

Amir Hossain Raj

☎ +1 571 396 2102 ✉ araj20@gmu.edu

🏠 amirraj.com 🎓 Google Scholar

EDUCATION

Doctor of Philosophy in Computer Science George Mason University, VA, USA	2022 - Present
Master of Science in Computer Science George Mason University, VA, USA	2022 - 2024
Bachelor of Science in Computer Science and Engineering Ahsanullah University of Science and Technology, Dhaka CGPA: 3.85/4.00	2016 - 2021

WORK EXPERIENCE

Graduate Teaching Assistant <i>Department of Computer Science</i> <i>George Mason University</i>	2022 - Present
Lecturer <i>Department of Computer Science and Engineering</i> <i>Ahsanullah University of Science and Technology</i>	2021 - 2022
Associate Software Engineer <i>Brain Station 23, Dhaka, Bangladesh</i>	2021

- Worked with Research and Development Team as a Machine Learning and AI Engineer

RESEARCH INTERESTS

Reinforcement Learning, Generative AI, Computer Vision, Navigation & Motion Planning for Autonomous Mobile Robots, Dexterous Locomotion, etc.

TECHNICAL SKILLS

Work experience with C++, Python, PyTorch, ROS, Isaac Lab etc.

PUBLICATIONS

Journal

1. Daeun Song, Jing Liang, Amirreza Payandeh, **Amir Hossain Raj**, Xuesu Xiao, Dinesh Manocha, “**VLM-Social-Nav: Socially Aware Robot Navigation through Scoring using Vision-Language Models**”, IEEE Robotics and Automation Letters (Volume: 10, Issue: 1, January 2025).
2. Saiful Islam, Aurpan Dash, Ashek Seum, **Amir Hossain Raj**, Tonmoy Hossain, Faisal Muhammad Shah, “**Exploring Video Captioning techniques: A Comprehensive Survey on Deep Learning Methods**”, SN Computer Science 2, no. 2 (2021): 1-28.

Conference

1. **A. H. Raj**, Z. Hu, H. Karnan, R. Chandra, A. Payandeh, L. Mao, P. Stone, J. Biswas, and X. Xiao. Targeted Learning: A Hybrid Approach to Social Robot Navigation. (ICRA 2024).
2. Zifan Xu, **Amir Hossain Raj**, Xuesu Xiao, and Peter Stone. Dexterous Legged Locomotion in Confined 3D Spaces with Reinforcement Learning. (ICRA 2024).
3. **Amir Hossain Raj**, Ashek Seum, Aurpan Dash, Saiful Islam, Faisal Muhammad Shah, “**Deep Learning Based Video Captioning in Bengali**”, The 26th IEEE International Conference on Automation and Computing (ICAC’21).
4. Ashek Seum, **Amir Hossain Raj**, Shadman Sakib, Tonmoy Hossain, “**A Comparative Study of CNN Transfer Learning Classification Algorithms with Segmentation for COVID-19 Detection from CT Scan Images**”, In 2020 11th International Conference on Electrical and Computer Engineering (ICECE), pp. 234-237. IEEE, 2020.
5. Suvom Shaha, Faisal Muhammad Shah, **Amir Hossain Raj**, Ashek Seum, Saiful Islam, Sifat Ahmed, “**Video Captioning in Bengali With Visual Attention**”, 2022 25th International Conference on Computer and Information Technology (ICCIT).

Workshop

1. B. Panigrahi, **A. H. Raj**, M. Nazeri, and X. Xiao. A Study on Learning Social Robot Navigation with Multimodal Perception. 14th Workshop on Planning, Perception, and Navigation for Intelligent Vehicles, IROS 2024.

Preprint

1. Al Jaber Mahmud, **Amir Hossain Raj**, Duc M Nguyen, Xuesu Xiao, Xuan Wang. Human-Robot Co-Transportation with Human Uncertainty-Aware MPC and Pose Optimization.
2. Amirreza Payandeh, Daeun Song, Mohammad Nazeri, Jing Liang, Praneel Mukherjee, **Amir Hossain Raj**, Yangzhe Kong, Dinesh Manocha, Xuesu Xiao. Social-LLaVA: Enhancing Robot Navigation through Human-Language Reasoning in Social Spaces.

UNDERGRADUATE THESIS

Video Captioning in Bengali using Deep Learning

2019-2020

Topic: Sequence to Sequence Model, Attention Mechanism

Developed a novel deep learning architecture to describe any short video clip with a single Bengali sentence.

PROFESSIONAL DEVELOPMENT

Deep Learning

2020

deeplearning.ai, Coursera ‘Specialization’

- Five course specialization covering Convolutional Neural Networks, Recurrent Neural Networks, Hyperparameter tuning, etc.

ACHIEVEMENTS AND PARTICIPATION:

- “Dean’s List of Honor” (based on B.Sc. result)
- Secured **2nd position** in Intra AUST Programming Contest Fall-17
- Participated in Intra AUST Programming Contest Spring-16, Spring-17, Fall-18
- Participated in Hackathon at BUP ICT Fest-2018
- Participated in Idea Contest in FABFEST-2018 by FABLAB DU at University of Dhaka
- Participated in Line Following Robot event at Intra AUST Technomania Spring 2016

REFERENCES

Xuesu Xiao

Assistant Professor

Dept of Computer Science

George Mason University

Email: xiao@gmu.edu

Faisal Muhammad Shah

Associate Professor

Dept of Computer Science and Engineering

Ahsanullah University of Science and Technology

Email: faisal.cse@aust.edu