

Amit Sarker

✉ asarker@umass.edu 🏠 [amit-sarker.github.io](https://github.com/amit-sarker) 🎓 Google Scholar 🔗 [amit-sarker](https://scholar.google.com/citations?user=amit-sarker) ☎ (314) 679-0698

EDUCATION

University of Massachusetts Amherst, Amherst, MA

Sep. 2022 - Present

Ms/PhD in Computer Science; Advised by Dr. Narges Mahyar and Dr. Ali Sarvghad

Research Group: [HCI-VIS Lab](#)

University of Dhaka, Bangladesh

Jan. 2016 - Dec. 2019

B.Sc. in Computer Science and Engineering; Advised by Dr. Md. Mosaddek Khan

Research Group: [CAIL Research Group](#)

RESEARCH & TEACHING EXPERIENCE

University of Massachusetts Amherst

• *Graduate Research Assistant*

Sep. 2022 - Present

- Working on designing and building a web-based visual data exploration platform for differentially private data. The tool aims to facilitate decision-making for DP privacy-utility trade-off parameters.
- Interviewed 18 differential privacy practitioners to learn about the real-world deployment challenges and how data visualization can be used to mitigate those challenges.

• *Graduate Teaching Assistant*

- CICS 110: Foundations of Programming, Fall 2023.

Cognitive Agents and Interaction Lab (CAIL), University of Dhaka

• *Research Assistant*

Jan. 2020 - Dec. 2020

- Applied local search-based algorithms for solving Continuous Distributed Constraint Optimization Problems (C-DCOPs) in multi-agent systems.
- Investigated different optimization methods that can solve both convex and non-convex continuous optimization problems.
- Investigated population-based algorithms (i.e., Particle Swarm Optimization (PSO)) to solve large C-DCOPs.
- Mentored undergraduate students and helped them on their senior year thesis projects on multi-agent planning and scheduling.

PROFESSIONAL EXPERIENCE

TigerIT Bangladesh Limited, Dhaka, Bangladesh

Apr. 2020 - Jul. 2021

• *Software Quality Assurance (SQA) Engineer*

- Identified the system requirements, studied the cutting-edge technologies, and developed ideas.
- Analyzed methodologies for implementing contact tracing module to reduce the spread of COVID-19.
- Created and executed well-structured test plans, implemented automation scripts.

PUBLICATIONS

Conference Publications

1. **A Local Search Based Approach to Solve Continuous DCOPs.**

Amit Sarker, Moumita Choudhury, and Md. Mosaddek Khan.

In Proceedings of the *20th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, pages 1127–1135, 2021, IFAAMAS. [Paper Link](#)

2. **C-CoCoA: A Continuous Cooperative Approximation Algorithm to Solve Functional DCOPs.**

Amit Sarker, Abdullahil Baki Arif, Moumita Choudhury, and Md. Mosaddek Khan.

In Proceedings of the *19th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, pages 1990–1992, 2020, IFAAMAS. (Extended Abstract) [Paper Link](#)

3. **C-CoCoA: A Continuous Cooperative Approximation Algorithm to Solve Functional DCOPs.**
Amit Sarker, Abdullahil Baki Arif, Moumita Choudhury, and Md. Mosaddek Khan.
11th International Workshop on Optimization and Learning in Multiagent Systems (OptLearnMAS)
@ AAMAS, 2020. (Full Paper)

Journal Publications

1. **Illuminating the Landscape of Differential Privacy: An Interview Study on the Use of Visualization in Real-World Deployments.**
Amit Sarker*, Liudas Panavas*, Ali Sarvghad, Cody Dunne, Narges Mahyar. (* - Equal Contribution)
2024, Under Review.
2. **A Particle Swarm Inspired Approach for Continuous Distributed Constraint Optimization Problems.**
Moumita Choudhury, **Amit Sarker**, S. Yaser, MAA. Khan, William Yeoh, Md Mosaddek Khan.
Engineering Applications of Artificial Intelligence Volume 123, Part B, August 2023, 106280. [Paper Link](#)

Thesis

1. **Applying Local Search Algorithms for solving Functional Distributed Constraint Optimization problems (F-DCOPs) in Multi-Agent Systems.**
Amit Sarker and Abdullahil Baki Arif.
Undergraduate Thesis, Computer Science and Engineering, University of Dhaka, 2019.

TECHNICAL SKILLS

- **Languages & Libraries:** Python, Java, C/C++, PyTorch, Pandas, NumPy, OpenDP, Diffprivlib
- **Web Development:** React, Node.js, Flask, MySQL, Oracle, MongoDB, Firebase
- **Visualization Tools:** D3, Matplotlib, Plotly
- **Research:** Differential Privacy, HCI, Data Visualization, Quantitative & Qualitative Data Analysis, Multi-Agent Systems, DCOPs

HONORS AND AWARDS

- **James Kurose Scholarship in Computer Science, UMass Amherst, 2023.**
- **Conference Scholarship (AAMAS 2021, AAMAS 2020)**
- **1st Runner-Up in Code Samurai 2019** *Nov. 2019*
 - An inter-university hackathon organized by Bangladesh-Japan venture company BJIT and the department of CSE, University of Dhaka.
 - The objective of the hackathon was to find efficient transportation routes in Dhaka city by considering several constraints, including transportation method, traffic situation, time, distance, etc.
- **Recipient of Secondary School Certificate (SSC) Board Scholarship** *Jan. 2012*
 - Placed 32nd in Bangladesh, awarded by the Ministry of Education, Intermediate and Secondary Education Boards Bangladesh.

VOLUNTARY ACTIVITIES & SERVICES

Conference Student Volunteer

- IEEE VIS 2023, AAMAS 2021, AAMAS 2020.

Shabab-Murshid Development Foundation (SMDF)

Feb. 2016 - Jan. 2020

Volunteer Teacher & Coach

- Took mathematics classes for underprivileged high school children.
- Motivated and prepared them to participate in the National Mathematical Olympiad, Bangladesh.

Leadership

Jan. 2017 - Feb. 2020

- Organized Freshers' Week, Treasure Hunt competition for the freshman year students of CSE, DU.
- Organized annual picnics, study tours with CS department students. Organized an international tour (India) during my senior year.