

Monika Roznere

9 Maynard St. • Dartmouth College • Hanover, NH 03755
(617) 347 6560 • monika.roznere.gr@dartmouth.edu
www.monikaroznere.com

EDUCATION

Dartmouth College

September 2018 – Present

Ph.D. Candidate in Computer Science

Advised by: Alberto Quattrini Li

Relevant coursework: robotics perception systems, multirobot systems, machine learning for robots, principles of robot design, artificial intelligence, GPU programming and HPC, human-computer interaction, concurrent algorithms

Binghamton University, State University of New York

August 2014 – June 2018

3.83/4.00 GPA, *Magna Cum Laude*

B.S. in Computer Science, Minor in Graphic Design

Relevant coursework: computer vision, machine learning, design patterns, computer networks, programming languages, web programming, data structures and algorithms, computer architecture, operating systems

University of Bath (*Exchange Student*)

February – May 2017

Relevant coursework: intelligent control and cognitive systems, computer graphics

RESEARCH EXPERIENCE

Dartmouth College

September 2018 – Present

Ph.D. Research Assistant, Department of Computer Science

Advised by: Alberto Quattrini Li

- Research interests: exploration for autonomous underwater vehicles (AUVs), next best view (NBV), photometric stereo, computer vision, monocular simultaneous localization and mapping (SLAM) systems, underwater image enhancement, camera-sensor calibration methods, interdisciplinary work tied to robotics and vision systems
- For detailed information on research projects please visit www.monikaroznere.com/research.html

Binghamton University

Undergraduate Researcher, Department of Computer Science

June 2017–May 2018

Advised by: Lijun Yin

- Contributed to project CI-SUSTAIN: Collaborative Research: Extending a Large Multimodal Corpus of Spontaneous Behavior for Automated Emotion Analysis
- Studied synthesizing texture and structure from 3D human models using VR systems

Undergraduate Researcher, Department of Physics

June–August 2016

Advised by: Alexey Kolmogorov

- Analyzed research group's program MAISE for parallelization improvements
- Integrated parallelism in code to improve runtime performance by at least 25 percent

WORK EXPERIENCE

Binghamton University

October 2015 – May 2018

Chemistry Instructional Programmer, Department of Chemistry

- Handled department's domain on the LON-CAPA platform
- Assisted professors with the designing and coding of new courseware and labs in Perl and JavaScript

TECHNICAL SKILLS

<i>Robots</i>	BlueROV2, self-designed pontoon boat (Catabot), TurtleBot3, ROSbot 2.0
<i>Sensors</i>	Tritech Gemini 1200ik, Imagenex Sidescan Sonar, BlueRobotics Ping360 and Ping1D
<i>Languages</i>	C++, Python, C, Java, MATLAB, R, Perl, Ruby, Prolog, Haskell, JavaScript, HTML, CSS3
<i>Tools and Libraries</i>	Robot Operating System (ROS), OpenCV, CUDA, PyTorch, Git
<i>Software</i>	Ardupilot, Gazebo simulator, Illustrator, Premiere Pro, Photoshop, InDesign, AutoCAD

CONFERENCE PUBLICATIONS

1. **M. Roznere** and A. Quattrini Li, “Underwater monocular image depth estimation using single-beam echosounder”, in IROS, 2020.
2. **M. Roznere**, M. Jeong, L. Maechling, N. Ward, J. Brentrup, B. Steele, D. Bruesewitz, H. Ewing, K. Weathers, K. Cottingham, A. Quattrini Li, “Towards a reliable heterogeneous robotic water quality monitoring system: An experimental analysis”, in ISER, 2020.
3. M. Jeong, **M. Roznere**, S. Lensgraf, A. Sniffen, D. Balkcom, A. Quattrini Li, “Catabot: Autonomous surface vehicle with an optimized design for environmental monitoring”, in OCEANS, 2020.
4. **M. Roznere** and A. Quattrini Li, “Real-time model-based image color correction for underwater robots”, in IROS, 2019.

CONFERENCE AND WORKSHOP PRESENTATIONS

1. **M. Roznere** and A. Quattrini Li, “Towards photometric stereo for underwater robots”, presentation at ICRA 1st Advanced Marine Robotics TC Workshop: Active Perception, 2021.
2. K. Masaba, B. Steele, **M. Roznere**, M. Jeong, H. Ewing, K. Cottingham, D. Bruesewitz, V. Subrahmanian, and A. Quattrini Li, “Knowledge-guided machine learning modelling of limnological data for prediction of chlorophyll-*a* distribution”, poster at Knowledge Guided Machine Learning Workshop, 2021.
3. M. Xanthidis, B. Joshi, N. Karapetyan, **M. Roznere**, W. Wang, J. Johnson, A. Quattrini Li, J. Casana, P. Mordohai, S. Nelakuditi, and I. Rekleitis, “Towards multi-robot shipwreck mapping”, presentation at ICRA 1st Advanced Marine Robotics TC Workshop: Active Perception, 2021.
4. **M. Roznere** and A. Quattrini Li, “Underwater photometric stereo for next best view”, poster at CRA-WP Grad Cohort for Women, 2021.
5. Z. Tian, C. J. Carver, Q. Shao, **M. Roznere**, A. Quattrini Li and X. Zhou, “PolarTag: Invisible data with light polarization”, presentation at ACM HotMobile Workshop, 2020, (**best demo award**).
6. Kathryn L. Cottingham, *et. al.*, “Predicting cyanobacterial blooms in freshwater lakes: the promise of new partners, tools, and technologies”, poster at Ecological Society of America, 2020.
7. **M. Roznere** and A. Quattrini Li, “Physics-based underwater color correction method enhanced by learning-based techniques”, poster at RAS International Summer School on Deep Learning for Robot Vision, 2019.
8. **M. Roznere** and A. Quattrini Li, “On the mutual relation between SLAM and image enhancement in underwater environments”, presentation at ICRA Underwater Perception Workshop, 2019, (**best paper award**).
9. **M. Roznere** and A. Quattrini Li, “Applying an attenuation-dependent image formation model for underwater robotic navigation”, poster at Northeast Robotics Colloquium (NERC), 2018.

AWARDS AND GRANTS

1. ISER PhD Student Travel Award (2021)
2. NSF GRFP Honorable Mention (2020)
3. RAS Travel Support Grant, \$900 (Oct 2019)
4. IROS Student and Developing Countries (SDC) Travel Award, \$600 (Aug 2019)
5. ICRA U/W Perception Workshop Best Paper Award, NVIDIA Jetson Nano Development Kit (May 2019)
6. Bankoski Award for Computer Science Research, \$3000 (Jan 2018)

REVIEW ACTIVITIES

Journal articles: JOE 2020
Conference papers: ICRA 2021; IROS 2021, 2020, 2019

TEACHING ASSISTANT EXPERIENCE

DIFUSE Graduate Fellow (Dartmouth College) *Starting in Winter 2022*

Dartmouth College

COSC 076/276: Artificial Intelligence *Fall 2021*
COSC 010: Problem Solving via Object Oriented Programming *Spring 2020*
COSC 081/281: Principles of Robot Design and Programming *Summer, Fall 2019*
COSC 001: Introduction to Programming & Computation *Fall 2018*

Binghamton University

ARTS 210: Graphic Design I *Spring 2015*

OUTREACH TALKS

Barnet 6th graders, VT “SEPA – Meet an underwater roboticist” *Spring 2021*
Tunbridge 7th and 8th graders, VT “SEPA – Meet an underwater roboticist” *Spring 2021*
RMS 6th graders, Hanover, NH “Perception for low-cost underwater robots” *Spring 2021*
STEM Enrichment Youth (STEMEY) “Discovering the aquatic world with robots” *Spring 2021*

OUTREACH AND MENTORSHIP EXPERIENCE

E.E. Just Program Graduate Fellow *September 2021 – Present*

DIFUSE Graduate Fellow *Starting in Winter 2022*

Dartmouth Graduate Student Council Computer Science representative *May 2021 – Present*

SEPA Graduate Mentor (6-7th Grade) *September 2020 – June 2021*

- Collaborated on lesson plans with teachers and students from rural schools in New Hampshire and Vermont
- Designed and created online teaching materials (video tutorials, experiments) about climate change

Lab Mentor (~15 students) *July 2019 – Present*

- Advise students in project design, system setup, code style, and background studies
- Demonstrate field work protocols and techniques; supervise and assist experiments in and out of water

Women in Science Project (WISP) Mentor (2 students) *January – June 2020*

- Assisted in teaching ROS, Linux, and hardware skills to help design and build a new robotic pontoon boat
- Led to the published work of “Towards a reliable heterogeneous robotic water quality monitoring system: An experimental analysis” (ISER, 2020)

Dartmouth E-Pen Pals (K-12) *April – August 2020*