

Md Tanzeem Rahat

Software Engineer · Algorithm & AI Researcher · Computer Science Educator

Dhaka, Bangladesh

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Summary

Computer Science educator, researcher, and software engineer with experience in R&D leadership, open-source development, algorithms, and machine learning. My work focuses on connecting theoretical computer science with practical implementation to support research-informed teaching and learning.

Education

Master of Science in Computer Science — *Dhaka, Bangladesh*

American International University-Bangladesh (AIUB) — *Jan 2024 – Aug 2025*

- CGPA: **3.98** / 4.0
- Major: Intelligent Systems
- Focus: Advanced string algorithms and multimodal machine learning

Bachelor of Science in Computer Science and Software Engineering — *Dhaka, Bangladesh*

American International University-Bangladesh (AIUB) — *May 2018 – Mar 2022*

- CGPA: **4.0** / 4.0
- Major: Software Engineering
- Focus: Software Development and Engineering

Bachelor of Science in Military Science — *Dhaka, Bangladesh*

Bangladesh University of Professionals (BUP) — *Jan 2014 – Sep 2017*

- CGPA: **3.98** / 4.0
- Focus: Defense studies, leadership, strategy, and military technology

Higher Secondary Certificate (HSC) — *Chattogram, Bangladesh*

Faujdarhat Cadet College, Science Group — *2013*

- GPA: **5.0**/ 5.0 (with distinctive board position)

Secondary School Certificate (SSC) — *Chattogram, Bangladesh*

Faujdarhat Cadet College , Science Group — *2011*

- GPA: **5.0** / 5.0 (with distinctive board position)

Professional Experiences

Program Assessor, IQAC — *Dhaka, Bangladesh*

American International University-Bangladesh — *June 2026-Present*

Lecturer, Department of Computer Science — *Dhaka, Bangladesh*

American International University-Bangladesh — *Oct 2025-Present*

Instructor, Department of Computer Science — *Dhaka, Bangladesh*

American International University-Bangladesh — *Mar 2025-Sep 2025*

Software Team Lead (Research & Development) — *Dhaka, Bangladesh*

SOS Developments (Subsidiary of ADN Telecom) — *Aug 2023-Jan 2025*

Senior Software Engineer — *Dhaka, Bangladesh*

TGIT Bangladesh — *Jan 2020-Jul 2023*

Lieutenant (Retd.) *Chattogram, Bangladesh*
Bangladesh Navy *Dec 2013-Jan 2018*

Open-Source Contributor *Online / Worldwide*
Global Developer Community *Ongoing*

Publications and Research Outputs

Published / Accepted

Rahat, M.T., Hasan, M.M., Mondal, D. (2025). *A Space-Efficient Algorithm for Longest Common Almost Increasing Subsequence of Two Sequences*. In: Fernau, H., Zhu, B. (eds) *Combinatorial Algorithms*. IWOCA 2025. Lecture Notes in Computer Science, vol. 15885. Springer, Cham.

Parvin, S., Munsy, F., **Rahat, M.T.**, Nahar, A., Nur, K., Ghose, D. (2025). *Robust Multi-Weather Pothole Detection*. *Results in Engineering*, vol. 28, article 107817.

Rahman, A., Khan, M.S.H., Tazwar, M., **Rahat, M.T.**, Nur, K. (2025). *AutoContDamage: Automated Container Damage Detection in Ports Using RF-DETR*. ICCIT 2025.

Sneha, S.G., **Rahat, M.T.**, Hasan, M.M. (2025). *ChainGraph-DL: Data-Driven Causal Inference for Graph Structure Learning*. Accepted full paper, 12th International Conference on Next Generation Computing, Communication, Systems and Security (NSysS 2025).

Ricon, H.M., Alam, T., **Rahat, M.T.**, Nur, K. (2025). *Risk-Calibrated YOLO: A Lightweight Pipeline for Reliable Pneumonia Detection in Chest X-Rays*. IEEE BECITHCON 2025.

Preprints

Rahat, M.T., Hasan, M.M. (2026). *The Longest Common Bitonic Subsequence: A Match-Sensitive Dynamic Programming Approach*. arXiv preprint.

Shanto, M.N.A., **Rahat, M.T.**, Hasan, M.M. (2026). *Permutation Matching Under Parikh Budgets*. arXiv preprint.

Alif, L., Saoda, R.T., Afrin, S., Riad, M.R.S., **Rahat, M.T.**, Hasan, M.M. (2026). *Competitive Analysis of Online Facility Assignment Algorithms on Discrete Grid Graphs*. arXiv preprint.

Riad, M.R.S., **Rahat, M.T.**, Hasan, M.M. (2026). *Expected Cost of Greedy Online Facility Assignment on Regular Polygons*. arXiv preprint.

Nadif, M.A., **Rahat, M.T.**, Sharma, A.K., Tabassum, A., Rushee, K.I., Rahim, M.S. (2024). *A Systematic Literature Review on Bengali Grammar Correction System*. Research Square preprint.

Datasets

Rahat, M.T., Parvin, S., Nur, K. (2025). *A Smartphone Camera Based RGB Video Dataset of Natural Hand Gestures*. Mendeley Data.

Awards & Honors

2019 **Dean's List Honors**, American International University-Bangladesh

2019 **Academic Merit Scholarship**, American International University-Bangladesh

2015 **Birsreshto Ruhul Amin Gold Medal**, Bangladesh Navy

Research Interests

- **String and sequence algorithms:** longest common subsequence variants, including LCaIS and LCBS, with emphasis on space-efficient, match-sensitive, and fine-grained algorithmic approaches.
- **Combinatorial optimization:** output-sensitive algorithms, monotone and frontier-based dynamic programming, online facility assignment, and lower-bound complexity under SETH.
- **Decision processes:** Markov decision processes and POMDPs, especially threshold policies, sample-efficient learning, and decision-making under partial observability.
- **Applied AI:** multimodal machine learning, Bengali NLP, computer vision, active learning, Bayesian methods, and graph neural networks for real-world sequence, image, and conversation-level tasks.

Projects

Network Monitoring System

SOS Developments

- Distributed lightweight network monitoring system. Used by ADN Telecom, Modhumoti Bank, and Rupali Bank.

Generator Maintainer

SOS Developments

- Factory-focused maintenance platform for enterprise clients. Used by Pran–RFL Group and Akij Group.

SmartThink

TGIT Bangladesh

- CRM and E-Commerce platform tailored to client needs. Used by SmartThinkBD

Bit-Q

TGIT Bangladesh

- Automation and monitoring system for Internet Service Providers. Used by Mid-Rivers Communications.

Dutch-Courage

Ares Tech

- Location-based social networking app for local London communities.

ChimeTime

Ares Tech

- Meeting scheduler for multiple time zones. Currently in beta testing.

Vromon

American International University-Bangladesh

- Submitted for Software Project I & II per B.Sc. CSSE curriculum requirements.

Skills

Programming	**JavaScript, Python, C++, C#, Kotlin, Dart, Java, Go, Rust, PHP**
Frameworks	**React, Express, NestJS, Next.js, Django, React Native, Flutter, Firebase, ASP.NET, Laravel**
Databases	**MySQL, MongoDB, PostgreSQL, Redis, Cloud Firestore**
Cloud & DevOps	**AWS, DigitalOcean, Docker, Kubernetes, Git, GitHub Actions, GitLab CI, Terraform**

Professional Affiliations

Ares Tech Ltd — *Dhaka, Bangladesh*

Consulting Software Engineer — *Dec 2023 – Present*

TGIT Bangladesh — *Dhaka, Bangladesh*

Consulting Software Engineer — *Aug 2023 – Present*

Professional Developments

- **NDG Linux Unhatched Certification** – Network Development Group
- **IT Support Essentials Certification** – Google
- **Machine Learning Specialization** – Stanford University & Coursera
- **Deep Learning Specialization** – DeepLearning.AI & Coursera
- **Natural Language Processing Specialization** – DeepLearning.AI & Coursera

Languages

Bengali	**Native**
English	**Full Professional Proficiency**

References

Dr. Md. Manzurul Hasan
Associate Professor,
Department of Computer Science
American International University-Bangladesh
Email: manzurul@aiub.edu

Sharfuddin Mahmood
Assistant Professor & Special Assistant (Office of Student Affairs)
Department of Computer Science
American International University-Bangladesh
Email: smahmood@aiub.edu

Dr. Debajyoti Mondal
Associate Professor,
Department of Computer Science
University of Saskatchewan, Canada
Email: d.mondal@usask.ca