Tasfia Mashiat

Contact Information

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Education

George Mason University

Ph.D. in Computer Science
2019 - 2024
Advisor: Sanmay Das

George Mason University

M.S. in Computer Science
2019 - 2024

Khulna University of Engineering & Technology

B.Sc. in Computer Science
2014 - 2018

Research Interests

Machine Learning, Algorithmic Fairness, Computational Social Science

Work Experience

Assistant Professor of Instruction, University of Iowa
Department of Computer Science
Spring 2025 - Current
Courses:
CS 4400: Database Systems
CS 3980: Ethics in AI

Graduate Research Assistant, George Mason University
Department of Computer Science
Summer 2021 - Fall 2024
Focus: Characterizing Fairness in Societal Resource Allocation

Applied Scientist Intern, Amazon ML Solutions Lab, Washington DC, USA.
May 2023 - August 2023
Focus: Creating a benchmark dataset for evaluating unfairness in code generation by Large Language Models.

Applied Scientist Intern, Amazon ML Solutions Lab, Washington DC, USA.
May 2022 - August 2022
Focus: Mitigating gender bias in open-ended Natural Language Generation via conditional pre-training of Large Language Models.

Graduate Teaching Assistant, George Mason University
Department of Computer Science
August 2019 - May 2021

Courses:
SWE 637: Software Testing - Spring 2021
SWE 437: Software Testing and Maintenance - Spring 2021

CS 550: Database Systems - Fall 2020
CS 310: Data Structures - Fall 2019, Spring 2020

Lecturer, Eastern University, Dhaka, Bangladesh.
Department of Computer Science & Engineering
May 2018 - May 2019
Courses:
Introduction to Programming, Data Structure, Introduction to Algorithms, Data Mining, Software Engineering,

Engineering Intern, Ubitrix Inc., Dhaka, Bangladesh.
June 2016 - July 2016
Focus: Developing an android application "Pain Tool" to monitor pain levels experienced by immobile cancer patients.

Publications

- **Tasfia Mashiat**, Patrick J. Fowler, Sanmay Das, *Who Pays the RENT? Implications of Spatial Inequality for Prediction-Based Allocation Policies*. AAAI/ACM Conference on AI, Ethics, and Society (AIES 2025), Madrid, Spain (To appear).

- **Tasfia Mashiat**, Alex DiChristofano, Patrick J. Fowler, Sanmay Das, *Beyond Eviction Prediction: Leveraging Local Spatiotemporal Public Records to Inform Action*. ACM Conference on Fairness, Accountability, and Transparency (FAccT 2024), Rio de Janeiro, Brazil.

- Md Naimul Hoque, **Tasfia Mashiat**, Bhavya Ghai, Cecilia Shelton, Fanny Chevalier, Kari Kraus, Niklas Elmqvist. The HaLLMark Effect: Supporting Provenance and Transparent Use of Large Language Models in Writing with Interactive Visualization. Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI, 2024), Honolulu, Hawaii, USA.

- **Tasfia Mashiat**, Xavier Gitiaux, Huzefa Rangwala, Sanmay Das, *Counterfactually Fair Dynamic Assignment: A Case Study on Policing*. Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2023), London, UK.

- **Tasfia Mashiat**, *Characterizing Fairness in Societal Resource Allocation*. Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2023), Doctoral Consortium, London, UK.

- **Tasfia Mashiat**, Xavier Gitiaux, Huzefa Rangwala, Patrick Fowler, Sanmay Das, *Trade-offs between Group Fairness Metrics in Societal Resource Allocation*. ACM Conference on Fairness, Accountability, and Transparency (FAccT 2022), Seoul, Republic of Korea.

- **Tasfia Mashiat**, Xavier Gitiaux, Huzefa Rangwala, Sanmay Das, *Fairness-Aware Resource Assignment: A Case Study on Policing*, The 15th Workshop for Women in Machine Learning (WiML), Neural Information Processing Systems (NeurIPS 2020).

- Nur Imtizul Haque, Kazi Md. Rokibul Alam, **Tasfia Mashiat**, Yasuhiko Morimoto, *A Technique to Enrich the Secrecy Level of High Capacity Data Hiding Steganography Technique in JPEG Compressed Image*, International Conference on Networking, Systems and Security (NSysS 2018), Dhaka, Bangladesh.

Projects

- **Designing Community Actions for Eviction Prevention:** This project examines a novel eviction dataset to analyze patterns and properties of eviction filings for different geographic

areas of a major metropolitan city and configures eviction prediction models to inform outreach community agencies to assist high-risk populations facing eviction in both synthetic and real-world environments

- **Equitable Resource Allocation in the Context of Homelessness:** We are designing a statistically efficient approach to ensure equitable allocation of homelessness services within different subgroups based on protected attributes such as age, gender, race, etc.
- **Fair Assignment of Policing Resources:** We proposed a causality-based approach for the allocation of limited policing resources within neighborhoods while ensuring the allocation is fair. We conducted experiments on both synthetic and real-world data. We showed that following our approach both over-policing and under-policing can be reduced in areas with a significant difference in population demographic.
- **Examining the Relationship between Visual Representations of Code and Program Comprehension:** Conducted an empirical study on code readability using deep learning techniques such as CNNs, NLP, transfer learning, and multi-modal classification models like CodeBERT and CLIP. This project was conducted as a part of CS/SWE 795 - Intersections of Deep Learning & Software Engineering.
- **A Deep Neural Network Approach for Retrofitting Word Embeddings:** In this project, we proposed a deep learning model that can identify morphologically related word embeddings for languages with a high morpheme-per-word ratio in a sparse word vector domain.
- **Designing Test-bed for 4G/5G LTE Cellular Network Infrastructure:** The goal of this project was to set up 4G LTE and 5G cellular network testbeds to examine the data communication between User equipments and Base stations with the core network. This project was conducted as a part of CS701: Research Experience in CS.
- **Examining the Patterns of Taxi-rides in NYC:** The main goal of this project was to understand the demand pattern of taxi service in NYC through exploratory data analysis and machine intelligence. This project was conducted as a part of CS700: Research in CS.

Achievements

- Outstanding Graduate Teaching Assistant, Department of Computer Science, George Mason University (2021).
- Recipient of the Computer Science Department's Ph.D. Research Initiation Awards, George Mason University (2020).
- Champion, Women Innovation Camp, Arranged by A2I, ICT Division, Prime Minister's Office, Bangladesh (2016).
- Dean's Award for Excellence in Academic Results in sessions, 2015 - 2016, and 2017 - 2018.
- Certification from Leveraging Information & Communication Technology (LICT) project of Bangladesh Computer Council, under Ministry of Posts, Telecommunications and Information Technology Bangladesh Government based on Training in Advanced JAVA (2016).

Activities and Services

- Program Committee: ACM FAccT 2025 - 26, AIES 2024 - 26, AAMAS 26, ACM EAAMO 2023-2026.
- Reviewer: ACM FAccT, AIES, JAIR (2022-2024).
- Student volunteer: ACM FAccT 2024, AAMAS 2023.
- Workflow Chair: AIES 2023.
- Local Chair: ACM EAAMO 2022.
- Session Chair: ACM FAccT 2022
- Doctoral Consortium: AAMAS 2023, EAAMO 2022.
- Participated in DIMACS Workshop on Algorithm and Mechanism Design for Achieving the UN Sustainable Development Goals, May 2023.
- Volunteered for National High School Programming Contest Khulna Division, Bangladesh 2016.
- Participated in National Girls Programming Contest 2015.
- Mentored Idea Contests arranged by Khulna University of Engineering & Technology (KUET).