AMINUL ISLAM

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Google Scholar, LinkedIn, GitHub

RESEARCH INTERESTS

My research interests broadly lie at the intersection of data science and machine learning. More specifically, the vision of my research is to address various biases (e.g., position bias, selection bias, popularity bias) in different recommender systems (e.g., learning-to-rank, collaborative filtering, generative AI) to facilitate unbiased and fair recommendations. My current works focus on applying causal inference techniques, econometric models, and post-hoc methods to mitigate different types of biases in learning-to-rank systems and graph-based personalized recommender systems. However, I am also interested in other compelling applications within recommender systems, e-commerce, and broader data science.

EDUCATION

PhD Student in Computer Science, University of Illinois Chicago Jan. 2023 to present
CGPA: 4.0/4.0
Advisor: Dr. Elena Zheleva

B.Sc. in Computer Science & Engineering Jul. 2014 to Oct. 2018
Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh
CGPA: 3.57/4.0

WORK EXPERIENCE

Graduate Research Assistant, University of Illinois Chicago May 2024 to present

- I am working under the supervision of Dr. Elena Zheleva. I am working on two projects that use econometric methods to correct biases in learning-to-rank systems, and another project addressing biases in GNN-based recommender systems. A preprint of one of the projects is available at arXiv.

Internship, IDEAL Research Institute May 2025 to Oct. 2025

- I have worked as a student researcher at IDEAL (The Institute for Data, Econometrics, Algorithms, and Learning) with Dr. Ren Wang. I worked on addressing popularity bias in GNN-based collaborative filtering in a post-hoc manner. A preprint of the paper is available at arXiv.

Graduate Teaching Assistant, University of Illinois Chicago Jan. 2023 to May 2024

- I worked as a teaching assistant for *Programming Practicum* and *Introduction to Data Science* courses.

Software Engineer, Ridmik Labs, Dhaka, Bangladesh Nov. 2018 to Dec. 2022

- I was a Software Engineer at Ridmik Labs, where I was one of the main developers of the Bengali Ridmik Keyboard, which has over 200 million users. I also had experience building large-scale native Android and iOS apps (e.g., Boitoi-Android, Boitoi-iOS), where I was responsible for completing most of the features and functionalities. These apps now have millions of users. Moreover, I contributed to the development of RidmikChat, a messaging app based on the XMPP protocol. I also had expertise in developing a Bengali news article summarizer, web applications, backend systems, REST APIs, Web2 end-to-end encryption, account kit, and ensuring data privacy and security in software applications.

AIST Web Application, Department of CS, BUET May 1, 2021 to July 31, 2021

AIST Project is a web application for users to visualize the predictions of AIST (An Interpretable Attention-based Deep Learning Model for Crime Prediction).

PUBLICATIONS

Md Aminul Islam, Kathryn Vasilaky, and Elena Zheleva. Correcting for position bias in learning to rank: A control function approach. In arXiv. (under review)

Md Aminul Islam, Elena Zheleva, and Ren Wang. Post-hoc Popularity Bias Correction in GNN-based Collaborative Filtering. In arXiv. (under review)

SKILLS

Programming Languages: Python, Java, Swift, Kotlin, C, C++, Assembly (80X86)
Scripting Languages: JavaScript, Shell Scripts, Java Native Interface (JNI), HTML, CSS
Mobile Application Development & Frameworks : Android, iOS, Django
Database: SQL, Oracle
Security: AES (CBC & ECB), CommpnCrypto API, iOS Keychain
Tools & Others: Pandas, PyTorch, Tensorflow, LLM APIs, NLTK, REST API, Firebase, Google ML Kit & Vision API, Google Map API, LaTeX

MENTORING

I have mentored an undergraduate student on another research project in learning-to-rank systems. I am currently mentoring two additional undergraduate students on a project involving LLM-based causal hypothesis verification.

REVIEWER

WWW'25 and SDM'25

SELECTED COURSEWORK

- Machine Learning
- Causal Inference
- Graph Machine Learning
- Information Retrieval
- Introduction to Data Science
- Statistical NLP
- Artificial Intelligence
- Pattern Recognition
- Mathematical Analysis for CS
- Operating Systems