

# Mingxi Zhou

Room 103, Horn Building  
Narragansett Bay Campus  
Graduate School of Oceanography  
University of Rhode Island  
Phone: 401-874-6633  
Email: mzhou@uri.edu

## CURRENT POSITION

**Assistant Professor** **October 2018 to Present**  
Graduate School of Oceanography, University of Rhode Island

## EDUCATION

**Ph. D., Ocean and Naval Architectural Engineering** **September 2012 to May 2017**  
Sub Disciplines: Ocean Instrumentation, Mechatronics, and Controls  
Faculty of Engineering and Applied Science,  
Memorial University of Newfoundland, St. John's, NL, Canada  
Thesis title: *Underwater Iceberg Profiling and Motion Estimation using Autonomous Underwater Vehicles*

**M. Eng., Mechanical Engineering** **January 2010 to August 2012**  
Faculty of Engineering and Applied Science,  
Memorial University of Newfoundland, St. John's, NL, Canada  
Thesis title: *The Approach of Improving the Roll Control of a Slocum Autonomous Underwater Glider*

**B. Eng., Microelectronics Manufacture Engineering** **September 2005 to June 2009**  
Faculty of Mechanical and Electrical Engineering,  
Central South University, Changsha, Hunan, China  
Graduation Project: *Use Image Processing to Study Bond Head Kinematics and Inflection Points in Wire Bonding*

## WORKING & TEACHING EXPERIENCE

**Postdoctoral Fellow** **June 2018 to September 2018**  
Autonomous Ocean System Laboratory  
Department of Physics and Physical Oceanography, Memorial University of Newfoundland

**Lead Robotic Engineer** **February 2018 to June 2018**  
Averro Robotics and Technology Inc.  
Duties: Leading engineering project, designing tactile-feedback robotic arm, designing control console, software programming

**Postdoctoral Fellow** **May 2017 to March 2018**  
Autonomous Ocean System Laboratory  
Faculty of Engineering and Applied Science, Memorial University of Newfoundland

<b>Guest lecturer, "Autonomous Underwater Vehicles"</b> ENGI-6055 Marine Cybernetics, Faculty of Engineering and Applied Science, Memorial University of Newfoundland	<b>November 2017</b>
<b>Embedded System Engineer</b> Sentto Labs Inc.	<b>January 2015 to January 2016</b>
<b>Graduate Teaching Assistant</b> ENGI-1030 Engineering Graphics and Design, Faculty of Engineering and Applied Science, Memorial University of Newfoundland	<b>May 2010 to April 2017</b>
<b>Graduate Teaching Assistant</b> ENGI-6928 Computer Aided Engineering Applications, Faculty of Engineering and Applied Science, Memorial University of Newfoundland	<b>September 2016 to December 2016</b>
<b>Mechanical Engineer Intern</b> Shenzhen Wetel Equipment Company LTD.	<b>June 2008 to August 2008</b>

## HONORS, AWARDS & CERTIFICATIONS

<b>Student Poster Competition Finalist, OCEANS' 16 Monterey</b> Office of Naval Research USA	<b>September 2016</b>
<b>Ocean Industries Student Research Awards (CAD 99,000)</b> Research and Development Corporation Newfoundland and Labrador	<b>September 2012</b>
<b>Fellow of School of Graduate Studies</b> School of Graduate Studies, Memorial University of Newfoundland	<b>October 2012</b>
<b>SOLIDWORKS Mechanical Design - Associate</b>	<b>April 2015</b>
<b>Marine Emergency Duties A1, Training Certification</b> Marine Institute, Memorial University of Newfoundland	<b>April 2014</b>
<b>First Prize</b> Competition of Mechanical Innovation and Design of University Student	<b>July 2008</b>

## RESEARCH INTERESTS

Marine Robotics, Vehicle navigation and mapping  
 Vehicle path-planning and autonomous development  
 Multi-vehicle collaboration  
 Multi-modal vehicle design, sensor development

## RESEARCH PROJECT PARTICIPATION

<b>Ocean Frontier Institute</b> Duties: Operating and maintaining Slocum underwater gliders	<b>September 2017 to March 2018</b>
<b>Autonomous Submersible Surface Vehicle - SEADUCK</b> Duties: Consulting vehicle systems design	<b>September 2017 to March 2018</b>
<b>NSERC Canadian Field Robotics Network (NCFRN)</b> Duties: Participating field trials and presenting research works to partners	<b>May 2014 to March 2018</b>
<b>The Design and Development of an Autonomous Iceberg Draft Measurement and Profiling System</b> Duties: Principle Investigator	<b>September 2012 to April 2017</b>
<b>Ice Ocean Sentinel System (IOSS)</b> Duties: Principle researcher in underwater iceberg mapping	<b>September 2013 to September 2017</b>

## PUBLICATIONS

### Refereed papers

- M. Zhou**, R. Bachmayer, and B. deYoung, *Mapping the Underside of an Iceberg with an Autonomous Underwater Glider*, to be submitted to Journal of Field Robotics, Impact factor: 4.88.
- M. Zhou**, R. Bachmayer, and B. deYoung, *Estimating the Iceberg Motion for Shape Reconstruction and Iceberg-relative Navigation*, to be submitted to IEEE Journal of Oceanic Engineering, Impact factor: 2.30.
- M. Zhou**, R. Bachmayer, and B. deYoung, *Underwater Navigation using Acoustic Modems and Downward-looking Sonars on Multiple AUVs*, to be submitted to The Journal of Navigation, Impact factor: 1.59.
- M. Zhou**, R. Bachmayer, and B. deYoung, *Underwater Acoustic-based Navigation towards Multi-vehicle operation and Adaptive Oceanographic Sampling*, IEEE/RSJ International Conference on Intelligent Robots and Systems, Vancouver, BC, Canada, September 2017.
- M. Zhou**, R. Bachmayer, and B. deYoung, *Adaptive Heading Controller on an Underwater Glider for Underwater Iceberg Profiling*, Arctic Technology Conference, St. John's, Canada, October 2016.

### Non-refereed papers

- M. Zhou**, R. Bachmayer, and B. deYoung, *Towards Autonomous Underwater Iceberg Profiling using a Mechanical Scanning Sonar on a Underwater Slocum Glider*, 2016, IEEE/OES Autonomous Underwater Vehicles (AUVs), Tokyo, Japan, November 2016.
- M. Zhou**, R. Bachmayer, and B. deYoung, *Mapping for Control in an Underwater Environment using a Dynamic Inverse-sonar Model*, OCEANS 2016 MTS/IEEE Monterey, September 2016.
- M. Zhou**, R. Bachmayer, and B. deYoung, *Working Towards Seafloor and Iceberg Underside Mapping with Slocum Underwater Glider*, 2014 IEEE/OES Autonomous Underwater Vehicles (AUVs), Mississippi, USA, October 2014.
- M. Zhou**, R. Bachmayer, and B. deYoung, *Initial Performance Analysis on Underside Iceberg Profiling with Autonomous Underwater Vehicle*, MTS/IEEE OCEANS' 14, St. John's Canada, September 2014.

**M. Zhou** and R. Bachmayer, *An Analysis of Iceberg Profiling Strategies using Unmanned Ocean Systems*, Newfoundland Electrical and Computer Engineering Conference 2013, St. John's, November 2013.

**M. Zhou** and R. Bachmayer, *Working Towards Single Beam Acoustic Iceberg Profiling Using Active Roll Control on a Slocum Glider*, Underwater Technology (UT) 2011, Tokyo, Japan, April 2011.

**M. Zhou** and R. Bachmayer, *Working towards an Integrated Wingtip Actuator for Active Roll Control of a Slocum Autonomous Underwater Glider*, Newfoundland Electrical and Computer Engineering Conference 2011, St. John's, Canada, November 2011.

**M. Zhou** and R. Bachmayer, *Towards the Development of an Autonomous Iceberg Draft Measurement Probe (AIDMP)*, Newfoundland Electrical and Computer Engineering Conference 2010, St. John's, Canada, November 2010.

### **Presentation, Posters & Workshops**

**Workshop**, Biennial Meeting of the Glacial Ice Hazards Working Group, St. John's, NL, Canada, October 2017.

**Presentation**, *Surface Vehicle Assisted Navigation of an Underwater Glider*, 7th EGO Conference on Autonomous Ocean Gliders and Their Applications, National Oceanography Centre, Southampton, UK, September 2016.

**Presentation**, *Mapping the Underside of Icebergs using Autonomous Underwater Vehicles*, Autonomous Ocean Systems Laboratory Partner Workshop, September 2016.

**Poster**, *Development of an Integrated Iceberg Observation System using Unmanned Underwater, Surface and Aerial Platforms*, IEEE ICRA Workshop on Field Multi-robot Systems Operating on Land, Sea, and Air, Stockholm, Sweden, May, 2016.

**Presentation**, *Underwater Iceberg Profiling*, Autonomous Ocean Systems Laboratory Partner Workshop, October, 2015.

**Presentation**, *Underwater Iceberg Mapping - Error Estimation*, Autonomous Ocean Systems Laboratory Partner Workshop, July, 2014.

**Presentation**, *Iceberg Expedition 1.0 - Iceberg Underside Mapping with SeaCat*, Autonomous Ocean Systems Laboratory Partner Workshop, July, 2014.

**Presentation**, *Working Towards Iceberg Profiling with Underwater Vehicles*, Autonomous Ocean Systems Laboratory Partner Workshop, December, 2013.

**Presentation**, *Towards the Development of an Autonomous Iceberg Draft Measurement Probe (AIDMP)*, National Research Council Institute for Ocean Technology 6th Biannual Underwater Vehicle Workshop, St. John's, NL, Canada, October 2010.

## **PUBLIC ENGAGEMENTS AND OUTREACH ACTIVITIES**

**Presentation Judge**  
Regional ROV Contests, MATE ROV Competition

**May 2018**

**Session Chair**  
IEEE/RSJ International Conference on Intelligent Robots and Systems

**October 2017**

<b>Journal Reviewer</b> IEEE Journal of Oceanic Engineering	<b>May 2017</b>
<b>Abstract Reviewer</b> IEEE/MTS OCEANS Conference	<b>Since 2011</b>
<b>Feature talk</b> "On the Goes", CBC Radio NL	<b>April 2017</b>
<b>Featured talk</b> PhDs On The Go, The Harris Centre Memorial University	<b>April 2017</b>
<b>Featured newspaper article</b> "The BOTTOM of the Iceberg? Why This MUN Student is Studying Them", The Overcast	<b>April 2017</b>
<b>Featured photo</b> Teledyne Marine Calendar 2017	
<b>Featured Episode</b> Force of Nature: The Universe in a Snowflake, BBC-1	
<b>Vice President</b> Chinese Students and Scholars Association, Memorial University of Newfoundland	<b>2011 to 2013</b>
<b>Translator</b> Chinese Ocean Technology Trade Mission, St. John's, NL	<b>June 2013</b>
<b>Mechanical Engineer</b> MUN Sailbot Team	<b>2011 to 2012</b>
<b>Independent Music Producer</b>	<b>Since 2011</b>
<b>Chair in Arts and Music</b> Student Union, Central South University,	<b>2008 to 2009</b>

## PROFESSIONAL AFFILIATION

IEEE Member  
 IEEE Young Professionals  
 IEEE Oceanic Engineer Society Member

## PROFESSIONAL SOFTWARE SKILLS

SOLIDWORKS, C++, MATLAB, Python, Wolfram Mathematica, Linux, ROS, EaglePCB, MasterCAM