

# Redwan Ahmed Rizvee

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## EDUCATION

- **Department of Computer Science and Engineering, University of Dhaka** Dhaka, Bangladesh  
*Master of Science in Computer Science and Engineering*  
CGPA: 4.00/4.00 (Ranked 1<sup>st</sup> in the class) Jan 2019 - Sep 2021
- **Department of Computer Science and Engineering, University of Dhaka** Dhaka, Bangladesh  
*Bachelor of Science in Computer Science and Engineering*  
CGPA: 3.85/4.00 (Ranked 1<sup>st</sup> in the class)(Course List) Jan 2015 - Dec 2018
- **Notre Dame College** Dhaka, Bangladesh  
*Higher Secondary School Certificate*  
GPA: 5.00/5.00 2014
- **Ideal School and College** Dhaka, Bangladesh  
*Secondary School Certificate*  
GPA: 5.00/5.00 2012

## TEACHING EXPERIENCE

- **University of Dhaka** Dhaka, Bangladesh  
*Lecturer, Full-Time*  
◦ **Courses Conducted:** Software Design Pattern, Micro-controller, Software Engineering. Apr 2023 - Current
- **East West University** Dhaka, Bangladesh  
*Lecturer, Full-Time*  
◦ **Courses Conducted:** Structured Programming, Algorithms, Artificial Intelligence. Feb 2022 - Mar 2023
- **University of Barishal** Dhaka, Bangladesh  
*Adjunct Faculty*  
◦ **Courses Conducted:** Integral Calculus, Ordinary and Partial Differential Equations and Series Solutions. Aug 2024 - Current

## RESEARCH EXPERIENCE

- **TigerIT Bangladesh Limited** Dhaka, Bangladesh  
*Research Scientist*  
◦ **Responsibilities:** My Projects mainly included,
  - \* Statistical sensor data analysis.
  - \* Rule-based algorithms and encoder-decoder with attention-based deep learning algorithms focusing on audio and natural language processingMar 2020 - Feb 2022
- **Cognitive Agents and Interaction Lab** Dhaka, Bangladesh  
*CO-Investigator*  
◦ **Responsibilities:** Supervised and contributed to various projects utilizing Deep Learning, Reinforcement Learning, and Agent-based Decision-making techniques. Actively involved in the development and implementation of programming systems, leading research efforts, and guiding team members as a co-investigator. 2023 - PRESENT
- **Data Mining and Machine Learning Research Lab** Dhaka, Bangladesh  
*CO-Investigator | Ex - Research Assistant*  
◦ **Responsibilities:** Designed and implemented novel pattern mining algorithms, representational techniques, and optimization strategies for sequential and time series, pattern mining problems. Worked on designing methods and metrics for correlation analysis and cluster generation. 2018 - PRESENT
- **Data and Design Lab** Dhaka, Bangladesh  
*Research Assistant*  
◦ **Responsibilities:** Worked on three main projects focused on policy-making and statistical analysis -
  - \* Bangladesh Quality of Life Indicators: Developed Visualization tool, data collection, planning, and analysis.
  - \* Nightlights for Economic Condition: Data processing, analysis, and manuscript preparation.
  - \* Newspaper Data Analysis to Understand Coronavirus Awareness: Data collection, analysis and manuscript preparation.2019 - 2021
- **Bangladesh Rural Advancement Committee (BRAC)** Dhaka, Bangladesh  
*Junior Consultant*  
◦ **Responsibilities:** In this project, I with fellow teammates designed a system to uniquely identify beneficiaries who are taking various services from BRAC's different programs based on only their basic information in spite of having repetition, spelling mistakes, and variation. Apr 2019 - Sep 2019

## HONORS AND AWARDS

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- **Dean's Award, 2019**, for outstanding achievement from the Faculty of Engineering and Technology, University of Dhaka, Session 2014-15
- **Azfar Alam Memorial Gold Medal, 2019**, for achieving excellent results from the Department of Computer Science and Engineering, University of Dhaka, Session 2014-15.
- **Professor Lutfar Rahman Merit Award, 2022**, from the Department of Computer Science and Engineering, University of Dhaka for acquiring the first position in the batch in B.Sc.
- **Fellowship Scholarship**, from ICT Division, People's Republic of Bangladesh to conduct high-quality research that could keep an impact on the socio-economic life of the people of Bangladesh.

## RESEARCH INTEREST

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Data Mining, Machine Learning, Programming Languages and Systems.

## KEY SKILLS

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- **Programming:** C++, C, Python, Java, SQL, Unix scripting
- **Machine Learning and Data analysis:** PyTorch, Keras, Tensorflow, Pandas, Numpy, SciPy, Scikit-learn, Gensim.
- **Python Framework:** Django, React Native, Flask
- **Software and Code Maintenance:** GIT, Docker
- **Web Development Language:** HTML5, CSS, Javascript, Bootstrap, PHP, React, Node.js, Express.
- **Operating Systems:** Windows, Ubuntu.
- **Database Management:** MySQL, Oracle SQL, PostgreSQL, Firebase.
- **Problem Solving:** Please find my StopStalk profile here.

## EXTRA CURRICULAR ACTIVITIES

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- **CSEDU Student's Club:** Assistant General Secretary(2014-2017).
- **ShoShikkha:** Worked as a writer and contributor in ShoShikkha which targeted to spread various aspects of educational knowledge among people of different ages in the native language Bangla.
- **Competitive Programming:** Participated in competitive programming till the third year during the undergraduate program. Attended ICPC Regionals Dhaka, 2017, ranked 21.

## SELECTED PROJECTS

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- **COLAS - Source Code Plagiarism Detector** | *Python*  
A custom source code plagiarism detection module supporting languages C, C++, Java, and Python. A live version can be found in, COLAS .
- **MSCLM-A** | *Python*  
A Memory flexible language independent Sentence Completion module using Language Model based on Arpa file.
- **dl-drawer** | *Python*  
A python-based drawing tool to automate drawing for various deep learning architectures.
- **Bangla Sentiment Analysis** | *Python*  
An undergraduate project for the Math for CS course to identify sentiments from Bangla sentences.
- **Bangla Pos Tagger** | *Python*  
An undergraduate NLP Project to tag parts of speech in Bangla sentences.
- **Bangladesh at a glance** | *HTML, Vanilla JS*  
A visual tool to understand the socio-economic condition of Bangladesh based on SGD indicators.

## PUBLICATIONS

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1. **Rizvee, Redwan Ahmed**, Chowdhury Farhan Ahmed, Md Fahim Arefin, and Carson K. Leung. "A new tree-based approach to mine sequential patterns." *Expert Systems with Applications* (2023): 122754.
2. **Rizvee, Redwan Ahmed**, and Md Mosaddek Khan. "A Graph Neural Network-based QUBO-Formulated Hamiltonian-Inspired Loss Function For Combinatorial Optimization Using Reinforcement Learning", *arXiv preprint arXiv:2308.13978* (2023).
3. **Rizvee, Redwan Ahmed**, *et al.* "Mining Weighted Patterns from Time Series Databases Based on Sliding Window." *Dhaka University Journal of Applied Science and Engineering* 8.1 (2023): 13-25.
4. **Rizvee, Redwan Ahmed**, Mohammad Fahim Arefin, and Chowdhury Farhan Ahmed. "Tree-miner: mining sequential patterns from sp-tree." *Pacific-Asia conference on knowledge discovery and data mining*. Springer, Cham, 2020.

5. Faisal Haque Bappy, Saklain Zaman, Tariqul Islam, **Redwan Ahmed Rizvee**, Joon S. Park, Kamrul Hasan, “Towards Immutability: A Secure and Efficient Auditing Framework for Cloud Supporting Data Integrity and File Version Control”, 2023 IEEE Global Communications Conference: Selected Areas in Communications: Cloud/edge Computing, Networking, and Data Storage (Soon to be online)
6. **Rizvee, Redwan Ahmed**, et al. “LeafNet: A proficient convolutional neural network for detecting seven prominent mango leaf diseases.” Journal of Agriculture and Food Research (2023): 100787.
7. Arefin, Md Fahim, Chowdhury Farhan Ahmed, **Redwan Ahmed Rizvee**, Carson K. Leung, and Longbing Cao. “Mining Contextual Item Similarity without Concept Hierarchy.” In 2022 16th International Conference on Ubiquitous Information Management and Communication (IMCOM), pp. 1-8. IEEE, 2022.
8. **Rizvee, Redwan Ahmed**, Md Fahim Arefin, and Marzan Binte Abid. “A Robust Objective Focused Algorithm to Detect Source Code Plagiarism.” 2022 IEEE 13th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON). IEEE, 2022.
9. **Rizvee, Redwan Ahmed**, et al. “Sliding window based weighted periodic pattern mining over time series data.” (2019).
10. **Rizvee, Redwan Ahmed**, et al. “An Automated System to Calculate Marks from Answer Scripts.” 2022 IEEE 13th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON). IEEE, 2022.
11. **Rizvee, Redwan Ahmed**, and Moinul Zaber. “How Newspapers Portrayed COVID-19.” International Conference on Computer Science Protecting Human Society Against Epidemics. Springer, Cham, 2021.
12. **Rizvee, Redwan Ahmed**, et al. “A robust three-stage hybrid framework for english to bangla transliteration.” Int. J. Nat. Lang. Comput 11.1 (2022).
13. Wahed, Muntasir, **Redwan Ahmed Rizvee**, Riddho Ridwanul Haque, Amin Masud Ali, Moinul Zaber, and Amin Ahsan Ali. “What Can Nighttime Lights Tell Us about Bangladesh?.” In 2020 IEEE Region 10 Symposium (TENSYP), pp. 1612-1615. IEEE, 2020.
14. Dewan, Umama, Chowdhury Farhan Ahmed, Carson K. Leung, **Redwan Ahmed Rizvee**, Deyu Deng, and Joglas Souza. “An efficient approach for mining weighted frequent patterns with dynamic weights.” (2019).

## ONGOING RESEARCH WORKS

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1. **Rizvee, Redwan Ahmed**, Chowdhury Farhan Ahmed, Carson. K. Leung, “A Tree-Based Framework to Mine Top-K Closed Sequential Patterns”, Applied Intelligence. Currently waiting for the verdict of our 1<sup>st</sup> major revision.
2. **Rizvee, Redwan Ahmed**, Raheeb Hasan, Md. Mosaddek Khan, “A Reinforcement Learning based Formulations with Hamiltonian-Inspired Loss Functions for Combinatorial Optimization over Graphs”, IEEE Access. Currently waiting for the 1<sup>st</sup> verdict after submission.
3. **Rizvee, Redwan Ahmed et al.**, “Harnessing AI for Cultural Heritage: Identifying Phuti Karpas for Muslin Revival with Deep Learning Technologies”, Artificial Intelligence in Agriculture. Currently waiting for the 1<sup>st</sup> verdict after submission.

## REFERENCES

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- **Dr. Chowdhury Farhan Ahmed** Email: farhan@du.ac.bd  
*Professor, Department of Computer Science and Engineering, University of Dhaka* Contact No.: +880 1911-701447
- **Dr. Md. Mosaddek Khan** Email: mosaddek@du.ac.bd  
*Associate Professor, Department of Computer Science and Engineering, University of Dhaka* Contact No.: +880 1811-475201