

Tashreef Muhammad

NLP & Sequence Modeling (Transformers, Time Series) · XAI for Medical Imaging

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TashreefMuhammad
Google Scholar: 120+ citations (Aug 2025)
Scopus: 50+ citations (Aug 2025)
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Research Interests

- Core **NLP** (low-resource Bangla); **sequence modeling for time series**; **transformers & foundation models** (exploring **LLMs for time series**); **explainable AI (XAI)**.
- Applied **Medical imaging** (ViT, transfer learning + XAI); dataset creation/benchmarking; reliable/transparent ML.

Education

- 2017–2022 **B.Sc. in Computer Science & Engineering**, *Ahsanullah University of Science and Technology (AUST)*, Dhaka, Bangladesh
CGPA: 3.77/4.00
Thesis: Hybrid Evolutionary and Machine Learning Approach for Stock Price Prediction and Investment Strategy Discovery (Dhaka Stock Exchange).

Academic Positions

- Oct **Lecturer**, *Southeast University*, Dhaka
2022–Present Teaching and supervising UG research in NLP, time-series, and medical imaging/XAI.
Feb 2022–Sep **Adjunct Faculty**, *Ahsanullah University of Science and Technology*, Dhaka
2022 Taught software development (MVC, C#); advised projects.

Research Experience

- 2024–Present **Deputy Director**, *A.R.i.S.E. Research Lab*, Southeast University
Lead/co-lead projects on Bangla NLP datasets (dialects, NER, hate speech), **transformers for time-series**, and **XAI for medical imaging**. Drove code/data releases and student supervision.

Selected Publications

- **Muhammad, T.** et al. (2023). Transformer-based deep learning model for stock price prediction: A case study on Bangladesh stock market. *International Journal of Computational Intelligence and Applications*. Citations: 88 (GS) / 48 (Scopus), Aug 2025 [Code]
- Paul, B., Preotee, F.F., **Muhammad, T.**, et al. (2024). Improving Bangla Regional Dialect Detection Using BERT, LLMs, and XAI. *IEEE COMPAS 2024* (conf.).
- Shuvashis, S.S., Refat, S.R., Preotee, F.F., **Muhammad, T.**, et al. (2024). An Exploratory Approach Towards Investigating and Explaining ViT and Transfer Learning for Brain Disease Detection. *IEEE ICCIT 2024* (conf.).
- Shuvashis, S.S., Refat, S.R., Preotee, F.F., **Muhammad, T.**.. (2024). Advanced CNN and XAI Based Architecture for Interpretable Brain MRI Analysis. *ACM ICCA 2024* (conf.).
- Khandaker, M.A.A., Raha, Z.S., Islam, S., **Muhammad, T.**.. (2024). Explainable AI-Enhanced Deep Learning for Pumpkin Leaf Disease Detection. *IEEE ICCIT 2024* (conf.).

Full list: Google Scholar

Preprints & Under Review

- **Vashantor**: Large-scale Multilingual Benchmark for Translating Bangla Regional Dialects → Bangla. (*submitted* to Elsevier Array, Q1).
- **ANCHOLIK-NER**: Bangla Regional Named Entity Recognition Benchmark. (*submitted* to PLOS One, Q1).
- **BIDWESH**: Bangla Regional Hate Speech Detection Dataset. (arXiv preprint).
- **VR-FuseNet**: Fusion of Heterogeneous Fundus Data with Explainable Network for Diabetic Retinopathy (*submitted* to Biomedical Materials and Devices, Q2).

Datasets & Open-source

- **Vashantor**: Code | Dataset — Large-scale benchmark for Bangla dialect → Bangla translation.
- **ANCHOLIK-NER**: Dataset — Bangla regional named entity recognition benchmark.
- **Stock Transformer**: Code | Dataset — Transformer + time2vec forecasting on Dhaka Stock Exchange (DSE).

Teaching

SEU Computer Fundamentals; Structured Programming; Discrete Mathematics; Data Structures; Numerical Methods; Embedded Systems.

Service

Reviewer International Journal of Computational Intelligence and Applications (2023); PLOS One (2025).
Department Program Coordinator (CSE): schedules, exams, academic events.
Community Assistant Moderator, Southeast Computer Club (2025): organized contests, workshops, tech fest; mentored students.

Awards & Achievements

2022 Dean's List of Honor, AUST.
Merit Merit-based tuition scholarships (multiple semesters).

Skills

Programming Python, C++, Java, MATLAB
ML Tooling TensorFlow/Keras, scikit-learn, pandas, Git, LaTeX
Areas NLP (transformers), Time-series forecasting, ViT/XAI, Dataset curation