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 — Jan 2019 - Sep 2021
CGPA: 4.00/4.00 (Ranked 1st in the class)

Department of Computer Science and Engineering, University of Dhaka — Dhaka, Bangladesh
Bachelor of Science in Computer Science and Engineering — Jan 2015 - Dec 2018
CGPA: 3.85/4.00 (Ranked 1st in the class)(Course List)

Notre Dame College — Dhaka, Bangladesh
Higher Secondary School Certificate — 2014
GPA: 5.00/5.00

Ideal School and College — Dhaka, Bangladesh
Secondary School Certificate — 2012
GPA: 5.00/5.00

TEACHING EXPERIENCE

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

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

- **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

Data Mining, High-Performance Computing, Programming Systems, Deep Learning.

Key Skills

- **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

- **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

- **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

1. **Rizvee, Redwan Ahmed**, Chowdhury Farhan Ahmed, Carson. K. Leung, "A Tree-Based Framework to Mine Top-K Closed Sequential Patterns", Applied Intelligence (accepted, in press).

2. **Rizvee, Redwan Ahmed**, Raheeb Hassan and Md. Mosaddek Khan, "Reinforcement Learning-Based Formulations With Hamiltonian-Inspired Loss Functions for Combinatorial Optimization Over Graphs," in IEEE Access, vol. 12, pp. 171055-171065, 2024, doi: 10.1109/ACCESS.2024.3497955.

3. **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.

4. **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.

5. **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.

6. 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)

7. **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.

8. 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.

9. **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.

10. **Rizvee, Redwan Ahmed**, et al. "Sliding window based weighted periodic pattern mining over time series data." (2019).

11. **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.

12. **Rizvee, Redwan Ahmed**, and Moinul Zaber. "How Newspapers Portrayed COVID-19." International Conference on Computer Science Protecting Human Society Against Epidemics. Springer, Cham, 2021.

13. **Rizvee, Redwan Ahmed**, et al. "A robust three-stage hybrid framework for english to bangla transliteration." Int. J. Nat. Lang. Comput 11.1 (2022).

14. 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 (TENSYMP), pp. 1612-1615. IEEE, 2020.

15. 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** *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

- **Dr. Chowdhury Farhan Ahmed**
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  Contact No.: +880 1911-701447

- **Dr. Md. Mosaddek Khan**
  Associate Professor, Department of Computer Science and Engineering, University of Dhaka
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