

# Redwan Ahmed Rizvee

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## EDUCATION

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- **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

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

## RESEARCH EXPERIENCE

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- **TigerIT Bangladesh Limited** Dhaka, Bangladesh  
*Research Scientist*  
Mar 2020 - Feb 2022
  - **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 processing.
- **Cognitive Agents and Interaction Lab (CAIL)** Dhaka, Bangladesh  
*CO-Investigator*  
2023 - PRESENT
  - **Responsibilities:** Supervised and contributed to diverse projects employing Deep Learning, Reinforcement Learning, and Agent-based Decision-making techniques. Played an active role in designing and implementing **COLAS**, an automated system for evaluating source code.
- **Data Mining and Machine Learning Research Lab** Dhaka, Bangladesh  
*CO-Investigator | Ex - Research Assistant*  
2018 - PRESENT
  - **Responsibilities:** Designed and implemented novel pattern mining algorithms, representational techniques, and optimization strategies to address scalability, reliability, and resource efficiency in sequential and time-series pattern mining. Developed methods and metrics for robust correlation analysis and effective cluster generation.
- **Data and Design Lab** Dhaka, Bangladesh  
*Research Assistant*  
2019 - 2021
  - **Responsibilities:** Worked on three main projects focused on policy-making and statistical analysis:
    - \* Bangladesh Quality of Life Indicators (**BDQOL**): 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.
- **Bangladesh Rural Advancement Committee (BRAC)** Dhaka, Bangladesh  
*Junior Consultant*  
Apr 2019 - Sep 2019
  - **Responsibilities:** In this project, my teammates and I designed a system to uniquely identify beneficiaries accessing various BRAC services, using only basic information despite challenges like repetition, spelling errors, and variations.

## 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, High-Performance Computing, Programming Systems, Deep Learning.

## 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, React JS*  
A custom source code plagiarism detection module completely built from scratch. Currently, supporting source codes written in languages for C, C++, Java, and Python. A live version can be found in, *COLAS*.
- **COLAS - Contest Platform** | *Python*  
An online live source code evaluation platform completely built from scratch harnessing parallel computation and system-centric optimizations. Designed custom schedulers, processors, and load-balancers for parallel computation to efficiently process multiple submissions simultaneously.
- **MSCLM-A** | *Python*  
A Memory flexible language independent Sentence Completion module using Language Model based on Arpa file.
- **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 Quality of Life Indicator (BDQOL)** | *HTML, Vanilla JS*  
A visualization tool to demonstrate the socio-economic condition of Bangladesh based on SGD indicators.

## PUBLICATIONS

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1. **Rizvee, Redwan Ahmed**, Raheeb Hassan and Md. Mosaddek Khan, "A Reinforcement Learning based Formulations with Hamiltonian-Inspired Loss Functions for Combinatorial Optimization over Graphs", IEEE Access (2024).Digital Object Identifier: 10.1109/ACCESS.2024.3497955.
2. **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.
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

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 2<sup>nd</sup> major revision.
2. **Rizvee, Redwan Ahmed et al.**, "Harnessing AI for Cultural Heritage: Identifying Phuti Karpas for Muslin Revival with Deep Learning Technologies", Array. Currently working on the first major revision of the manuscript.

## REFERENCES

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|---|---|
| <ul style="list-style-type: none"> <li>• <b>Dr. Chowdhury Farhan Ahmed</b><br/>Professor, Department of Computer Science and Engineering, University of Dhaka</li> <li>• <b>Dr. Md. Mosaddek Khan</b><br/>Associate Professor, Department of Computer Science and Engineering, University of Dhaka</li> </ul> | <p>Email: farhan@du.ac.bd<br/>Contact No.: +880 1911-701447</p> <p>Email: mosaddek@du.ac.bd<br/>Contact No.: +880 1811-475201</p> |
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