

Adnan Abdullah

PhD Student & Graduate Research Assistant, RoboPI Lab, University of Florida

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Professional Summary

PhD researcher in robotics and autonomous systems with hands-on experience in perception, navigation, SLAM, and AI-driven autonomy in GPS-denied, sensing-degraded environments.

Education

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| 01/23 – Present | PhD in Electrical and Computer Engineering
University of Florida (UF), Gainesville, FL, US
Advisor: Dr. Md Jahidul Islam Concentration: Field Robotics & AI |
| 01/23 – 12/25 | MS in Electrical and Computer Engineering
En route to PhD, University of Florida GPA: 3.96/4.00 |
| 02/16 – 02/21 | BS in Electrical & Electronic Engineering
Bangladesh University of Engineering and Technology (BUET), Bangladesh
Concentration: Communication and Signal Processing GPA: 3.73/4.00 |

Work Experiences

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| 01/23 – Present | Graduate Research Assistant, RoboPI Lab, University of Florida, FL, US
Research Highlight: <ul style="list-style-type: none">- Developed AR-based view augmentation systems for ROV teleoperation.- Introduced the first underwater cave image dataset for scene segmentation.- Engineered custom modular AUVs for semantic-guided underwater exploration and online mission reconfiguration.- Proposed the first robotic sensing pipeline for detecting and localizing adversarial acoustic agents near offshore data centers. |
| 01/24 – 04/24 | Graduate Teaching Assistant, Dept. of ECE, University of Florida, FL, US <ul style="list-style-type: none">- Designed robot demos and assignments with ROS; supported class projects |
| 02/22 – 12/22 | Adjunct Lecturer, Dept. of CSE, BRAC University, Dhaka, Bangladesh <ul style="list-style-type: none">- Designed lab curricula and supervised Electrical Circuits course projects |
| 06/21 – 01/22 | Lecturer, Dept. of EEE, Z. H. Sikder Univ of S&T, Shariatpur, Bangladesh <ul style="list-style-type: none">- Designed a new course curriculum on Mobile Cellular Communication |
| 05/19 – 12/20 | Undergrad Researcher, DSP Research Lab, BUET, Dhaka, Bangladesh <ul style="list-style-type: none">- Proposed a DL network for motion-artifact suppression in PPG signals |

Awards & Honors

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| 2025 | Best Poster Award, Nelms Annual IoT Conference, FL, US. |
| 2023 | Best Paper Award, ACM Workshop on Hot Topics in Storage and File Systems, MA, US. |
| 2019 | Dean's Honors List, BUET, Dhaka, Bangladesh. |
| 2015 | Government Talentpool Scholarship, Higher Secondary Certificate Exam, Dhaka, Bangladesh. |

Publications

Journal Articles & Manuscripts

- **A. Abdullah**, R. Chen, I. Rekleitis, M. J. Islam, “*EgoExo++: Integrating On-demand Exocentric Visuals with 2.5D Ground Surface Estimation for Underwater ROVs*,” The International Journal of Robotics Research (IJRR), 2026. [IF = 7.7]
- **A. Abdullah**, D. Blow, S. Rampazzi, M. J. Islam, “*Active Localization of Close-range Adversarial Acoustic Sources for Underwater Data Center Surveillance*,” Accepted for Publication in The IEEE Journal of Oceanic Engineering (JoE), 2026.
- **A. Abdullah**, R. Chen, D. Blow, T. Uthai, E. Du, and M. J. Islam, “*Human-Machine Interfaces for Subsea Telerobotics: from Soda-straw to Natural Language Interactions*,” In review, 2026.

Conference Proceedings & Workshops

- **A. Abdullah**, A. Gupta, V. Ramesh, S. Patel, M. J. Islam, “*NemeSys: Toward Online Underwater Exploration with Remote Operator-in-the-loop Adaptive Autonomy*,” Accepted for Publication in the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2026.
- A. Gupta, **A. Abdullah** (co-first author), X. Li, V. Ramesh, I. Rekleitis, M. J. Islam, “*Demonstrating CavePI: Autonomous Exploration of Underwater Caves by Semantic Guidance*,” Robotics Science and Systems (RSS), 2025, Los Angeles, CA, US.
- **A. Abdullah**, R. Chen, I. Rekleitis, M. J. Islam, “*Ego-to-Exo: Interfacing Third Person Visuals from Egocentric Views in Real-time for Improved ROV Teleoperation*,” International Symposium of Robotics Research (ISRR), 2024, Long Beach, CA, US. [Best Paper Collection]
- **A. Abdullah**, T. Barua, R. Tibbetts, Z. Chen, M. J. Islam, I. Rekleitis, “*CaveSeg: Deep Semantic Segmentation and Scene Parsing for Autonomous Underwater Cave Exploration*,” IEEE International Conference on Robotics and Automation (ICRA), 2024, Yokohama, Japan.
- D. Blow, **A. Abdullah**, J. Sheldon, W. Zhu, S. Rampazzi, M. J. Islam, “*Detection and Localization of Acoustic Vulnerabilities of Underwater Data Centers for Remote Surveillance*,” SPIE Ocean Sensing and Monitoring XVII, 2025, Orlando, FL, US.
- R. Chen, D. Blow, **A. Abdullah**, M. J. Islam, “*Word2Wave: Language-Driven Mission Programming for Efficient Subsea Deployments of Marine Robots*,” IEEE International Conference on Robotics and Automation (ICRA), 2025, Atlanta, GA, US.
- R. Chen, D. C. Blow, **A. Abdullah**, M. J. Islam, “*SubSense: VR-Haptic and Motor Feedback for Immersive Control in Subsea Telerobotics*,” The OCEANS 2025 Great Lakes conference, 2025, US.
- M. Mohammadi, **A. Abdullah**, A. Juneja, I. Rekleitis, M. J. Islam, R. Zand, “*Edge-Centric Real-Time Segmentation for Autonomous Underwater Cave Exploration*,” IEEE International Conference on Machine Learning and Applications (ICMLA), 2024, Miami, FL, US.
- J. Sheldon, W. Zhu, **A. Abdullah**, S. H. V. Bhupathiraju, T. Sugawara, K. Butler, M. J. Islam, S. Rampazzi, “*AquaSonic: Acoustic Manipulation of Underwater Data Center Operations and Resource Management*,” 45th IEEE Symposium on Security and Privacy (SP), 2024, San Francisco, CA, US.
- J. M. Sheldon, W. Zhu, **A. Abdullah**, K. Butler, M. J. Islam, S. Rampazzi, “*Deep Note: Can Acoustic Interference Damage the Availability of Hard Disk Storage in Underwater Data Centers?*,” ACM Workshop on Hot Topics in Storage and File Systems, 2023, Boston, MA, US. [Best Paper Award]
- **A. Abdullah**, M. Talebi, R. Chen, M. J. Islam, “*A Mobile Robotic Solution for Dense Water Quality Sensing and Monitoring*,” RENE Workshop at IEEE ICRA, 2024, Yokohama, Japan.
- S. Huang, **A. Abdullah**, R. Chen, M. J. Islam, “*Dynamic Light-field Sensing for Distributed Light Pollution Monitoring*,” RENE Workshop at IEEE ICRA, 2024, Yokohama, Japan.

Presentations

- 12/2025** Poster presentation on *LC-MAP* at Nelms Annual IoT Conference, FL, US.
- 05/2024** Oral and poster presentations of CaveSeg at ICRA 2024, Yokohama, Japan.
- 05/2024** Oral and poster presentations on Dense Water Quality Sensing and Distributed Light Field Sensing at the RUNE Workshop, ICRA, Yokohama, Japan.
- 12/2023** Demo presentation of *DarkMask* at the Center for Coastal Solutions Summit, FL, US.

Marine Robotic Field Operations & Collaborations

- 2023-2025** Autonomous Field Robotics Lab, University of South Carolina (/Uni of Delaware).
- 2024** Autonomous Systems Bootcamp, University of Delaware.
- 2024** Coastal and Marine Lab, Florida State University.
- 2023** Center for Ecosystem Forecasting, Virginia Tech University.

Mentoring Experiences

- 2026** Harsha Gundala Sureshbabu (harsha.gundalas@ufl.edu), MS student, UF.
 - Subsea LiDAR system integration and data processing pipeline.
- 2026** Paul Grau (pgrau@ufl.edu) & Michael Priore (michaelpriore@ufl.edu), UG students, UF.
 - Multi-sensor SLAM system development and ROS integration.
- 2025** Alankrit Gupta (gupta.alankrit@ufl.edu) & Xian Yao Li (xianyao.li@ufl.edu), MS students, UF.
 - *NemoGator* biomimetic robot for marine ecosystem monitoring.
- 2023** Reagan Tibbetts (rbt@email.sc.edu, UG student, USC), Zijie Chen (chen.zijie@ufl.edu, UG student, UF), and Richard Feng (Buchholz High School, FL).
 - *CaveSeg* dataset curation for underwater cave scene segmentation.

Service

- Peer reviewer of 20+ manuscripts. Confs- ICRA, IROS, ISRR, RSS; Journals- IEEE RA-L, T-HMS, T-CI, T-CSVT, JoE, ACM T-HRI.
- Graduate mentor: UF Student Science Training Program (SSTP), 2026.
- Workshop instructor: *Building Nemo* for K-12 students, UF RISE-CPET outreach program, 2025.
- Presenter: Robotic demonstrations during *RoboGator Day*, UF, 2025.

Technical Skills

- Programming & ML: Python (PyTorch, OpenCV, Pandas, NumPy), CUDA, TensorRT, MATLAB
- Robotic Software: ROS1 Noetic, ROS2 Galactic/Humble, Gazebo, RViz, Foxglove
- Robot Platforms: BlueROV2, BlueBoat, Aqua2, NemoSens, CavePI (custom), NemoSys (custom)
- Edge-AI Devices: Nvidia Jetson Nano, Orin Nano, Xavier NX
- SBCs & Sensors: Raspberry Pi, Arduino, Pixhawk, DAD Board, IMU, LiDAR, Hydrophone
- Tools: Docker, Conda, Git, VS Code, Ubuntu Linux, LaTeX