

Md Jahidul Islam

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Education

May 2021 **Ph.D. in Computer Science (Robotics)**
University of Minnesota (UMN), Twin Cities, US
Dissertation: Machine Vision for Improved Human-Robot Cooperation in Adverse Underwater Conditions. Advised by: Dr. Junaed Sattar.

Feb 2015 **M.Sc. in Computer Science & Engineering (AI)**
Bangladesh University of Engineering and Technology (BUET)

Apr 2012 **B.Sc. in Computer Science & Engineering (2012)**
Bangladesh University of Engineering and Technology (BUET)

Professional Experiences

01/22 - Present Assistant Professor (Tenure-Track), Dept. of ECE, University of Florida, FL, US
* Director, RoboPI (Robot Perception and Intelligence) Laboratory.
* Research Focus: robot perception, machine vision, underwater robotics.

06/21 - 11/21 Research Scientist 2, Robert Bosch LLC. CA, US.

08/15 - 05/21 Graduate Research Assistant, Dept. of CSE, University of Minnesota. MN, US.

06/19 - 08/19 Interim Engineering Intern, Glance Team, Qualcomm. CA, US.

05/18 - 08/18 R&D Intern, AI group (Orthodontics team), CRSL, 3M. MN, US.

05/12 - 08/15 Asst. Professor & Lecturer, Dept. of CSE, United Int. University. Dhaka, Bangladesh.

11/13 - 04/14 Adjunct Lecturer, Dept. of CSE, BUET. Dhaka, Bangladesh.

Honors and Awards

2022 Outstanding reviewer: reviewer in excellence, IEEE Journal of Oceanic Engineering (JOE).

2019-20 Doctoral Dissertation Fellowship (DDF), Dept. of CSE, University of Minnesota, USA.

2019 RAS travel grant for ICRA 2019 in Montreal, Canada.

2017 IEEE/RSJ travel grant for IROS 2017 in Vancouver, Canada.

2015-16 ADC graduate fellowship, Digital Technology Center (DTC), University of Minnesota, USA.

2012-13 Runner-up. Int. Robotics Challenge (IRC) grand finale, Techfest, IIT-Bombay, India.

2012 Champion. Bangladesh regional of IRC, IEEE student branch, BUET, Bangladesh.

2006 Odyssey honorary award. English club, Notre Dame College (NDC), Dhaka, Bangladesh.

2004 1st Gold medalist. Sher-e-Bangla government boys' high school, Dhaka, Bangladesh.

Research Publications

Peer-reviewed Journal Articles

- [J1] **M. J. Islam**, J. Mo, and J. Sattar. *Robot-to-Robot Relative Pose Estimation using Humans as Markers*. The Autonomous Robots (AuRo), 45(4), pp. 579–593, 2021.
- [J2] J. Mo, **M. J. Islam**, and J. Sattar. *Fast Direct Stereo Visual SLAM*. The IEEE Robotics & Automation Letters (RA-L), 7 (2), pp. 778-785, 2021.
- [J3] **M. J. Islam**, Y. Xia, and J. Sattar. *Fast Underwater Image Enhancement for Improved Visual Perception*. The IEEE Robotics and Automation Letters (RA-L), 5 (2), pp. 3227-3234, 2020.
- [J4] **M. J. Islam**, J. Hong, and J. Sattar. *Person Following by Autonomous Robots: A Categorical Overview*. The International Journal of Robotics Research (IJRR), 38 (14), 2019.
- [J5] **M. J. Islam**, M. Fulton, and J. Sattar. *Towards a Generic Diver Following Algorithm: Balancing Robustness and Efficiency in Deep Visual Detection*. The IEEE Robotics and Automation Letters (RA-L), 4 (1), pp. 113-120, 2018.
- [J6] **M. J. Islam**, M. Ho, and J. Sattar. *Understanding Human Motion and Gestures for Underwater Human-Robot Collaboration*. The Journal of Field Robotics (JFR), 2018.
- [J7] A. B. M. A. A. Islam, **M. J. Islam**, N. Nurain, and V. Raghunathan. *Channel Assignment Techniques for Multi-Radio Wireless Mesh Networks: A Survey*. The IEEE Communications Surveys & Tutorials (IEEE ComST), pp. 988-1017, 2016.

Peer-reviewed Conference Papers

- [C1] **M. J. Islam**, R. Wang and J. Sattar. *SVAM: Saliency-guided Visual Attention Modeling by Autonomous Underwater Robots*. Robotics: Science and Systems (RSS), 2022, New York, USA.
- [C2] J. Mo, **M. J. Islam** and J. Sattar. *IMU-Assisted Learning of Single-View Rolling Shutter Correction*. Conference on Robot Learning (CoRL), 2021.
- [C3] **M. J. Islam**, P. Luo, and J. Sattar. *Simultaneous Enhancement & Super-Resolution of Underwater Imagery for Improved Visual Perception*. The Robotics: Science and Systems (RSS), 2020.
- [C4] **M. J. Islam**, C. Edge , Y. Xiao, P. Luo, M. Mehtaz , C. Morse, S. Enan, and J. Sattar. *Semantic Segmentation of Underwater Imagery: Dataset & Benchmark*. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020.
- [C5] **M. J. Islam**, S. S. Enan, P. Luo, and J. Sattar. *Underwater Image Super-Resolution using Deep Residual Multipliers*. IEEE International Conference on Robotics and Automation (ICRA), 2020.
- [C6] **M. J. Islam**, M. Ho, and J. Sattar. *Dynamic Reconfiguration of Mission Parameters in Underwater Human-Robot Collaboration*. IEEE International Conference on Robotics and Automation (ICRA), pp. 1-8, 2018, Brisbane, Australia.
- [C7] C. Fabbri, **M. J. Islam**, and J. Sattar. *Enhancing Underwater Imagery Using Generative Adversarial Networks*. IEEE International Conference on Robotics and Automation (ICRA), pp. 7159-7165, 2018, Brisbane, Australia.
- [C8] **M. J. Islam** and J. Sattar. *Mixed-domain Biological Motion Tracking for Underwater Human-Robot Interaction*. IEEE International Conference on Robotics and Automation (ICRA), pp. 4457-4464, May 2017, Singapore.
- [C9] F. Shkurti, W. Chang, P. Henderson, **M. J. Islam**, J. C. G. Higuera, J. Li, T. Manderson, A. Xu, G. Dudek, and J. Sattar. *Underwater Multi-Robot Convoying using Visual Tracking by Detection*. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pp. 4189-4196, September 2017, Vancouver, Canada.

Talks and Presentations

Invited Talks

- **04/22:** Speaker, AI in Smart Engineered Systems Mini Symposium, University of Florida, US.
- **03/22:** Seminar Talk, Harbor Branch Oceanographic Institute, Florida Atlantic University, US.

Conferences Presentations

- **07/22:** Oral presentation of paper [C1] at the RSS 2022, New York City, NY, US (in person).
- **07/20:** Oral presentation of paper [C3] at the RSS 2020 (virtual).
- **08/20:** Oral presentation of paper [C4] at the IEEE/RSJ IROS 2020 (virtual).
- **05/20:** Oral presentation of paper [C5] at the IEEE ICRA 2020 (virtual).
- **05/19:** Oral presentation of paper [J5] at the IEEE ICRA 2019, Montreal, Canada (in person).
- **06/18:** Oral presentation of paper [C6] at the IEEE ICRA 2018, Brisbane, Australia (in person).
- **06/17:** Oral presentation of paper [C8] at the IEEE ICRA 2017, Singapore (in person).

Poster Presentations

- **03/18:** Poster presentation on "Robo-Chat-Gest Language", MnDrive Symposium, UMN.
- **03/17:** Poster presentation on "The MDPM Tracker" at MnDrive Symposium, UMN.

Collaboration Experiences

Current collaborating institutes

- Warren B. Nelms Institute, University of Florida.
- Center for Coastal Solutions (CCS), University of Florida.
- Autonomous Field Robotics Lab (AFRL), University of South Carolina.
- Harbor Branch Oceanographic Institute (HBOI), Florida Atlantic University (FAU).
- Mote Marine Laboratory, Sarasota, Florida.
- Whitney Laboratory, University of Florida.
- Tampa Bay Estuary Program, St. Petersburg, Florida.

Past collaborations

- IRVLab, University of Minnesota: [Single view Rolling Shutter Correction \(2020-21\)](#)
 - Led by [Dr. Jiawei Mo](#).
 - He is now an applied scientist at AWS AI, Amazon.
- IRVLab, University of Minnesota: [GANs for Underwater Image Enhancement \(2017-18\)](#)
 - Led by [Cameron Fabbri](#).
 - He is now working as a ML Researcher at 3M.
- Mobile Robotics Lab, McGill University: [Underwater Multi-Robot Convoying \(2016-17\)](#)
 - Led by [Dr. Florian Shkurti](#).
 - He is now an Assistant Professor at the University of Toronto, Canada.

Participation in Marine Robotics Field Trials

01/2019 & 01/2018: International marine robotics field trials

- Organized by the Bellairs Research Institute (see <https://www.mcgill.ca/bellairs/>)
- At Holetown, Barbados

Student Advising and Mentoring Experiences

Current students

- Boxiao Yu, Ph.D. student, ECE, UF (Spring 2022 - Present).
- Adnan Abdullah, Ph.D. student, ECE, UF (Starting Fall 2022).
- Catalina Murray, Ph.D. student, ECE, UF (Starting Fall 2022).
- Jiayi Wu, Masters student, ECE, UF (Spring 2022 - Present).
- Ailani G Morales, Undergraduate student, ECE, UF (Spring 2022 - Present).
- Zhenqi Wu, Masters student, ECE, UF (Spring 2022 - Present).
- Ishaan Sing, Masters student, ECE, UF (Spring 2022 - Present).
- Ghanshyam Sookai, Undergraduate student, ECE, UF (Independent study; Spring 2022).
- Patrick Argento, Undergraduate student, ECE, UF (Independent study; Summer 2022).

Past mentee

- Peigen Luo: UG student, UMN (2019-20); he is now a software engineer at Google.
- Youya Xia: UG student, UMN (2018-19); she is now a graduate student at Cornell.
- Ruobing Wang: UG student, UMN (2019-21); he is now a software engineer at Amazon.
- Yuyang Xiao: UG student, UMN (2019-20); he is now a graduate student at UIUC.
- Marc Ho: Masters student, UMN (2017-18); he is now a data engineer at Optum.
- Muntaqim Mehtaz and Christopher Morse: undergraduate students at the UMN.

Hardware and Software Skills

- **Programming Languages:** Python, C++/C, Java, MATLAB, Unix Shell
- **Deep Learning Libraries:** TensorFlow 1.14+, Keras 2.2+, PyTorch 1.5+
- **Embedded AI devices:** Nvidia Jetson TX2/Nano/Xavier, Google Coral Edge TPU
- **Computer Vision Libraries:** OpenCV, Torch Vision
- **Robot Operating System (ROS):** ROS Kinetic and ROS2
- **Robot Platforms:** AQUA, OpenROV, BlueROV2, Chasing M2
- **Operating System:** Linux(Ubuntu), iOS, Windows