LIN ZHAO

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EDUCATION

University of Rhode Island, USA Aug. 2019 - Present
Ph.D. Candidate in Ocean Engineering GPA: 3.89/4.0
Advisor: Prof. Mingxi Zhou

University of Nevada, Las Vegas, USA Aug. 2013 - Aug. 2015
M.S. in Mechanical Engineering
Advisor: Prof. Woosoon Yim

Zhejiang University City College (now Hangzhou City University), China Aug. 2009 - Jun. 2013
B.E. in Mechanical & Electronic Engineering

ACADEMIC EXPERIENCE

University Rhode Island Aug. 2019 - Present
Research Assistant, Smart Ocean System Lab (SOSLab) *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 and field test for SOSLab developed ALPHA 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/2024 Spring

University of Nevada, Las Vegas Aug. 2013 - Aug. 2015
Research Assistant, Intelligent Structures and Control Lab *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

ECARX Dec. 2018 - Aug. 2019
Algorithm Engineer *Hangzhou, China*

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

D2robot Technology Jul. 2017 - Aug. 2018
Research & Development Engineer *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 Oct. 2015 - Jun. 2017
Software Engineer *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

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, Detrot, 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. Turrisi, *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

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

HONORS & AWARDS

Student Poster Competition Finalist, IEEE/MTS OCEANS 2022, Hampton Roads, VA. 2022

Academic Innovation Scholarship, College of Engineering, Zhejiang University City College. 2013

PROFESSIONAL AFFILIATION

IEEE Graduate Student Member

IEEE Robotics and Automation Society (RAS) Member

IEEE Oceanic Engineering Society (OES) Member