

# Ratul Ali

(Research Programmer & CyberSecurity Analyst (.NET & AI/ML), CEH)

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Mohammadpur, Dhaka - 1207, Bangladesh

## PROFESSIONAL SUMMARY

Experienced Research Programmer & CyberSecurity Analyst (.NET & AI/ML), CEH with a strong background in software engineering, Data Science, Cybersecurity, and AI/ML. Proven track record in developing enterprise-level applications using Clean Architecture, implementing robust security frameworks, and delivering data-driven solutions. Strong expertise in full-stack development, database management, and machine learning applications across healthcare, banking, and education sectors.

## EDUCATION

- Institute of Information Technology (IIT), Jahangirnagar University (JU)** 2025 - 2026  
*Master's in Information Technology (MIT)* Dhaka, Bangladesh
  - Concentration: Information Technology (IT)
- Uttara University (UU)** 2016 - 2020  
*Bachelor of Science in Computer Science & Engineering* Dhaka, Bangladesh
  - Thesis: Medication Alert: A fore-and-aft Android-Based Hospitality Corps Study for Progressive Repeated Medication Alert System
  - Supervisor: Prof. Dr. A.H.M. Saifullah Sadi, Co-Supervisor: Prof. Dr. Md. Mijanur Rahman

## COURSEWORK

- CHOWA GIKEN Corporation & Hokkaido University** 2025 - 2026  
*Sapporo AI Dojo Global Course* Sapporo, Hokkaido, Japan
  - Supervisor & Coordinator: Dr. Md. Rashedul Islam, Ayako Matsumiya, Kyohei Takazawa
- Institute of Statistical Research and Training (ISRT), University of Dhaka (DU)** 2025 - 2025  
*Coursework - R for Applied Statistics and Data Science* Dhaka, Bangladesh
  - Concentration: Applied Statistics and Data Science
  - Coordination Team: Dr. Mohaimen Mansur, Md. Rasel Biswas, Priom Saha.

## AWARDS, FELLOWSHIPS, GRANTS, OFFERS, & EVENTS

A=AWARD, F=FELLOWSHIP, G=GRANTS, O=OFFERS,

E=EVENTS

- [E.1] Ivan Kudyk, Ratul Ali, Fernando Hernandez, (2024). **Granted the incredible opportunity to participate in the TOAST Doctoral Network Training School.** *University of Siena, Italy -> Aarhus University, Denmark.*
- [O.1] Feb, (2024). **Software Engineer @ LEADS Corporation Limited (LEADS).** *M-20, LEADS TOWER, Main ROAD-1, Dhaka 1206, Bangladesh | 2420 BRONZE CT, CUMMING, GA 30041, United States.*
- [O.2] June, (2022). **Trainee Programmer @ Generation-Next IT Solution Ltd. (Generation-Next IT).** *Century Centre, Kha 225 Pragoti Sarani, Bir Uttam Rafiqul Islam Ave, Dhaka 1212, Bangladesh.*
- [O.3] Aug, (2021). **Software Development Intern @ GAOTek Inc. (GAOTek).** *244 Fifth Avenue, Suite A31 Manhattan, New York, N.Y., 10001 USA.*

## PROFESSIONAL EXPERIENCE

- IOTA** 2025 - Present  
*Senior Consultant (IT)* Dhaka, Bangladesh
  - Lead end-to-end design and implementation of enterprise software solutions using Clean Architecture, .NET Core/C#, Angular, and MS SQL Server/PostgreSQL, ensuring secure, paperless operations across banking and corporate clients
  - Integrate cybersecurity frameworks and CERT best practices into SDLC, leveraging CEH certification and tools for threat analysis, while advising on ISO 27001 compliance to iBAS++, Islami Bank Bangladesh PLC. (IBBPLC), Bengal Commercial Bank PLC. (BGCBPLC), Shimanto Bank PLC. (SMBPLC), One Bank PLC. (OBPLC), Dhaka Bank PLC. (DBPLC), Trust Bank PLC. (TBPLC), etc.
  - Apply AI/ML and data science (predictive modeling, computer vision with YOLO/TensorFlow) to deliver data-driven insights and intelligent automation for client platforms
- International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)** 2025 - 2025  
*Data Management Officer (also role played as a Programmer)* Dhaka, Bangladesh

- Oversaw CHAMPS LC DSS App and LC Data Portal transition, contributed to CHAMPS Repository & Data initiatives
- Collaborated with **Emory University**, USA, for knowledge transfer and system design
- Designed applications with C#, Angular, .NET Core, and managed database MS SQL Server
- Applied Clean Architecture principles across the SDLC
- **Shahjalal Islami Bank PLC (SJIBPLC)** 2024 - 2025  
*Officer - IT (Software Engineering Position)* Dhaka, Bangladesh
  - Built and enhanced IDMS and CCAPTS with .NET Core, Angular, and PostgreSQL for investment management
  - SOC: Used Trend Vision One™, Trellix, and Tenable for security monitoring and threat analysis
  - SOC: Managed CVEs for risk mitigation and compliance with ISO 27001, NIST, and CERT frameworks
  - Implemented Clean Architecture and C# Generic Repository Pattern aligned with ISO/IEC/IEEE- and CERT-based secure development life-cycle practices
- **Azolution Software and Engineers Ltd. (AzolutionSE)** 2023 - 2024  
*Software Engineer* Dhaka, Bangladesh
  - Second Team Lead (HRIS) based on Recruitment, Vehicle & Canteen Modules using .NET Framework 4.5 to Bashundhara Group, Modhumoti Bank PLC. (MBPLC), NRBC Bank PLC. (NRBC), and Renata
  - Worked within a Three-Tier Architecture across the SDLC
- **Devsfair** 2021 - 2022  
*Entry-Level Software Engineer* Dhaka, Bangladesh
  - Contributed to Backend API for "illumiya" NeithAPI using .NET Core
  - Developed Frontend and Databases for "Aqua Digital Rising Limited" AquaSupportMonitorUX using Bootstrap
  - Collaborated via Slack and adhered to Clean Architecture, aligned SDLC practices


## PROFESSIONAL SERVICE

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- **Springer Nature** 2024 - Present  
*Reviewer* USA
  - Critically reviewed and evaluated manuscripts submitted to Springer Nature journals in Software Engineering, Data Science, Cybersecurity, and Artificial Intelligence/Machine Learning. Assessed research quality, novelty, methodology, and technical soundness to ensure compliance with academic publishing standards.
  - Provided constructive feedback and recommendations to authors for improving clarity, rigor, and contribution of their work. Ensured manuscripts adhered to ethical publishing guidelines, including originality and proper citation practices. Collaborated with editors to support timely and fair peer review processes. Maintained up-to-date knowledge of emerging trends and research developments in SWE, Data Science, Cybersecurity, and AI/ML domains.

## TECHNICAL PROJECTS (SELECTED)

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- **icddr,b Health Data Management Systems** 2025 - 2025  
*Technologies: C#, Angular, .NET Core, MS SQL Server, TypeScript, Clean Architecture*
  - Spearheaded end-to-end design of LC Data Portal, CHAMPS Data Request Portal, and LC HDSS Reporting System
  - Engineered MS SQL Server databases ensuring integrity and security of large-scale medical research data
  - Collaborated with medical researchers to improve data collection workflows and provide technical training
  - Developed CHAMPS LC DSS App and Pneumonia Survey Android App for field data collection
- **Banking Management Systems (SJIBPLC)** 2024 - 2025  
*Technologies: .NET Core, Angular, PostgreSQL, ASP.NET MVC, Entity Framework, Security Tools*
  - Designed Investment Document Management System (IDMS) for secure handling of confidential investment records
  - Enhanced Credit Card Application Process Tracking System (CCAPTS) for automated customer onboarding
  - Performed functional upgrades to Meeting Agenda Management System (BMMS) using ASP.NET MVC
  - Conducted backend performance and load testing using JMeter for DIGI BANK APIs
  - Monitored enterprise security using Trend Vision One™, Trellix, Tenable and performed vulnerability assessments
- **AI/ML Data Science Projects** 2025  
*Technologies: Python, R, Machine Learning, Deep Learning, Data Analytics* 
  - **Sapporo AI Dojo (R&D) Project - Auto Hit Generator based on weather forecast and computer vision prediction**  
**AI/ML: CHOWA GIKEN Corporation & Hokkaido University, Sapporo, Hokkaido, Japan, 2026:** Using YOLO, VoTT, TensorFlow/PyTorch, Anaconda, Streamlit
  - **Customer Churn Prediction:** Built predictive models to identify high-risk customers for retention strategies
  - **Insurance Cost Prediction:** Developed regression model to predict medical insurance costs from demographic data

- **Cybersecurity Threat Detection:** Engineered deep learning model to classify network activity for threat identification
- **Customer Analytics:** Executed full data preparation pipeline including cleaning and feature engineering
- **EMPRESS - HRIS (AzolutionSE)** 2023 - 2024  
Technologies: .NET Technologies, Crystal Report, Telerik Kendo UI, am Charts, JQuery, MS-SQL Server
  - Research, Development, and implementation of software as per company requirements e.g. Canteen SMS Service, SMS Gateway Service, Email Service, Auto Sale & Collection Service
  - Creating User-defined Applications, Database Classes, Procedures, and User Controls along with levying corporate HRIS policy.
- **Education & Gaming Platforms (Devsfair)** 2021 - 2024  
Technologies: ASP.NET Core, Angular, Bootstrap, MySQL, Swagger
  - Contributed to backend development and API testing for "Illumiya" education system using ASP.NET Core Web API
  - Supported frontend development for "Aqua Digital Rising Limited" game support payment and monitoring platform
  - Implemented database management and frontend components using Angular, C#, and MySQL

## PUBLICATIONS [SELECTED]

J=JOURNAL, C=CONFERENCE, P=PREPRINT, O=OPEN SOURCE, PT=PRESENTATIONS & TALKS

- [J.1] Ratul Ali, Abdul Matin, Md. Shamim Reza, Md. Golam Azam, (2025). **CEFFRL - A Configurable and Extensible Framework for Fuzzy Record Linkage in .NET**. *SSRN Electronic Journal*.
- [J.2] Ratul Ali, Fahamin, (2025). **DIABWSwS: Development and Implementation of an Android-Based Mobile Application with Robust Features for Enhancing Women's Safety and Security**. *SSRN Electronic Journal*.
- [C.1] Ratul Ali, (2025) **Benchmarking Note: Comparing FastAPI and Triton Inference Server for ML Model Deployment**. *Zenodo*, DOI: 10.5281/zenodo.17253046, CH
- [J.3] Ratul Ali, Professor Dr. A.H.M. Saifullah Sadi, Aktarul Islam, Md. Shohel Rana, Saila Nasrin, and Sohel Afzal Shajol, (2024). **Machine Learning-Based Acoustic Signal Processing for Bowl Sound Analysis**. *International Journal of Artificial Intelligence and Machine Learning*, Vol. 4, Issue 2, pp. 9-22. or **ML-ASPA: A Contemplation of Machine Learning-based Acoustic Signal Processing Analysis for Sounds, & Strains Emerging Technology**. In *Cornell University, arXiv*, DOI: 10.48550/arXiv.2402.10005, USA 2023.
- [J.6] Fahamin, Ratul Ali, Ismot Ara Lipi, (2023). **Medication Alert: A fore-and-aft Android-Based Hospitality Corps Sturdy for Progressive Repeated Medication Alert System**. *SSRN Electronic Journal*.
- [PT.1] Ratul Ali. **Modern Cybersecurity Defense Mechanisms: An Integrated Approach from Malware Protection to Web Application Vulnerabilities**. In *F1000 Research*.
- [PT.2] Ratul Ali. **OPCA: Taxonomy, Mechanisms, and Case Studies of Prominent Cyber Threats in 2025**. In *Zenodo*. DOI: 10.5281/ZENODO.16746315.
- [PT.3] Ratul Ali. **COMCD - A Comprehensive Overview of Modern Cybersecurity Defenses: From Malware Protection to Web Application Security**. In *Zenodo*. DOI: 10.5281/ZENODO.16746035.

## TECHNICAL SKILLS




- **Crafts:** Problem-Solving, Algorithms & Data Structures, Object-Oriented Programming (OOP)
- **Languages:** C#, TypeScript, HTML, CSS, R/Python, Java
- **Libraries:** jQuery, R/Python Libraries
- **IDEs/Editors:** Visual Studio/VS Code, RStudio, Android Studio, LATEX
- **Database:** MS SQL Server, MySQL Workbench, PostgreSQL
- **Frameworks:** .NET Technologies, Angular, Bootstrap
- **AI/ML:** YOLO, VoTT, TensorFlow/PyTorch, Anaconda, Streamlit

## CERTIFICATIONS & TRAINING [SELECTED]

- **Cybersecurity**
  - Certified Ethical Hacker (CEH) - Pearson
  - CompTIA Cybersecurity Analyst (CySA+) - Pearson
  - Certified Information Systems Auditor (CISA) - Packt
  - Certified Information Security Manager (CISM) - Pearson
  - ISC<sup>2</sup> Cloud Basics - Coursera
- **Programming & Development**

- Software Engineer Certificate (CSE) - HackerRank
- SQL (Advanced) Certificate - HackerRank
- Rest API (Intermediate) Certificate - HackerRank
- Problem Solving (Intermediate) Certificate - HackerRank
- **Research & Data Science**
  - Certified Research Peer Reviewer (CRPR) - Springer Nature
  - R for Applied Statistics and Data Science - ISRT, DU
  - Data Scientist with Python Track - Datacamp (Ongoing)

## OPEN SOURCE CONTRIBUTIONS [SELECTED]

- **Fuzzy Record Linkage Toolkit**  
Zenodo DOI: 10.5281/zenodo.16742188 
  - A configurable and extensible framework for flexible record linkage in .NET applications
- **Role-Based Authorization System**  
Zenodo DOI: 10.5281/zenodo.16744330 
  - Scalable authorization system implementing RBAC for .NET applications
- **Machine Learning Projects**  
Python, Scikit-learn, TensorFlow, Data Analysis 
  - Customer churn prediction, insurance cost modeling, cybersecurity threat detection
  - Comprehensive data preparation pipelines and predictive analytics

## PROFESSIONAL MEMBERSHIPS

- **Springer Nature**, Peer Reviewer (Software Engineering, Data Science, Cybersecurity, AI/ML) 2024 - Present
- **ORCID**, 0000-0003-0460-6141 2024 - Present

## RESEARCH INTERESTS

Software Engineering (SWE), Data Science, Cybersecurity, Artificial Intelligence/Machine Learning

## REFERENCES

- Kamrul Islam**  
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- Engr. Md. Saiful Alam**  
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- Mr. Zahid Hasan**  
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- Aktarul Islam**  
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- Dr. Md. Rashedul Islam**  
Chief Researcher of Computer Vision and Group Leader of Overseas AI Development  
R&D Department, Chowagiken Corporation, Japan  
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