Simon Bin Akter

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simon48 Simon-48 Scholar ResearchGate Personal Website

Research Interests

I am passionate about multidisciplinary AI research, particularly in exploring machine learning, neural networks, secure, fair and explainable AI, class imbalance correction, generative modeling, large language models (LLMs), and vision large language models (vLLMs). My goal is to contribute to responsible and impactful AI solutions across diverse and interdisciplinary domains.

Education

BSc. **Computer Science and Engineering** Jan 2018 – Jan 2022
North South University
Dhaka, Bangladesh

- CGPA: 3.86/4.0
- CGPA in CSE Core: 3.96/4.0
- Distinction: Summa Cum Laude

Experience

Faculty (Lecturer) Sep 2022 - Present
Department of Computer Science and Engineering
Northern University Bangladesh

Volunteer Research Assistant (Remote) Nov 2023 – Present
NJIT NEURO-ANALYTICS LAB
Martin Tuchman School of Management, New Jersey Institute of Technology, USA
Supervisor : Dr. Jorge Fresneda Fernandez
Associate Professor, Martin Tuchman School of Management

Research Assistant (Undergrad) Jun 2021 - Dec 2022
Cyber-Physical Systems Research Lab
Department of Electrical and Computer Engineering, North South University, Bangladesh
Supervisor : Dr. Hafiz Abdur Rahman
Professor, Department of Electrical and Computer Engineering

I was actively involved in research assistance for one of the largest government-funded projects at my university, supported by the Bangladesh Energy and Power Research Council (B-EPRC).

Teaching Assistant (Undergrad) Jun 2021 – May 2022
Department of Mathematics and Physics, North South University, Bangladesh
Courses: Intermediate Mathematics, Pre-Calculus, and Calculus & Analytical Geometry III.

Academic Service

- **Conference Co-chair:** I serve as a co-chair for the Cognitive Information Systems mini-track at the American Conference on Information Systems (AMCIS) 2025, organized by the Association of Information Systems. I manage the track and select the best papers and presentations that will contribute to advancements in cognitive information systems research. **Location: Montreal, Canada.**
- **Peer-Review Activities in Journals:** Reviewer in Expert Systems with Applications-Elsevier, Frontiers in Psychiatry-Frontiers, and IEEE Transactions on Artificial Intelligence-IEEE.

Publications

Journal

- **Simon Bin Akter**, Sumya Akter, Moon Das Tuli, David Eisenberg, Aaron Lotvola, Humayera Islam, Jorge Fresneda Fernandez, Maik Hüttemann, and Tanmoy Sarkar Pias, *"Fair and Explainable Myocardial Infarction (MI) Prediction: Novel Strategies for Feature Selection and Class Imbalance Correction."* **Computers in Biology and Medicine, IF: 6.3.** https://doi.org/10.1016/j.compbiomed.2024.109413. **Date: 29th Nov, 2024.** [Github]
- **Simon Bin Akter**, Sumya Akter, Rakibul Hasan, Md Mahadi Hasan, A.M. Tayeful Islam, Tanmoy Sarkar Pias, Jorge Fresneda Fernandez, Md Golam Rabiul Alam, and David Eisenberg, *"Early Detection of Subjective Cognitive Decline from Self-Reported Symptoms: An Interpretable Attention Cost Fusion Approach"* **Journal of Biomedical Informatics, IF: 4.5.** https://doi.org/10.1016/j.jbi.2024.104770. **Date: 3rd Jan, 2025.** [Github]

- **Simon Bin Akter**, Sumya Akter, Rakibul Hasan, Md Mahadi Hasan, Tanmoy Sarkar Pias, Riasat Azim, Jorge Fresneda Fernandez, and David Eisenberg, *"Optimizing Stability of Heart Disease Prediction Across Imbalanced Learning with Interpretable Grow Network."* **Computer Methods and Programs in Biomedicine, IF: 4.8.** https://doi.org/10.1016/j.cmpb.2025.108702. **Date: 19th Mar, 2025.** [Github]

- **Simon Bin Akter**, Tanmoy Sarkar Pias, Shohana Rahman Deeba, Jahangir Hossain, and Hafiz Abdur Rahman, *"Ensemble Learning Based Transmission Line Fault Classification using Phasor Measurement Unit (PMU) Data with Explainable AI (XAI)."* **Plos One, IF: 2.6.** https://doi.org/10.1371/journal.pone.0295144. **Date: 12th Feb, 2024.** [Undergrad Thesis] [Github]

Conference

- **Simon Bin Akter**, Sumya Akter, and Tanmoy Sarkar Pias*"Stroke Probability Prediction from Medical Survey Data: AI-Driven Analysis with Insightful Feature Importance using Explainable AI (XAI)."* 2023 26th International Conference on Computer and Information Technology (ICCIT). IEEE. https://doi.org/10.1109/ICCIT60459.2023.10441480. **Date: 27th Feb, 2024.** [Github]

Ongoing Research (Unpublished)

- **[Supervised]** Md Mohit Hasan, Mahbuba Tasnime Suchi, Md Hasibul Habib, Sumya Akter, David Eisenberg, Fahmida Zaman Achol, A.M. Tayeful Islam, Aaron Lotvola, Humayera Islam, Chelsey Hill, Jorge Fresneda Fernandez, Md Golam Rabiul Alam, Tanmoy Sarkar Pias, and **Simon Bin Akter**, *"Correcting Racial Bias in AI Prediction: An Interpretable, Cost-Aware Solution to Balance Skin Lesion Disparities."* Preprint (medRxiv): https://doi.org/10.1101/2024.12.11.24318858. **[Abstract Accepted in 2025 INFORMS Annual Meeting.]** [Github]

- Sumya Akter, **Simon Bin Akter**, Md Mohit Hasan, Tanmoy Sarkar Pias, David Eisenberg, Chelsea Hill, Jerry Fjermestad, and Jorge Fresneda Fernandez, *" Interpretable Electrode-Band Optimization for Affective Emotion Decoding."* **[Abstract Accepted in 2025 INFORMS Annual Meeting.]** [Github]

- David Eisenberg, **Simon Bin Akter**, Sumya Akter, Md Mohit Hasan, Tanmoy Sarkar Pias, Jerry Fjermestad, and Jorge Fresneda Fernandez, *"How Advanced Neuromarketing Methods Can Improve Consumer Preference Prediction."* **[Abstract Accepted in 2025 INFORMS Annual Meeting.]** [Github]

- **Simon Bin Akter**, Sumya Akter, Rafiq Islam, Humayera Islam. *"Can GPT Think Like Traditional Machine Learning and Neural Networks on Low Volume Clinical Data."* Datasets: UCI: Heart Disease, Heart Failure Clinical Records, Chronic Kidney Disease, and Differentiated Thyroid Cancer Recurrence. Keywords: Clinical Text Generation, Table-to-Text Conversion, Transformer-Based Prediction, and LLM Reasoning. [Ongoing] [Github]

- **Simon Bin Akter**, Sumya Akter, Tanmoy Sarkar Pias, David Eisenberg, Chelsea Hill, and Jorge Fresneda Fernandez, *"A Semantic Measure of Online Review Helpfulness using AI." Dataset: Annual Product Review (APR), Amazon.* [Ongoing] [Github]

Skills

- **Programming languages:** Python, Java, C, C++, JavaScript, & Assembly.
- **Machine Learning:** Numpy, Pandas, Keras, Tensorflow, OpenCV, Scikit-learn, PyTorch, Matplotlib, Seaborn, Plotly, SHAP, LIME, Saliency Maps, Grad-CAM.
- **Embedded Systems:** Arduino, Raspberry Pi, Jetson Nano, Beaglebone.
- **Software Tools:** Latex, Pycharm, Matlab, Google Colab, draw.io, VS Code, Codeblocks, Logisim, NetBeans, QT, Microsoft Office tools.
- **Language:** Bengali (Fluent) and English (IELTS Academic: Band 7).
- **Database:** SQL & NoSQL.
- **Frameworks:** Django, Node JS, Bootstrap.
- **Great skill & knowledge in:** Data Structures, Algorithms & OOP, Data Analysis & Preprocessing, Machine Learning & Neural Networks, Large Language Models (LLMs) & Vision Large Language Models (vLLMs), Generative Adversarial Networks (GANs), Signal Processing, Image Processing & Computer Vision, Medical Imaging & Health Data.

REFERENCES

Jorge Fresneda Fernandez, PhD
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New Jersey Institute of Technology
Newark, 07102, New Jersey, USA
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David Eisenberg, PhD, MIT, MLIS, PMP
Assistant Professor
Department of Information Management and Business Analytics
Montclair State University, Feliciano School of Business
New Jersey, USA
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