Shahriyar Zaman Ridoy

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Education

- **North South University** **Dhaka, Bangladesh**
  Bachelor of Science in Computer Science and Engineering, ***CGPA: 3.88/4.00*** *(top 2%)* *Jul. 2020 - Present*
  Specialization Courses: Natural Language Processing, Deep Learning, Machine Learning.
  - Achieved an average of more than **90%** marks.
  - Awarded ***summa cum laude*** distinction, the highest academic distinction.
  - Received a 75% merit-based scholarship for academic excellence.

Research Experience

- **Research Intern**, The Artificial Intelligence Institute of University of South Carolina **(AIISC)** **Remote**
  Supervisor: Prof. Amitava Das *Sep 2024 - Present*
  - Working on Hallucination Text-to-Image based project.
- **Research Assistant (Part-time)**, Natural Language Processing (NLP) **North South University**
  Supervisor: Dr. Mohammad Rashedur Rahman *Dec. 2023 - Feb. 2024*
  - Conducted detailed data annotation for multiple datasets, ensuring high accuracy and consistency.
  - Assisted in data collection, gathering relevant data points from various sources to support research goals.
  - Collaborated with the research team to refine data collection methodologies, enhancing data reliability.

Competitive Programming Experience

- **Programming Contestant** **NSU Problem Solvers**
  Participated in competitions on ICPC, Codeforces, LightOJ, Meta Hacker Cup, and Vjudge *Jun. 2021 - Feb. 2023*
  - Regular participant in the **ICPC** Asia Dhaka Regional Site Online Preliminary Contest and received **Honorable Mention**.
  - Solved approximately 700 problems across various online judges like Codeforces, Codechef, LightOJ, and Google Codejam.
  - Mentored students in Data Structures and Algorithms.

Publications

- Shahriyar Zaman Ridoy, Jannat Sultana, Zinnat Fowzia Ria, Mohammed Arif Uddin, Md Hasibur Rahman, Rashedur M. Rahman, **"An Efficient Text Cleaning Pipeline for Clinical Text for Transformer Encoder Models,"** In *2024 IEEE 12th International Conference on Intelligent Systems (IS), Varna, Bulgaria*, **Accepted**
- Shahriyar Zaman Ridoy, Md. Shazzad Hossain Shaon, Alfredo Cuzzocrea, Mst Shapna Akter, **"An Ensemble Stacking Approach of Large Language Models for Enhanced Vulnerability Detection in Source Code,"** In *2024 IEEE International Conference on Big Data (IEEE BigData 2024), Washington DC, USA* ***(H5-Index 54)***, Under Review.
- Moshiur Rahman Faisal, Abdur Rahman Fahad, Shahriyar Zaman Ridoy, Jannat Sultana, Zinnat Fowzia Ria, Md Hasibur Rahman, Mohammed Arif Uddin, Rashedur M. Rahman, **"Context-Aware Data Cleaning: Optimizing Bengali Text for Contextual Text Classification,"** In *Springer Nature Computer Science (**Impact Factor 4.34**)*, Under Review.
- Jawad Ibn Ahad, Zarin Akter, Shahriyar Zaman Ridoy, Sifat Momen, **"Predictive Insights into Early Marriage: Machine Learning Analysis in the Bangladeshi Context,"** *Manuscript In Preparation.*

Teaching Experience

- **Teaching Assistant**, Department of Electrical and Computer Engineering **North South University**
  CSE 225 Data Structures and Algorithms, CSE 215 Programming Language II (OOP) *Feb. 2023 - Present*
  - Conducted tutorial sessions to provide additional support and clarification on course material.
  - Graded homework assignments and provided detailed feedback to students.
  - Assisted in proctoring quizzes and exams, ensuring academic integrity.

Projects

- **CAM-KD: A Class Activation Map Based Approach Towards Knowledge Distillation**
  - Developed a CAM-based knowledge distillation model, enhancing model compression beyond baseline methods.
  - Improved CIFAR-10 performance compared to baseline distillation with a more explainable process by combining CAM and KD losses.
- **Multiclass Vulnerability Detection in Source Code Using Draper VDISC Dataset with LLMs: A Comparative Study of CodeBERT, GraphCodeBERT, and UniXcoder**
  - Developed a multiclass classification approach for vulnerability detection by converting the Draper VDISC dataset, enhancing the granularity of code vulnerability identification.
  - Implemented and fine-tuned state-of-the-art LLMs (CodeBERT, GraphCodeBERT, UniXcoder) for source code analysis, enabling accurate and efficient vulnerability detection.
- **iNSUre: Leveraging AI Prompts for Campus Event Management System Development**
  - Led the development of *iNSUre*, using AI-driven prompt techniques in the web development.
  - Applied Zero-Shot, Few-Shot, and Chain of Thought prompting methods to streamline event automation and enhance workflow efficiency.
  - Showcased how prompt-based strategies can empower non-technical contributors to actively participate in website development tasks.
- **12-bits RISC-V Processor**
  - Designed and implemented a 12-bit RISC-V processor using assembler and Logisim simulation.
  - Developed a program to convert assembly language to machine code, executing R-type, I-type, and J-type instructions.

Technical Skills

- **Programming Languages**: Python, C++, Java, SQL, PHP
- **Tools and Frameworks**: TensorFlow, PyTorch, Scikit-learn, AutoCAD
- **Technical Skills**: Machine Learning, Natural Language Processing, Deep Learning, Data Analysis
- **Soft Skills**: Problem-solving, Team Collaboration, Communication

Certifications

- **Supervised Machine Learning: Regression and Classification**, Coursera (offered by deeplearning.ai), Mar. 2024
- **The Short Course on Data Science**, by Jennifer Widom (Professor, Stanford University) through the Instructional Odyssey program at North South University, Mar. 2024
- **ICPC Asia Dhaka Regional Site Online Preliminary Contest**, ICPC, Oct. 2023

References

- **Dr. Mohammad Rashedur Rahman** — Professor
  Email: *rashedur.rahman@northsouth.edu* — *North South University, Bangladesh*
- **Dr. Mohammad Shifat-E-Rabbi** — Assistant Professor
  Email: *rabbi.mohammad@northsouth.edu* — *North South University, Bangladesh*