Simon Bin Akter

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linkedin.com/in/simon48 github.com/Simon-48 Simon Bin Akter researchgate.net/profile/Simon-Akter

Website: simon-48.github.io/Simon-Website

Research Interests

- **Clinical NLP & LLMs:** Clinical language modeling, LLM evaluation and reasoning for healthcare applications.
- **AI with Real-World Clinical Data:** Clinical prediction, patient-level analysis, and AI-assisted decision support.
- **Trustworthy & Fair Clinical AI:** Fairness, bias mitigation, interpretability, reliability, and equitable healthcare AI.

Education

PhD. **Intelligent Systems (First-Year Student)** Aug 2026 – Present
Intelligent Systems Program, University of Pittsburgh, Pittsburgh, USA
Award: SCI Fellowship (First Year: Ongoing)

BSc. **Computer Science and Engineering** Jan 2018 – Jan 2022
Electrical and Computer Engineering, North South University, Dhaka, Bangladesh
- CGPA: 3.86/4.0 (**Top 5%**) | CGPA in CSE Core: 3.96/4.0 | Distinction: Summa Cum Laude

Experience

Graduate Research Assistant Aug 2026 - Present
Clinical NLP and AI Innovation Lab (PittNAIL)
Supervisor : Dr. Yanshan Wang
Associate Professor, Department of Biomedical Informatics, University of Pittsburgh

Faculty (Lecturer) Sep 2022 - July 2026 (Study Leave)
Department of Computer Science and Engineering
Northern University Bangladesh

Volunteer Research Assistant (Remote) Nov 2023 – Jun 2026
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.

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.** 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.** 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.** 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.** 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**, *"An Interpretable Cost-Aware Framework for Mitigating Bias in Skin Lesion Classification Across Diverse Skin Tones."* **Under Review: Journal of Imaging Informatics in Medicine.**
  Preprint (medRxiv): https://doi.org/10.1101/2024.12.11.24318858. [Github]

- **Simon Bin Akter**, Sumya Akter, David Eisenberg, Chelsey Hill, Aaron Lotvola, Jorge Fresneda Fernandez, Tanmoy Sarkar Pias, Muhammad Rafiqul Islam, Humayera Islam. *"Can GPT Think Like Traditional Machine Learning and Neural Networks on Low Volume Clinical Data."* [Ongoing] Preprint (medRxiv): https://doi.org/10.64898/2026.08.19.26360765. [Github]

- Md Atik Shams, David Eisenberg, Sumaiya Fatema, Asma Sultana, DM Hasibul Islam, Junnatul Mawa, Anindita Datta, Nafiya Ahmed, Danastan Tasaouf Mridula, SK Mahmud, **Simon Bin Akter**, Tanjila Helaly, Jorge Fresneda Fernandez, Humayera Islam, Tanmoy Sarkar Pias *"Population Health-Based Machine Learning Reveals Associations Between Psychosocial Factors and Chronic Kidney Disease."* **Under Review: npj Health Systems.** Preprint (medRxiv): https:https://doi.org/10.48550/arXiv.2608.17174.

- 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."* [Ongoing] (**Presented at the 2025 INFORMS Annual Meeting.**) [Github]

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 and Information Fusion-Elsevier, Frontiers in Psychiatry-Frontiers, and IEEE Transactions on Artificial Intelligence-IEEE.

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.

- **Operating Systems:** Windows & Linux.

- **Software Tools:** Latex, Pycharm, Matlab, Jupyter Notebook, Google Colab, draw.io, VS Code, Codeblocks, Logisim, NetBeans, QT, Microsoft Office tools.

- **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), Federated Learning, Signal Processing, Image Processing & Computer Vision, Medical Imaging & Health Data.

- **Language:** Bengali (Fluent) and English (Fluent).

- **Database:** SQL & NoSQL.

- **Frameworks:** Django, Node JS, Bootstrap, React, TypeScript.