




# Md. Mazharul Islam

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Dhaka, Bangladesh

## CAREER OBJECTIVE

Prospective PhD researcher with a strong background in cyber-physical systems, AI security, and cloud-based infrastructure, seeking doctoral training in the safety and resilience of AI-driven critical infrastructure. My research interests focus on trustworthy and robust AI for cyber-physical systems, including digital twin-based validation, anomaly detection, and secure deployment of intelligent systems in dynamic, safety-critical environments. I am particularly motivated by developing methods for real-time assurance, resilience, and regulatory-aligned AI systems for applications such as smart grids and intelligent infrastructure.

## EDUCATION

- North South University Graduated: Summer 2020  
**Master of Science in Computer Science and Engineering (MSc)** Dhaka, Bangladesh
  - CGPA: 3.97 / 4.00 (approx. 99 / 100; first-class standing)
  - Thesis:** “A Practical Framework for Storing and Searching Encrypted Data on Cloud Storage” — focused on cloud security, privacy-preserving storage, and efficient search over encrypted data.
- North South University Graduated: Summer 2018  
**Bachelor of Science in Computer Science and Engineering (BSc)** Dhaka, Bangladesh
  - CGPA: 3.24 / 4.00 (approx. 81 / 100)

## ACADEMIC EXPERIENCE

- Institute for Advanced Research (IAR) Lab January, 2024 - Present  
**Research Assistant** United International University & North South University
  - Developed and deployed a blockchain-based health insurance system using smart contracts and cryptographic techniques to preserve patient privacy and detect fraud, resulting in a peer-reviewed publication in a reputable journal.
  - Leading research on machine learning-based fault detection and anomaly identification in healthcare systems using real-world building data, with a focus on reliable and secure operation of critical infrastructure.
- Cyber Physical System with Phasor Measurement Unit (CPS-PMU) Research Lab February, 2022 – April, 2024  
**Graduate Research Assistant** North South University
  - Developed and tested a cyber-physical system (CPS) testbed using Node-RED for simulating smart grid environments with integrated data and power network flows to study security and reliability.
  - Utilized GridPACK, NS-3, and HELICS to model and synchronize communication and control layers on Linux-based simulations, enabling experiments on power grid resilience and cybersecurity.
- Department of Electrical & Computer Engineering (ECE) July, 2023 – June, 2024  
**Graduate Teaching Assistant** North South University
  - Conducted supplemental instruction and review sessions for CSE411, CSE422, and CSE482, helping students strengthen their understanding of advanced database systems, simulation, and web technologies.
  - Supported faculty with grading, course logistics, and student consultations, ensuring effective delivery of course content and academic support.

## PUBLICATIONS

C=CONFERENCE, J=JOURNAL, T=THESIS

- [J.1] **Md. Mazharul Islam**, Mubasshir Ahmed, Rajesh Palit, Mohammad Shahriar Rahman, Salekul Islam. Fraud Detection in Privacy Preserving Health Insurance System Using Blockchain Technology. *Engineering Reports* 7, no. 8 (2025): e70315, DOI: [doi.org/10.1002/eng2.70315](https://doi.org/10.1002/eng2.70315).
- [C.8] **Md. Mazharul Islam**, Mubasshir Rakib, Niaz Ashraf Khan. CPS-Guard: Defensive Architectures for Securing Large Language Models in Cyber-Physical Systems. *28th International Conference on Computer and Information Technology (ICCIT)*, Cox's Bazar, Bangladesh, 2025. (Accepted & Presented)
- [C.7] **Md. Mazharul Islam**, Mubasshir Ahmed, Md Redowan Zaman Anik, Mamunur Rashid Alex, Niaz Ashraf Khan. Federated Fine-Tuning of Large Language Models for Cybersecurity: Towards Privacy-Preserving and Secure AI. *16th International Conference on Computing Communication and Networking Technologies (ICCCNT)*, Indore, Madhya Pradesh, India, 2025. (Accepted & Presented)
- [C.6] **Md. Mazharul Islam**, Mubasshir Rakib, Niaz Ashraf Khan. A Blockchain-Based Medical Record Storage System for Healthcare Data Management. 4th International Conference on Advances in Communication Technology and Computer Engineering (ICACTCE'24). ICACTCE 2024. *Lecture Notes in Networks and Systems*, vol 1312. Springer. DOI: [10.1007/978-3-031-94620-2\\_24](https://doi.org/10.1007/978-3-031-94620-2_24)
- [C.5] **Md. Mazharul Islam**, Tahmid Ashraf Khan, Sunjare Zulfiker, A S M Jahid Hasan, Hafiz Abdur Rahman. Remotely Accessible Cyber-Physical System Testbed for Power Grid's Security and Reliability. in *8th International Conference on Smart Grid and Smart Cities (ICSGSC)*, Shanghai, China, 2024, pp. 436-441, DOI: [10.1109/ICSGSC62639.2024.10813893](https://doi.org/10.1109/ICSGSC62639.2024.10813893).
- [C.4] **Md. Mazharul Islam**, Mubasshir Ahmed, and Rajesh Palit. Fault Detection and Diagnostics of Air Handling Unit in Hospital Building Using Machine Learning. in *15th International Conference on Computing Communication and Networking Technologies (ICCCNT)*, Kamand, India, 2024, pp. 1-6, DOI: [10.1109/ICCCNT61001.2024.10724490](https://doi.org/10.1109/ICCCNT61001.2024.10724490).
- [C.3] **Md. Mazharul Islam**, Mubasshir Ahmed, and Rajesh Palit. Storage and Maintenance of Sensitive Data using Homomorphic Encryption. In *16th International Conference on Security of Information and Networks (SIN)*, Jaipur, India, 2023 Nov 20, pp. 1-6, DOI: [10.1109/SIN60469.2023.10474775](https://doi.org/10.1109/SIN60469.2023.10474775).
- [C.2] **Md. Mazharul Islam**, and Rajesh Palit. A Keyword Based Searching and Sharing Scheme on the Encrypted Cloud Data. In *14th International Conference on Computing Communication and Networking Technologies (ICCCNT)*, Delhi, India, 2023 Jul 6, pp. 1-6, DOI: [10.1109/ICCCNT56998.2023.10308309](https://doi.org/10.1109/ICCCNT56998.2023.10308309).
- [C.1] **Md. Mazharul Islam**, Rajib Imran, and Shazzad Hosain. The Evaluation of Enterprise Resource Planning using ISO 25010 Based Quality Model. In *2nd International Informatics and Software Engineering Conference (IISEC)*, Ankara, Turkey, 2021 Dec 16, pp. 1-6, DOI: [10.1109/IISEC54230.2021.9672349](https://doi.org/10.1109/IISEC54230.2021.9672349).
- [T.1] **Md. Mazharul Islam**, Rajesh Palit. A Practical Framework for Storing and Searching Encrypted Data on Cloud Storage. arXiv preprint arXiv:2306.03547, 2023 Jun 6. DOI: [10.48550/arXiv.2306.03547](https://doi.org/10.48550/arXiv.2306.03547)

## SKILLS

- **Machine Learning and Data-Driven Modeling:** Applied ML for anomaly and threat detection, fault diagnostics, defect prediction, and security analytics in cybersecurity, healthcare, and cyber-physical systems; model design, feature engineering, and evaluation in Python.
- **Security and Threat Analysis:** Vulnerability assessment, penetration testing, intrusion detection systems (IDS), SIEM, network traffic analysis, DNS over HTTPS (DoH) threat detection.
- **Cryptography and Privacy:** AES, RSA, PKI, homomorphic encryption, blockchain-based protocols, privacy-preserving storage and search over encrypted data, federated learning for sensitive data.
- **Programming and Research Tools:** Python, Bash, Git, LaTeX; Linux-based experimentation and simulation pipelines.
- **Cloud Platforms and Infrastructure:** Oracle Cloud Infrastructure (OCI), AWS, Azure; infrastructure automation with Terraform, Docker, and Kubernetes.
- **Operating Systems and Virtualization:** Linux (Ubuntu, CentOS, Red Hat), KVM, Hyper-V.
- **Tools and Simulators:** Wireshark, Metasploit, NS3, Burp Suite, Nmap; GridPACK and HELICS for CPS and power grid studies.

## PROFESSIONAL EXPERIENCE

- Bangladesh Data Center Company Limited (BDCCL) [🌐] *April, 2024 - Present*  
**Assistant Manager (Cloud)** *Dhaka, Bangladesh*
  - Provision and manage Oracle Cloud Infrastructure (OCI) resources—including compute instances, storage, and databases—tailored to client requirements under Infrastructure as a Code (IaaS) model.
  - Deliver ongoing cloud support by troubleshooting and resolving client issues to ensure seamless service delivery and adherence to SLAs.
- Ethics Advanced Technology Limited (EATL) [🌐] *September, 2023 – November, 2023*  
**Cyber Security Instructor** *Dhaka, Bangladesh*
  - Conducted hands-on cybersecurity training sessions for 50+ IT professionals from leading banks, using EC-Council’s ICBT: Cybersecurity Essentials iLabs to enhance practical threat detection and mitigation skills.
  - Designed and managed interactive lab exercises, providing individual guidance to reinforce core concepts in network security, ethical hacking, and incident response.
- One World Infotech Limited [🌐] *December, 2020 - May 2021*  
**Solution Engineer** *Gulshan-1, Dhaka, Bangladesh*
  - Supported enterprise clients in deploying multi-factor authentication (OneSpan) and conducting advanced threat and vulnerability assessments to strengthen cybersecurity posture.
  - Collaborated on incident response readiness, SOC transformation, and penetration testing initiatives, aligning technical solutions with organizational security frameworks and compliance needs.

## HONORS AND AWARDS

- **Vice-Chancellor’s Gold Medal, 25th Convocation** *December 2024*  
*North South University, Bangladesh*
- **Reviewer, International Conference on Data, Computation, and Communication (ICDCC-2024)** *November 2024*  
*VIT Bhopal University, India*
- **Reviewer, International Conference on Innovations in Data Science (ICIDS-2024)** *November 2024*  
*Manipal University Jaipur, India*
- **Huawei ICT Competition 2023–2024 (Network Track)** *Jan–May 2024*  
*Huawei ICT Academy — Bangladesh, Indonesia, China*  
*Placed 3<sup>rd</sup> in the National Round (Bangladesh).*  
*Attended the Asia-Pacific award ceremony in Jakarta, Indonesia.*  
*Secured 2<sup>nd</sup> place as part of a 3-member team in the Global Final (Shenzhen, China).*

## CERTIFICATIONS

- **AWS Certified Practitioner (CLF-C02)** [AWS] *June, 2025*
- **AWS Certified AI Practitioner (AIF-C01)** [AWS] *June, 2025*
- **Certified Ethical Hacker (Master)** [EC-Council] *January, 2025*
- **Certified Ethical Hacker (ANSI)** [EC-Council] *January, 2025*
- **Certified Ethical Hacker (Practical)** [EC-Council] *December, 2024*
- **Oracle Cloud Infrastructure 2024 Certified AI Foundations Associate** [Oracle Cloud] *August, 2024*
- **Oracle Cloud Infrastructure 2024 Generative AI Certified Professional** [Oracle Cloud] *July, 2024*

## REFERENCES

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