Eric Huynh

New England Robotics Validation and Experimentation (NERVE) Center
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Research Interests

How autonomous systems perceive, act, and learn in dynamic environments — spanning learning-based control, reinforcement and imitation learning, multi-sensor fusion, probabilistic state estimation, and field robotics.

Education

University of Massachusetts Lowell — Expected: May. 2026
M.S. in Computer Engineering — Thesis advisor: Prof. Paul Robinette
Thesis: Sonar-Centric Perception for Underwater Robots: Mapping the Deep, One Angle at a Time *(under preparation)*

University of Massachusetts Lowell — Sept. 2020 — Dec. 2023
B.S. Double Major: Electrical Engineering and Computer Science, Minor in Robotics — GPA: 3.94/4.00

Publications

Conference publications (peer-reviewed)

2. **E. Huynh**, M. E. Cabrera, P. Robinette, "Spectral Whitening and Confidence Fusion for Robust Sonar Scan Matching", 2026 IEEE International Conference on Robotics and Automation (ICRA). *Under Review*

1. **E. Huynh**, P. Robinette, "Modality Matters: A Sim-to-Real Study of Sonar-Based Object Detection and Tracking", IEEE OES/MTS Oceans Conference, Chicago, IL, USA, September 2025.

Workshop Papers and Posters (lightly peer-reviewed)

4. **E. Huynh**, P. Robinette, "Sim-to-Real Evaluation of Scanning and Multibeam Sonar for Object Detection in Underwater Environments." 2025 ICRA Workshop AQ²UASIM: Advancing Quantitative and QUAlitative SIMulators for marine applications, Atlanta, GA, USA, May 2025.

3. **E. Huynh**, P. Robinette, "Evaluating Sonar-Based Object Detection in HoloOcean And Real-World Environments", 2025 Umass Lowell Student Symposium, April 2025.

2. **E. Huynh**, S. Sicari, P. Robinette, "Optimizing Underwater Image Enhancement Algorithms Through HoloOcean Simulator", 2024 Northeast Robotics Colloquium (NERC), Amherst, MA, USA, September 2024.

1. **E. Huynh**, N. Uhunsere, Z. R. Khavas, P. Robinette, "A 3D Simulation Approach to Evaluate Human-Robot Interaction in Emergency Scenarios", 2024 Umass Lowell Student Symposium, April 2024.

Professional Experience

Graduate Research Assistant, UMass Lowell NERVE Center — June 2024 — Present
University of Massachusetts Lowell — Lowell, MA

- Develop and evaluate sonar-centric SLAM and multi-sensor fusion algorithms (sonar, IMU, camera, USBL) for underwater perception, mapping, and localization on simulated and real BlueROV2 platforms, with results presented at OCEANS 2025 and ICRA 2025.

Research Assistant, US DEVCOM ARL STRONG — July 2022 — May 2024
University of Massachusetts Lowell — Lowell, MA

- Co-designed a 3D Unreal Engine simulation to study and improve human-robot interaction and task engagement in collaborative emergency situations for robotics research.

Reliability Operations Engineering Intern, Reliability Operations Team — Jan. 2022 — June 2022
Analog Devices — Wilmington, MA

- Redesigned LabVIEW-based control software and developed automated monitoring tools to enhance hardware integration, reliability testing, and data collection efficiency in the Reliability Operations Lab.

Oculus Launch Pad Fellow Sep. 2020 — April. 2021
Oculus VR Menlo Park, CA

- Developed a VR prototype using Unity and Oculus SDK as part of the Oculus Launch Pad Fellowship, focusing on immersive interaction design and performance optimization.

Research Assistant, SiliconSynapse Lab April 2020 — Sep. 2020
Northeastern University Boston, MA

- Assisted in the design and development of HARPY, a thruster-assisted legged robot prototype.

Grants and Fellowships

UMass Lowell International Student Scholarship 2020 — 2023

Debi Prasad Sodhani Scholarship Jan. 2020

MassBay STEM Mentor Program Scholarship Jan. 2020

Honors and Awards

UMass Lowell Dean's Medal for Highest Achievement in Electrical Engineering May 2021

MassBay IMPACT Award May 2020

MassBay Electrical and Computer Engineering Program Award Winner May 2020

Professional Service

Reviewer

- IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR) Reviewer Aug. 2024

Volunteer Service & Outreach

- Mentoring and Academic Support (MAS) Program at Walsh Middle School 2018 — 2019