November 8, 2026

Russell Joseph Shomberg, PhD

Marine Robotics Engineer developing sensing and data tools for oceanographic and polar research, the local marine environment, the blue economy, and dual-use defense applications. Skilled in mechanical, electrical, and software design with a strong background in field work including military and offshore operations. Current research is focused on acoustic and optical sensing, embedded systems, and data analysis with artificial intelligence. Dedicated to teaching and mentoring the next generation of ocean professionals, scientists, and engineers. Holds over 12 cumulative months of field work, flight hours, and sea time.

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Academic Appointments & Education

since 2025 **Adjunct Professor** Department of Ocean Engineering, University of Rhode Island

since 2025 **Marine Research Associate** Graduate School of Oceanography, University of Rhode Island

2024-2025 **Postdoctoral Research Fellow** Maryland Robotics Center, University of Maryland

2020-2023 **MS/PhD Ocean Engineering** University of Rhode Island

2012-2013 **AA Spanish** Defense Language Institute

2008-2012 **BS Mechanical Engineering**, Boston University

Selected Teaching Experience

Fall 2026 **OCE360 Robotic Ocean Instrumentation Design** University of Rhode Island

Fall 2026 **OCE560 Introduction to Data Collection Systems** University of Rhode Island

2026-2027 **OCE495 Ocean Systems Design Project I (Senior Capstone)** University of Rhode Island

since 2025 **Faculty Mentor - Artificial Intelligence Student Team** University of Rhode Island

2024-2025 **Faculty Mentor - Underwater Robotics Team (Qubo)** University of Maryland

2014-2016 **Officer Qualification Training & Evaluation: BWC, CWO, IDWO & DSO** USN 10th Fleet

Selected Professional Experience

since 2023 **Independent Engineering Contracting & Consulting** Self Employed

2019-2024 **Staff Engineer/Project Manager (part time)** Marine Acoustics, Inc., Middletown RI

2016-2018 **Operations & Projects Manager** Viking Equipment, Deep River CT

2012-2016 **Cryptologic Warfare Officer (O3)** US Navy, NIOC HI and additional locations

Selected Certifications & Awards

2025 **Course Design Practitioner (Teaching Meta-Credential)** Teaching & Learning Transformation Center, University of Maryland

July 2019 **Fundamentals of Engineering Mech.** National Council of Examiners for Engineering & Surveying

Sep. 2017 **Project Management Professional** Project Management Institute

Selected Synergistic Activities

Sep. 2026 **Exhibit: Fragmented Reconstructions (Mallory McPherson)** URI Studio Blue

since 2025 **Bay Campus Junior Faculty Peer Network (lead/founder)** University of Rhode Island

2025-2026 **COBRA Executive Committee Early Career Researcher Representative** Bigelow Laboratory

Dec. 2025 **AGU Fall Meeting Session Co-Convener (Deep-Sea Exploration)** American Geophysical Union

2024-2025 **Advancing Professional Track Faculty Peer Network** University of Maryland

2022-2022 **COBRA Early Career Researcher Fellowship** Bigelow Laboratory

Selected Talks & Presentations

Sep. 2026 **Defense TechConnect Innovation Summit** National Harbor, MD
High Dive: Rapid Air to Subsea Intelligence Platform

Feb. 2026 **Ocean Sciences Meeting** Glasgow, Scotland
NeRFBerg: Neural Radiance Field Applications for Rendering and Reconstructions of Arctic Sea Ice

Sep. 2025 **Sternberger Seminar Series** University of Rhode Island
Tagging, Tracking, and Scanning Arctic Sea Ice

Jan. 2025 **Teaching Art and AI Symposium** University of Maryland
Art and Field Science Applications for AI based 3D Reconstruction Algorithms

Apr. 2022 **OCEANS 2022** Hampton Roads VA
Feasibility of a Near-surface Wave-powered Profiling Float for Extended Fully Submerged Autonomous Deployments

Selected Media & Press

Mar. 2026 **URI Institute for AI and Computational Research**
Faculty Spotlight: AI for Ocean Science Applications

Jan. 2026 **YouTube Interview**
Building Ocean Robots in Antarctica *with Dave Katz*

Fall 2025 **University of Rhode Island Magazine**
The Silicon Valley Of Underwater Technology *by Bill Ibelle*

Oct. 2025 **Maryland Today**
AI-Generated Iceberg Models Could Help Sailors Navigate Arctic Waters *by John Tucker*

Selected Publications & Conference Proceedings

Full list on Google Scholar

[1] R. D. Rotjan, R. L. Sylvan, B. N. Orcutt, . . . , **R. Shomberg**, . . . , and J. A. Huber, "Operationalizing deep-sea expedition leadership: A COBRA manual for aspiring chief scientists," *Oceanography, special issue (submitted)*, 2026.

[2] L. McKenzie, M. Barbrack, J. Della Selva, . . . , and **R. Shomberg**, "Neural radiance field applications for geometric reconstruction of arctic icebergs," in *OCEANS 2026, Monterey*, 2026, pp. 1–6.

[3] K. Zhang, J. Chen, M. Qadri, **R. Shomberg**, . . . , and C. Metzler, "Adapting vision foundation models to acoustics for pose-free 3D sonar reconstruction." arXiv preprint arXiv:2609.06261, 2026.

[4] A. T. Runyan, B. E. Motsenbocker, C. N. Roman, **R. Shomberg**, and B. T. Phillips, "A low-cost underwater stereo camera system for underwater quantitative imaging," *Journal of Atmospheric and Oceanic Technology*, vol. 42, no. 10, pp. 1317–1325, 2025.

[5] B. E. Motsenbocker, T. J. Noyes, A. T. Runyan, **R. Shomberg**, and B. T. Phillips, "PresTo: A liquid-filled camera for low-cost imaging in the deep sea," *Deep Sea Research Part I: Oceanographic Research Papers*, vol. 206, p. 104263, 2024.

[6] **R. Shomberg**, M. Jakuba, and D. Yoerger, "Design proposal and feasibility analysis for a near-surface wave-powered profiling float," *Journal of Marine Science and Engineering*, vol. 12, no. 1, p. 137, 2024.

[7] R. D. Rotjan, K. L. C. Bell, J. A. Huber, . . . , **R. Shomberg**, . . . , and B. N. Orcutt, "COBRA Master Class: Providing deep-sea expedition leadership training to accelerate early career advancement," *Frontiers in Marine Science*, vol. 10, 2023.

[8] B. T. Phillips, N. Chaloux, **R. Shomberg**, A. Muñoz-Soto, and J. Owens, "The fiber optic reel system: A compact deployment solution for tethered live-telemetry deep-sea robots and sensors," *Sensors*, vol. 21, no. 7, p. 2526, 2021.

[9] J. E. Krechmer, B. Phillips, N. Chaloux, **R. Shomberg**, . . . , and M. R. Canagaratna, "Chemical emissions from cured and uncured 3D-printed ventilator patient circuit medical parts," *ACS Omega*, vol. 6, no. 45, pp. 30726–30733, 2021.

[10] B. T. Phillips, S. Licht, K. S. Haiat, . . . , **R. Shomberg**, and T. J. Noyes, "DEEPi: A miniaturized, robust, and economical camera and computer system for deep-sea exploration," *Deep Sea Research Part I: Oceanographic Research Papers*, vol. 153, p. 103136, 2019.