Tasfia Mashiat

Contact Information

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Education

George Mason University

Ph.D. in Computer Science
Starting semester: Fall 2019
CGPA: 3.93/4.00
Advisors: Prof. Sanmay Das and Prof. Huzefa Rangwala

Khulna University of Engineering & Technology

B.Sc. in Computer Science & Engineering
CGPA: 3.67/4.00
Passing month: February 2018

Research Interests

Fairness in Machine Learning, Equitable Resource Allocation

Publications

- **Tasfia Mashiat**, Xavier Gitiaux, Huzefa Rangwala, Sanmay Das, *Counterfactually Fair Dynamic Assignment: A Case Study on Policing*. (In Progress)
- **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

- **Equitable Resource Allocation in the Context of Homelessness:** In the project, we aim to propose a statistically efficient approach to ensure equitable allocation of homelessness services within different subgroups of population based on protected attributes such as age, gender, race, etc. This is an on-going project.
- **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.
- **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. This project was a part of the CS747: Deep Learning Course.
- **Examining The 4G/5G LTE Cellular Network Infrastructure (Advisor: Prof. Duminda Wijesekera):** 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-2016, Arranged by A2I, ICT Division, Prime Minister's Office, Bangladesh (2016).
- Dean's Award for Excellence in Academic Results in session 2015-2016.
- 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.

Professional Experience

Graduate Research Assistant, George Mason University
Department of Computer Science
Starting Summer 2021

Graduate Teaching Assistant, George Mason University
Department of Computer Science
SWE 437: Software Testing and Maintenance - Spring 2021
SWE 637: Software Testing - Fall 2021
CS 310: Data Structures - Fall 2019, Spring 2020

Lecturer, Eastern University, Dhaka, Bangladesh.
Department of Computer Science & Engineering
May 2018-May 2019

Intern, Ubitrix Inc.,Dhaka,Bangladesh.
Project "Pain Tool" Android Application
June 2016-July 2016

Technical Skills

Python, C, C++, Java; Git; Oracle, MySQL; CSS3, HTML5; Packet Tracer, CEDAR Logic Simulator;

Activities

- Volunteered for National High School Programming Contest Khulna Division (2016).
- Participated in National Girls Programming Contest (2015).
- Member of Special Group of Interest in Programming Contest of Khulna University of Engineering & Technology (KUET).
- Mentored Idea Contests arranged by Khulna University of Engineering & Technology (KUET).