Nafis Irtiza Tripto
🏠 Room 413, Eric J. Barron Innovation Hub, University Park, PA-16802
📧 nit5154@psu.edu ☎ +1 (814) 769-0720 🖥 Website 🎓Google Scholar 🔗 LinkedIn

Education

Ph.D. The Pennsylvania State University | Informatics   2022-Present(expected Spring, 2026)
College of Information Sciences and Technology | Advisor: Dr. Dongwon Lee | GPA: 4/4
M.Sc. Bangladesh University of Engineering & Technology | Computer Science & Engineering | GPA: 4/4   2021
B.Sc. Bangladesh University of Engineering & Technology | Computer Science & Engineering | 3.97/4   2017

Experience

Amazon   **Seattle, WA**
Applied Scientist Intern   (will start) May 2025–Aug 2025
- Developed a **memory-augmented framework** for **personalized code generation** with LLMs using prior coding history and interactions, introducing a novel evaluation of personalization. (paper submitted to TACL).

Home Depot   **Atlanta, GA**
Data Scientist Intern | *Contact Center Data Science team*   May 2024–July 2024
- **Predictive models for customer call intent:** Developed ML models and LLM-based techniques to predict customer call reasons by analyzing in-store purchases, web behavior, and historical call records. Processed 5B+ data rows through extensive cleaning, preprocessing, and pattern recognition achieving more than 80% accuracy.
- **Enhanced Customer Query Resolution with Retrieval-Augmented Generation (RAG):** Contributed a RAG-based LLM system to address customer queries using knowledge-base documents and evaluated its effectiveness with various automated metrics (saving 80% manual evaluation). (**Paper accepted** at *1st Workshop on GenAI and RAG Systems for Enterprise*, **CIKM'24**).

The Pennsylvania State University | *Ph.D. Researcher*   Aug 2022-Present **University Park, PA**
- **Graduate Teaching Assistant:** Spring 2025: IST 543, IST 564
- **Graduate Research Assistant:** PIKE Lab: Authorship in LLM (details in research projects section)

Bangladesh University of Engineering & Technology| *Lecturer*   July 2018-Aug 2022 **Dhaka, Bangladesh**

Technical Skills

Programming Language: Python, Java, C, C++, Assembly, PHP
Scripting Language & Other tools: SQL, MySQL, Oracle, SQLite, MATLAB, LaTeX, ZAProxy, MOBSF, Androbugs
Deep Learning Frameworks: PyTorch, Keras, Tensorflow, LLM finetuning, Prompt Engineering,

Research Projects

Authorship Analysis and Large Language Models (LLM)   Aug 2022–Present
- **HANSEN:** Explored the generative capabilities of LLM across diverse spoken text contexts such as speech, interviews, and conversations (**EMNLP'23**[*][1] ***findings***).
- **Ship of Theseus:** Investigated the impact of paraphrasing and how they shift from the original style, with the motivation from the Ship of Theseus paradox (**ACL'24**[*])
- **CollabStory:** Contributed to multi-LLM authorship analysis in story generation setting (**NAACL'25 *findings***).
- Analyzed multilingual AI text detectors' performance in authorship obfuscation (**EMNLP'24 *findings***).
- **Beyond Checkmate:** Conducted the study on which text segment (introduction, body, or conclusion) differs most between human and AI-generated text, inspired by a chess game analogy. (*Manuscript under revision*)

AI and Data Science Applications in Healthcare, Time Series Analysis, and Accessibility   2018-2021
- Anomaly detection & Forecasting for time-series gene expression using ARIMA and Deep Learning(**PLOS One, 2021**[*]).
- Feasibility analysis of an AI chatbot for adolescent sexual & reproductive health queries using human study (**CHI'21**).
- Bengali currency recognizer for the visually impaired population with ImageNet and vision models (**ICTD'19**).
- Sentiment analysis in Bengali (**ICBSLP'19**[*]) | Spatial visibility query analysis (**GeoInformatica 2019**[*])

Fellowship & Awards

NSF LinDiv Fellowship (Linguistic Diversity Across the Lifespan)   Fall 2024-Spring 2026
University Graduate Fellowship , The Pennsylvania State University,   Fall 2022 – Spring 2023
Regional Winner (Asia), *Global Undergraduate Awards*, Computer Science   2018

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[1]Star (*****) papers are **first-authored** published manuscripts