Ayon Mazumder

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Research Interest

- Machine Learning
- Deep Learning
- Human Computer Interaction
- Human AI Co-Creation

- AI Communication
- Ethical AI
- Interaction Design
- User Mental Model

Education

Towson University PhD of Computer and Information Science in Information Technology	Towson, MD, USA	*January 2025 - Present*
Gannon University Masters of Computer and Information Science in Information Technology	Erie, PA, USA	*August 2022 - May 2024*
University of Liberal Arts Bangladesh Bachelor of Science in Computer Science and Engineering	Dhaka, Bangladesh	*January 2017 - May 2021*
Islamia Degree College Higher Secondary Certificate, Concentration: Science	Chittagong, Bangladesh	*July 2014 - August 2016*
Saint Placids High School and College Secondary School Certificate, Concentration: Science	Chittagong, Bangladesh	*January 2004 - June 2014*

Research Experience

- **Ph.D. Researcher**   *(January 2025 - Present)*

  Human Centered Computing Lab, Towson University
  - ❖ Currently pursuing independent research in Human AI Co-Creation, AI Communication, and User Mental Model.
  - ❖ Conducting literature reviews, formulating research questions, and developing methodologies.
  - ❖ Applying data analysis, developing, and machine learning models to address research problems.
- **Exploring the future of insurance for connected autonomous vehicles: smartcontracts and decentralized blockchain solutions**   *(Master's Thesis, 2024)*
  - ✓ Conducted research to explore innovative insurance solutions for autonomous vehicles using smartcontracts and decentralized blockchain technology.
  - ✓ Performed a systematic literature review aimed at reducing insurance rates for autonomous vehiclesthrough the application of advanced smart contracts and blockchain solutions.
  - ✓ Developed a deeper understanding of how blockchain technology and smart contracts can revolutionizethe insurance industry for autonomous vehicles, enhancing efficiency, transparency, and cost- effectiveness.
  - ✓ Strengthened skills in evaluating the potential risks and benefits of emerging technologies, preparing fortheir integration into real-world applications.
- **Developing a UAV-driven autonomous seed plantation and monitoring system.**   *(Undergraduate Project Thesis, 2021)*
  - ✓ Developed an autonomous UAV system designed for seed plantation and data collection.
  - ✓ The UAV gathers and stores data in a web portal, facilitating ongoing monitoring of tree growth.
  - ✓ Gained insights into the integration of UAV technology for environmental monitoring and sustainableagricultural practices.
  - ✓ Enhanced problem-solving skills by addressing challenges related to autonomous navigation and dataaccuracy in varying environmental conditions.
  - ✓ Acquired experience in working with IOT technologies and cloud-based platforms for real-time dataprocessing and storage

Publication

Journals

- Bijoy, Md. H., A. Sufiun, D. A. Islam, **A. Mazumder**, M. S. Arefin, P. K. Dhar, and T. Shimamura, 2025, Bangla Braille to voice conversion for visually impaired individuals using deep neural network: Multimedia Tools and Applications, doi:10.1007/s11042-025-20995-9. [DOI]

- M. A. S. Mozumder, M. M. R. Sweet, N. Norun Nabi, M. I. Tusher, C. Modak, M. Hasan, M. N. I. Miah, **A. Mazumder**, S. F. Farabi, and M. Prabha, 2024, Revolutionizing organizational decision-making for banking sector: A machine learning approach with CNNS in business intelligence and management: Journal of Business and Management Studies, v. 6, no. 3, p. 111–118, [DOI].

Conference Proceedings

- Al Mahmud Pias, M. A., M. S. Sartaz, **A. Mazumder**, A. Ahad, M. M. Islam, D. A. Islam, S. M. Islam, and M. S. Ahmed, 2025, Optimizing used car valuation with AI: A predictive modeling approach: 2025 IEEE 4th International Conference on Computing and Machine Intelligence (ICMI), p. 01–07, doi:10.1109/icmi65310.2025.11141166, [DOI]

- Islam, M. M., M. S. Chowdhury, D. A. Islam, A. Ahad, **A. Mazumder**, M. A. Pias, M. F. Shahriar, and S. M. Islam, 2025, Sleep disorder prediction system using machine learning: 2025 IEEE 4th International Conference on Computing and Machine Intelligence (ICMI), p. 1–8, doi:10.1109/icmi65310.2025.11141316, [DOI].

- Omi, Md. S., T. Islam, **A. Mazumder**, M. S. Sartaz, A. Christian, and Md. H. Bijoy, 2025, Using machine learning to predict internship effectiveness in employability: 2025 International Conference on Electrical, Computer and Communication Engineering (ECCE), p. 1–7, doi:10.1109/ecce64574.2025.11013797, [DOI].

- Parvez, R., N. N. Roy, D. A. Islam, **A. Mazumder**, A. A. Akash, and Md. H. Bijoy, 2025, Efficient Bangla Tense Classification using Gru, LSTM, and bidirectional approaches: 2025 International Conference on Electrical, Computer and Communication Engineering (ECCE), p. 1–7, doi:10.1109/ecce64574.2025.11012984, [DOI].

- Al Noman, A., N. J. Mila, A. H. Bornil, **A. Mazumder**, N. Khan, and Md. H. Bijoy, 2025, Banglaplate: Automated vehicle number plate detection and recognition using yolov8: 2025 International Conference on Electrical, Computer and Communication Engineering (ECCE), p. 1–6, doi:10.1109/ecce64574.2025.11013529, [DOI].

- Akter, T., U. Ayman, N. R. Chakraborty, D. A. Islam, **A. Mazumder**, and Md. H. Bijoy, 2024, Dropout prediction of university students in Bangladesh using Machine Learning: 2024 IEEE International Conference on Computing, Applications and Systems (COMPAS), p. 1–7, doi:10.1109/compas60761.2024.10797033, [DOI]

Professional Experience

- ❖ **Department of Computer and Information Science, Towson University, MD, USA**
  Graduate Assistant   *(January 2025 – Present)*
  - **Doctoral Research Assistant:**
    - ✓ Conducted research under supervision of Dr. Jeba Rezwana, Assistant Professor, Towson University, contributed to publications, and development system, data analysis, machine learning models, and statistical methods.
    - ✓ Current research project "Human-AI Co-Design: utilizing LLM and Text-to-Image Generation Model"
    - ✓ Another project "Developing a AI Communication system based on FAICO Framework.

  - **Teaching Assistant:**
    - ✓ Assisted in teaching undergraduate computer science courses.
    - ✓ Including preparing lectures, grading assignments, and mentoring students.

❖ **Aptech Staffing**   Erie, PA
  IT Analyst   *(August 2024 – December 2024)*
  - Evaluates the reliability of data after gathering it, establishes its relevance, and normalizes pertinent information about company operations, functions, and procedures.
  - Oversee the implementation of innovative strategies and tactics in a specific area of expertise while coordinating the intricate parts of big healthcare initiatives or a number of smaller initiatives.
  - Work along with experts in quantitative analysis to create and modify instruments, databases, and questionnaires.
  - Utilizing tools for quantitative analysis, statistics, and visualization, extracts data from many relational databases and manipulates and explores it.
  - Combines information from both internal and external sources to provide data suitable for reporting and/or analysis.

❖ **Gannon University**   Erie, PA
  Graduate Assistant   *(September 2022 – December 2022)*
  - Worked under supervision of Dr. Richard Matovu on cutting-edge research projects, Assistant Professor,Gannon University, Erie, PA
  - Contributed to the development and testing of Image Classification Apps enchanting their accuracy andperformance
  - Assisted in the development of Palm Touch Recognition Apps focusing on user Interface and experience
  - Provided academic support for the GCYSEC608 Operation & Software Development Security Class

❖ **Banglamark Group**   Dhaka, Bangladesh
  Development and Project Engineer, Technical Team (IT Division)   *(September 2021 – June 2022)*
  - Diagnosed an resolved complex website issues ensuring minimal downtime and optimal performance
  - Designed and executed SQL queries to manage and retrieve data efficiency for the e-commerce platform
  - Revamped front-end designs to improve user experience and interface across multiple devices
  - Delivered technical support for various high-traffic company websites including Banglamark,Kablewala, Flokoin, Cylinderwala and Hurry Up ride-sharing apps.
  - Collaborated with cross-functional teams to ensure project alignment with business objectives and client requirements.

Technical Skills

Programming Language: Python, R, C, C++, Java

Web Development: HTML, CSS, Javascript, PHP (Laravel)

Software Tools: Anaconda, VS Code, Power BI, Figma, AWS

Machine Learning: CNN, XGBoost, Random Forest, KNN, SVM, Logistic Regression, TensorFlow

DBMS: SQL, Oracle, MongoDB

Cybersecurity: Blockchain

Application Package: MS Excel, PowerPoint, Word

Operating System: Windows, Linux

Tools Design: UAV Design

Project Works

Title: Development of an autonomous fire fighter drone

- ✓ Developed an autonomous quadcopter capable of carrying a fireball; designed to respond to incidents by navigating to the location, deploying the fireball, capturing scene images, and transmitting real-time data to the base station

Title: Development and Implementation of Online Crime Reporting System

- ✓ Developed an online crime reporting system where victim can easily report for the crime. For this project I followed waterfall methodology. Where victim can submit their crime report and law enforcement agency can approved the case and take initiative for further steps.

Title: Real Time Object Detection Android Application

- ✓ Using machine learning dataset this is an object detection application for detecting real time object such as dog, cat, man, TV, chair, table etc.

Title: Digit Recognition Application

- ✓ Using python program create a digit recognition application. Where we write the digit such as 1, 2, 3, 4 etc application will be detect the digit.

Certification

Workshop on IOT: Development IOT Based Solution   Dhaka, Bangladesh
Organized By: IOT Lab (ULAB)   2019
- ✓ Completed 3 days workshop on IoT: Developing IoT Based Solution
- ✓ Completed basic IoT knowledge and different kind of project

Certificate in Computer Application Course   Chittagong, Bangladesh
Bangladesh Computer Science Education Technology Society (BCSETS)   2017
- ✓ A+ Grade in "Certificate in Computer Application Course" at Bangladesh Computer Science Education Technology Society (BCSETS) and the examination held on 25-05-2017.

Honors & Awards

• **Doctoral Scholarship**	Towson University, MD, USA	2025
• **Best Ambassador Award** IEEE Student Professional Awareness Conference	IEEE NSU Student Branch, Dhaka, Bangladesh	2019
• **2nd Place in Poster Display** Tech Fest, ULAB School of Science and Engineering	University of Liberal Arts Bangladesh, Dhaka, Bangladesh	2019
• **Bronze Award** Duke of Edinburg Award	Dhaka, Bangladesh	2017
• **Best Exhibitor Award** Digital World Expo	ICT Ministry, Dhaka, Bangladesh	2017
• **1st Place in Project Showcasing** Tech Fest, ULAB School of Science and Engineering	University of Liberal Arts Bangladesh, Dhaka, Bangladesh	2017
• **3rd Place in Poster Display** Tech Fest, ULAB School of Science and Engineering	University of Liberal Arts Bangladesh, Dhaka, Bangladesh	2017

Co-Curricular Activities

• **Mentor**	IEEE Computer Society Bangladesh Chapter Team SPARK	2021-2022
• **Vice Chief**	IEEE Computer Society Bangladesh Chapter Team SPARK	2019-2021
• **Chairperson**	IEEE ULAB Student Branch	2020-2021
• **Vice Chairperson**	IEEE Computer Society ULAB Student Branch Chapter	2019-2020
• **Secretary**	IEEE ULAB Student Branch	2019-2020