Mahmud, Saaduddin Resume

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Education

University of Massachusetts Amherst — Massachusetts, USA
Ph.D. in Computer Science (4th Year) — *September 2021 – Present*

University of Massachusetts Amherst — Massachusetts, USA
M.Sc. in Computer Science (CGPA: 4.00/4.00) — *September 2021 – May 2024*

University of Dhaka — Dhaka, Bangladesh
B.Sc. in Computer Science and Engineering — *January 2016 – December 2019*

Experience

AI Research and Applications Researcher Intern — June 2024 – August 2024
Nissan Group North America, Inc — *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 — June 2023 – September 2023
Nissan Group North America, Inc — *Nissan Advanced Technology Center, Silicon Valley, USA*

- Explanation generation for autonomous vehicles (AVs).

Research Assistant — September 2021 – Present
Resource-Bounded Reasoning Lab, MCICS, UMass Amherst. — *Massachusetts, USA*

- Advisor: Professor Shlomo Zilberstein
- Reinforcement Learning and NLP

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
Recognition for outstanding performance in Ph.D. candidacy qualification.

B.Sc. Scholarship by the University Grants Commission
Awarded for outstanding performance in B.Sc.

H.S.C. Scholarship by the Bangladesh Government
Awarded for outstanding performance in high school.

Programming Skills

Languages: Python, Julia, C/C++, Java, JavaScript.
Libraries JAX, PyTorch, TensorFlow.

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/