Monika Roznere

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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), applicative computer vision, monocular simultaneous localization and mapping (SLAM) systems, underwater image enhancement, camera-sensor calibration methods, interdisciplinary work tied to robotics and vision systems

Binghamton University *June 2017—May 2018*
Undergraduate Researcher, Department of Computer Science
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

Robots	BlueROV2, self-designed pontoon boat, TurtleBot3, ROSbot 2.0
Languages	C++, Python, C, Java, Perl, Ruby, Prolog, Haskell, JavaScript, HTML, CSS3
Tools and Libraries	Robot Operating System (ROS), OpenCV, CUDA, Git
Software	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", 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. 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**).
2. 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.
3. **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.
4. **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**).
5. **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. NSF GRFP Honorable Mention (2020)
2. RAS Travel Support Grant, $900 (Oct 2019)
3. IROS Student and Developing Countries (SDC) Travel Award, $600 (Aug 2019)
4. ICRA U/W Perception Workshop Best Paper Award, NVIDIA Jetson Nano Development Kit (May 2019)
5. Bankoski Award for Computer Science Research, $3000 (Jan 2018)

REVIEW ACTIVITIES

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

TEACHING EXPERIENCE

Dartmouth College

COSC 010:	Problem Solving via Object Oriented Programming	*Spring 2020*
COSC 081/181:	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

6th graders at RMS, Hanover, NH Title: Perception for low-cost underwater robots *Spring 2021*

STEM Enrichment Youth (STEMEY) Title: Discovering the aquatic world with robots *Spring 2021*

OUTREACH AND MENTORSHIP EXPERIENCE

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

- Collaborate and interact with teachers and students from rural schools in New Hampshire and Vermont
- Design and create online teaching materials (video tutorials, experiments) about climate change

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

- Advise students in project design, system setup, code design, 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*