)
  2. **Brain Tumor segmentation using custom 3D U-NET & BRATS dataset** [\[Link\]](#)
  3. **Diabetic Retinopathy classification using transfer-learning and fine-tuning pre-trained model** [\[Link\]](#)
  4. **Breast Cancer prediction using SVM** [\[Link\]](#)
  5. **USA Universities Requirements Finder** - Python, Selenium, Pandas, Excel [\[Link\]](#)
  6. **Image preprocessing using Opencv**[\[Link\]](#)
  7. **Mango Diseases detection Using Android (2021)**[\[Link\]](#)
    - Features:** To build the model from mango diseases image dataset, tensorflow and colab is used. The model is exported as .tflite and placed in android application. By taking image android can predict the diseases with accuracy.
    - Technologies:** CNN, TensorflowLite, android
  8. **Medicine Reminder and Dispenser**[\[Link\]](#)[\[Video\]](#)
    - Features:** A dispenser and a mobile application that notifies the user to take pill by turned ON buzzer, LED light and mobile alarm and showing information of the medicine.
    - Technologies:** Arduino, nodeMCU, ESP32, RTC module, JAVA
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9. **Smart car parking system (2021)**[\[Link\]](#)

**Features:** With this system user can easily find the nearest parking spot and slot. This automated parking system has many features such as, auto parking, rent calculation and assuring security.

**Technologies:** Android, Arduino, esp8266, esp32, microcontroller, firebase, embedded C, life-cycle, Thread, Circuit design, Electronics, power management.

10. **Electricity Bill Management System (2019)**[\[Link\]](#)

**Features:** This is a website development and database management project.

**Technologies:** Html, Css, SQL, RDMS, PHP, Domain name management, Website Hosting

11. **Smart door lock – A real life operated device using RFID and password (2019)**[\[Link\]](#)[\[Video\]](#)

**Features:** A keyboard with Bangla sign language and an application to show Bangla sign language by animation.

**Technologies:** Arduino, esp8266, esp32, microcontroller, firebase, embedded C, RTOS, lifecycle, Thread, Circuit design, Electronics, power management.

12. **Depression test and counselling (2021)**

**Features:** With this application the user can test his depression level and take precautionary measures. Also some doctors' contacts are also provided.

13. **Sales Record Inventory – A business management application (2020)**[\[Video\]](#)

**Features:** This is an android application which is designed for the distributor. Distributing shop owner can manage his products, price, delivery men info and their payment.

14. **Plover (2019)**[\[Link\]](#)

**Features:** It is an online chatting application based on whatsapp idea.

**Technologies:** Java, gradle, firebase, Xml, UI/UX, play store, admob, Application LifeCycle

15. **Water quality monitoring at Kaptai Navy camp (2019)**[\[Link\]](#)

**Features:** It is a real-life project for monitoring water quality at Navy.

### Leadership Experience

- **Joint General Secretary at Robo mechatronics Association** August 2018 - September 2019
- **Instructor**, Conducted 3-day workshop on Basic electronics and IoT technology August 2019

### Extra Curriculum Activities And Awards

- Organizing Committee of Bangladesh Student and Teachers Association at KSU 2023 - 2025
- Organizing Committee of CUET Computer Club 2018 - 2019
- Volunteer at Inter University Robotic Competition, RMA, Bangladesh" September 2018
- Organizing Committee (Inter-university programming contest at CUET) September 2017

### Awards

- Bangladesh's Recovery Idea and Plan in the Post COVID-19 Era: Youth Perspective at Youth Opportunities (June 2020)
- **1st Runners Up** Intra University Tech Carnival, Organized by "CUET Students' Union" 2016
- **EDF Award** for outstanding result in SSC 2012 by Education development forum.
- **The Daily Prothom Alo Award** GPA-5 Holder in both SSC 2012 and HSC 2014, by "The Daily Prothom Alo"
- Compensatory Scholarship from Chittagong University of Engineering and Technology (CUET), Chittagong
- **Shutter Stories chapter 3 Award** A National photography Exhibition at United International University (2018)
- **Revealing the Unseen - Season iii Award** A National photography Exhibition at Chittagong University of Engineering & Technology (2019)