Monirul I. Mahmud

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Columbus Ave, Manhattan, New York 10024

Portfolio | GitHub | Google Scholar

EDUCATION

Georgia Institute of Technology, Atlanta   Starting from Fall 2025
M.S. in Data Analytics (Online)
Major in Business Analytics Track

Fordham University, New York   Aug 2024 – Ongoing
M.S. in Computer & Information Science
$23,587 GSAS Centennial Scholarship holder

North South University, Dhaka   Feb 2020 – Dec 2023
B.Sc in Computer Science & Engineering
CGPA: 3.43

PROFESSIONAL EXPERIENCES

Design Inclusion & Access Lab - DIAL   Jul. 2023 – Jun. 2024
Research Assistant (RA)
* Collaborated on the 'Feasibility of Alternative Credit Scoring for the Credit Invincibles of Bangladesh' project funded by **NSU-CTRG (CTRG-23-SEPS-02)**.
* Working on 'Impact of Generative AI in Computer Science in context of Bangladesh', 'Trustworthy Attention Residual Convolutional Network based DeepFake Detection using LIME' and 'Federated Learning based secured Diabetic Foot Ulcer Detection using GradCam' project. ***Certificate***

Systech Datasoft, Dhaka   Aug. 2023 – Dec. 2023
Trainee Engineer (Data Science)
* Developed an automated resume screening system for Systech Datasoft, Dhaka, using a dataset of public and collected candidate data to accurately predict suitability for positions with **97.92%** accuracy.
* Executed a **PDF parser** to extract candidate's email, name, and qualifications, enhancing the efficiency of the resume screening process. ***Certificate***

PROJECTS

Unveiling the LinkedIn Job Hunt: Skill, Industry, and Salary Trends in the USA
* Developed an interactive **Tableau** visualization analyzing LinkedIn job trends across various industries, skill demands, and salary ranges in the USA. Highlights include dynamic storytelling through charts and maps, providing actionable insights for job seekers and Employers.

Empowering the Elderly: Federated Learning for Activity Recognition with Mobile Sensor Data
* Activity Recognition for Elderly people with **72,000 collected** accelerometer and gyroscope data from our developed mobile app. **Federated Learning** Technique with **3 local models** are applied here for user data privacy. Also, XAI techniques - **SHAP** and **LIME** are used in this project.

Feasibility of Alternative Credit Scoring for the Credit Invincibles of Bangladesh
* Merged dataset of public and collected Bank data (both Quantitative and Qualitative data) is used here. Also, **Permutation Feature Importance, Morris Sensitivity Analysis** and **SHAP** are implemented to explain the Blackbox machine learning models.

DataVerse: A Collaborative Q&A Platform for Data Science Enthusiasts
* Developed a question-and-answer web platform focused on Data Science topics, including Machine Learning, Deep Learning, NLP, and Data Analytics. Enabled users to ask questions, provide answers, and connect with professionals. Utilized NoSQL database **MongoDB** with **98,000 data** for scalability and ensured an intuitive user experience with dynamic web frameworks.

Publication

[**1**] M. I. Mahmud, M. S. Reza, and S. S. Khan, **"Optimizing Stroke Detection: An analysis of different feature selection approaches,"** *Companion of the 2024 ACM International Joint Conference on Pervasive and Ubiquitous Computing, UbiComp '24, Australia*, pp. 142–146, Sep. 2024, doi:10.1145/3675094.3677602

[**2**] Md Shihab Reza, Monirul Islam Mahmud, Ifti Azad Abeer, and Nova Ahmed. 2024. **"Linear Discriminant Analysis in Credit Scoring: A Transparent Hybrid Model Approach."** International Conference on Computer and Information Technology (ICCIT). https://iccit.org.bd/2024/

[**3**] **(Under Review)** Monirul Islam Mahmud, Md Shihab Reza, and Nova Ahmed. 2024. Feature Selection Techniques for Improved Stroke Detection: A Transparent Hybrid Model Approach. International Conference on Computer and Information Technology.

[**4**] **(Under Review)** Md Shihab Reza, Farhana Elias, Monirul Islam Mahmud, and Nova Ahmed. 2024. Attention and Residual Mechanism-Enhanced Hybrid Deep Learning Model (ARC-Net) with EfficientNetB0 XAI Techniques for Deepfake (DF) Facial Image Detection. IEEE Transactions on Pattern Analysis and Machine Intelligence.

[**5**] **(Under Review)** Monirul Islam Mahmud, Md Shihab Reza, Farhana Elias, and Nova Ahmed. 2024. DFU_DIALNet - A Novel Hybrid Approach to Detect Diabetic Foot Ulcers: A Comparative Analysis with GradCam. IEEE Journal of Biomedical and Health Informatics (JBHI)

Skills

Database & Software: MongoDB, Redis, Neo4j, SQL, Trello, Latex, Tableau, Jira, Excel.

Language & Framework: PHP, Python, Django, Flask, Spark, D3.js, Tensorflow, Seaborn, Scikit Learn.

Technical Skills: Machine Learning, Data Mining, Explainable AI - (Permutation Feature Importance, Morris Sensitivity Analysis, GradCam, SHAP, LIME), Data Analytics - (Google Charts, Power BI & Tableau), Web Development.

Extra-Curricular Activities

Reviewer
IEEE Pervasive Computing (2024)
Evaluated and reviewed research paper submissions on Machine Learning topics.

Volunteer, Content Writing Team
IEEE NSU Student Branch, Bangladesh
Contributed articles and technical content to enhance the branch's outreach and visibility.

General Member, Team Provision
NSU ACM Student Branch, Bangladesh
Collaborated on student-focused initiatives promoting computing education and innovation.

References

Dr. Nova Ahmed
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