

# LIN ZHAO

215 S Ferry Rd, Narragansett, RI 02882

[linzhao@uri.com](mailto:linzhao@uri.com) ♦ +1(401) 771-4661

## EDUCATION

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### University of Rhode Island, USA

Ph.D. Candidate in Ocean Engineering

Advisor: Prof. Mingxi Zhou

Aug. 2019 - Present

GPA: 3.89/4.0

### University of Nevada, Las Vegas, USA

M.S. in Mechanical Engineering

Advisor: Prof. Woosoon Yim

Aug. 2013 - Aug. 2015

### Zhejiang University City College (now Hangzhou City University), China

B.E. in Mechanical & Electronic Engineering

Aug. 2009 - Jun. 2013

## ACADEMIC EXPERIENCE

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### University Rhode Island

Research Assistant

Aug. 2019 - Present

*Narragansett, RI*

- Hardware time-sync for multi-system (IMU, Camera, DVL, onboard computer) and underwater vehicle system integration.
- ROS software drivers for acoustic sonars (e.g., Doppler, Imaging, Bathymetric).
- Multi-sensor (IMU, DVL, Camera, FLS) SLAM for ice-water exploration.
- Coverage path planning for the bathymetric survey.
- Software development and maintenance for our Unmanned Autonomous Vehicles (AUVs).

Teaching Assistant

*Narragansett, RI*

- OCG110 The Ocean Planet, 2019 Fall.
- OCG123G Climate change and the oceans, 2020 Spring.
- OCG120G The World of Robots, 2023 Spring.

### University of Nevada, Las Vegas

Research Assistant

Aug. 2013 - Aug. 2015

*Las Vegas, NV*

- Path planning simulation (A\*, D\* Lite, Reciprocal Velocity Obstacle).
- 2D path planning integration with ground vehicle using Hokuyo Lidar.
- 3D path planning (Vector Field Histogram) development and integration with UAV using Kinect.

Teaching Assistant

*Las Vegas, NV*

- Automatic Control Laboratory, 2013 Fall/2014 Fall.
- Engineering Measurement Laboratory, 2014 Spring.

## INDUSTRY EXPERIENCE

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### ECARX

Algorithm Engineer

Dec. 2018 - Aug. 2019

*Hangzhou, China*

- Lidar-based algorithms development and software implementation for self-driving car.

### D2robot Technology

Research & Development Engineer

Jul. 2017 - Aug. 2018

*Hangzhou, China*

- **Software development:** drivers for motor and communication board.

- **Algorithm application:** visual SLAM and differential motion control.
- **Multi-sensor fusion:** calibration (cameras and Lidar), data transmission (pointcloud compression and TCP transmission) and real-time 3D dense reconstruction.
- **Medical image processing:** C-Arm imaging device calibration, vertebral contour detection from CT image.

**Zhejiang Skywalker Innovation Technology**  
Software Engineer

Oct. 2015 - Jun. 2017  
Hangzhou, China

- **Lidar Scanner Design (Leader):** algorithm design to generate 2D data from a single point laser; driver development for UAV flight controller (stm32) and ROS; implemented PID controller to the rotation module; improved in structure design of the entire mechanical system.
- **Obstacle Avoidance:** 2D obstacle avoidance algorithm integration with UAV flight controller; 2D SLAM algorithm implementation on UAV with developed 2D Lidar scanner.

## PUBLICATIONS

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### Conferences:

1. **L. Zhao**, M. Zhou, B. Loose, *Tightly-coupled Visual-DVL-Inertial Odometry for Robot-based Ice-water Boundary Exploration*. 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). 2023, Detroit, USA.
2. **L. Zhao**, M. Zhou and B. Loose, *Towards Under-ice Sensing using a Portable ROV*, OCEANS 2022, Hampton Roads, VA, USA, 2022, pp. 1-8. (**student poster competition finalist**)
3. E. C. Gezer, M. Zhou, **L. Zhao** and W. McConnell, *Working toward the development of a generic marine vehicle framework: ROS-MVP*, OCEANS 2022, Hampton Roads, VA, USA, 2022, pp. 1-5.
4. E. C. Gezer, **L. Zhao**, J. Beason and M. Zhou, *Towards seafloor mapping using an affordable micro-UUV*, OCEANS 2021, San Diego, CA, USA, 2021, pp. 1-5.
5. **L. Zhao**, M. Zhou, B. Loose, V. Cousens and R. Turrise, *Modifying an Affordable ROV for Under-ice Sensing*, OCEANS 2021, San Diego, CA, USA, 2021, pp. 1-5.
6. M. Zhou, J. Shi and **L. Zhao**, *Towards the Development of an Online Coverage Path Planner for UUV-based Seafloor Survey using an Interferometric Sonar*, IEEE/OES Autonomous Underwater Vehicles Symposium (AUV), St. Johns, NL, Canada, 2020, pp. 1-5.
7. Z. Cook, **Lin Zhao**, J. Lee and Woosoon Yim, *Unmanned aerial system for first responders*, 12th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI), Goyang, 2015, pp. 306-310.

## SKILLS

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<b>Programming:</b>	C/C++, Python, Matlab, Arduino
<b>Libraries:</b>	ROS, OpenCV, Open3D, PCL, PyTorch
<b>Robots:</b>	UAV, UGV, ROV, AUV, USV
<b>Sensors:</b>	LiDAR, Camera, RGBD-Camera, Imaging/Bathymetric Sonar, IMU, DVL

## HONORS & AWARDS

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<b>Student Poster Competition Finalist</b> , IEEE/MTS OCEANS 2022, Hampton Roads, VA.	2022
<b>Academic Innovation Scholarship</b> , College of Engineering, Zhejiang University City College.	2013

## PROFESSIONAL AFFILIATION

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IEEE Graduate Student Member

IEEE Robotics and Automation Society (RAS) Member

IEEE Oceanic Engineering Society (OES) Member