

Saaduddin Mahmud

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EDUCATION

University of Massachusetts Amherst

Ph.D. in Computer Science (4th Year)

Massachusetts, USA

September 2021 – Present

University of Massachusetts Amherst

M.Sc. in Computer Science (CGPA: 4.00/4.00)

Massachusetts, USA

September 2021 – May 2024

University of Dhaka

B.Sc. in Computer Science and Engineering

Dhaka, Bangladesh

January 2016 – December 2019

EXPERIENCE

AI Research and Applications Researcher Intern

Nissan Group North America, Inc

June 2024 – August 2024

Nissan Advanced Technology Center, Silicon Valley, USA

- Effective methods to facilitate natural language communication between autonomous vehicles (AVs) and humans.

AI Research and Applications Researcher Intern

Nissan Group North America, Inc

June 2023 – September 2023

Nissan Advanced Technology Center, Silicon Valley, USA

- Explanation generation for autonomous vehicles (AVs).

Research Assistant

Resource-Bounded Reasoning Lab, MCICS, UMass Amherst.

September 2021 – Present

Massachusetts, USA

- Topic: Reinforcement Learning and LLMs, Advisor: Professor Shlomo Zilberstein.

Lecturer

CSE, Ahsanullah University of Science and Technology.

January 2021 – July 2021

Dhaka, Bangladesh

- Taught Math for Computer Science and Compiler Design.

Research Assistant

Cognitive Agents & Interaction Lab (CAIL), CSE, University of Dhaka

January 2020 – December 2020

Dhaka, Bangladesh

- Topic: Multi-Agent decision-making.

PATENT

1. Vehicle Decision Making Using Sequential Information Probing.

Under Review; Joint Inventor.

2. Dynamic Refinement of Custom Classes Using Zero-Shot Image

Under Review; Joint Inventor.

RESEARCH PAPERS

1. Distributed Multi-Agent Coordination Using Multi-Modal Foundation Models

Saaduddin Mahmud, Dorian Benhamou Goldfajn, and Shlomo Zilberstein. (Under Review).

2. MAPLE: A Framework for Active Preference Learning Guided by Large Language Models

Saaduddin Mahmud, Meson Nakamura, and Shlomo Zilberstein. (**AAAI 2025**).

3. Verification and Validation of AI Systems Using Explanations

Saaduddin Mahmud, Sandhya Saisubramanian, and Shlomo Zilberstein. (**AAAI Fall Symposium 2024**).

4. Explaining the Behavior of POMDP-based Agents Through the Impact of Counterfactual Information.

Saaduddin Mahmud, Marcell VazquezChanlatte, Stefan Witwicki and Shlomo Zilberstein. (**AAMAS 2024**).

5. Learning Constraints on Autonomous Behavior from Proactive Feedback.

Connor Basich*, **Saaduddin Mahmud***, and Shlomo Zilberstein. (**IROS 2023**).

6. Explanation-Guided Reward Alignment.
Saaduddin Mahmud, Sandhya Saisubramanian, and Shlomo Zilberstein. (**IJCAI 2023**).
7. Semi-Autonomous Systems with Contextual Competence Awareness
Saaduddin Mahmud, Connor Basich, and Shlomo Zilberstein. (**AAMAS 2023**).
8. Causal Explanations for Sequential Decision Making Under Uncertainty: Foundations and Analysis.
Samer B. Nashed, **Saaduddin Mahmud**, Claudia V. Goldman, and Shlomo Zilberstein. (**Under Review JAIR, AAMAS 2023, Ext. Abs.**).
9. Estimating Causal Responsibility for Explaining Autonomous Behavior
Saaduddin Mahmud*, Samer B. Nashed*, Claudia V. Goldman, and Shlomo Zilberstein.
(**EXTRAAMAS workshop at AAMAS 2023**).
10. REVEALE: A Framework for Reward Verification and Learning.
Saaduddin Mahmud, Sandhya Saisubramanian, and Shlomo Zilberstein. (**SafeAI sy AAAI 2023, Best Paper Award Nomination**).

HONORS & AWARDS

Distinguished PhD Candidate <i>Recognition for outstanding performance in Ph.D. candidacy qualification.</i>	2024
B.Sc. Scholarship by the University Grants Commission <i>Awarded for outstanding performance in B.Sc.</i>	2021

PROGRAMMING SKILLS

Languages: Python, Julia, C, C++.
Libraries JAX, PyTorch.

REFERENCE

Professor Shlomo Zilberstein | *Professor, CICS, University of Massachusetts Amherst, MA, USA*

- Email: shlomo@cs.umass.edu
- Personal Website: <https://groups.cs.umass.edu/shlomo/>