Ellen H. Davenport

CONTACT INFORMATION
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804-514-1844

EDUCATION

Scripps Institution of Oceanography, UCSD *San Diego, CA*

PhD Student in Oceanography 2021–Present

University of California, San Diego *San Diego, CA*

Master of Science, *Electrical Engineering* 2021–2023

Dartmouth College *Hanover, NH*

Bachelor of Engineering, *Machine Design and Control Systems* March 2017
Bachelor of Arts, *Engineering Sciences, minor in French* June 2016

Work Experience

Graduate Student Researcher, Scripps Institution of Oceanography May 2023–Present

- PhD Advisor: Matthew Mazloff
- Applications of ocean state estimation to modeling and prediction of the Eastern Tropical Pacific.

Graduate Student Researcher, Jacobs School of Engineering at UCSD Sep. 2021–Present

- PI: Florian Meyer in the Situational Awareness Lab
- First PhD chapter: statistical signal processing applied to underwater robotics with a focus on unscented Kalman filters, particle filters, and probabilistic data association.

Embedded Software Engineer II, Sarcos Robotics *Salt Lake City, UT* Mar. 2020–Aug. 2021

- Responsibilities listed for Embedded Software Engineer I plus the following: Lead technical design on new features, prioritize software team goals, interview and on-board new software team members, travel to customer sites in order to customize testing and features to specific use cases.

Embedded Software Engineer I, Sarcos Robotics *Salt Lake City, UT* Aug. 2017–Mar. 2020

- Responsible for new feature development for the Sarcos Guardian XO (powered exoskeleton) including ideation, architecture, implementation, and testing.
- Worked closely with ME, EE, and controls teams to define, prove out, and implement complex robotics controls schemes.
- Maintained and expanded extensive real-time code base in C, C++, and Rust in order to support both existing robots and ongoing research.

Undergraduate Research Assistant, Dartmouth College *Hanover, NH* Jan. 2017–Jun. 2017

- Developing wearable technology to detect and identify various eating behaviors with Professor Ryan Halter. Work included sensor selection, data analysis, and designing analog filters.

Publications

E. Davenport, J. Jang, and F. Meyer (2023). Toward Terrain-based Navigation Using Side-scan sonar, *2023 26th International Conference on Information Fusion (FUSION)* https://doi.org/10.48550/arXiv.2306.06822

S. Bi, T. Wang, **E. Davenport**, R. Peterson, R. Halter, J. Sorber, D. Kotz (2017). Toward a Wearable Sensor for Eating Detection *WearSys '17*, https://dl.acm.org/doi/10.1145/3089351.3089355

Presentations

E. Davenport, M. R. Mazloff, A. Verdy, and B. D. Cornuelle. "EquatorMix Remix: Modeling of Tropical Upwelling Processes Informed by the 140°W EquatorMix Study", 2024 Ocean Sciences Meeting. (talk)

E. Davenport, M. R. Mazloff, A. Verdy, and B. D. Cornuelle. "Understanding Tropical Pacific Mixing Processes with an Observational Campaign and a State Estimate", 2024 CaCAO Days (Chaos, Computation and Optimization at SIO). (talk)

E. Davenport, M. R. Mazloff, A. Verdy, and B. D. Cornuelle. "Understanding Tropical Pacific Upwelling and Mixing with the 140°W EquatorMix Study and an Ocean State Estimate", 2024 Gordon Research Conference on Ocean Mixing. (poster)

Teaching Experience and Professional Development

Teaching Assistant, Thayer School of Engineering *Dartmouth College, Hanover, NH*

- Intro to Scientific Computing — 2016–2017
- Digital Electronics — 2015
- Intro to Material Science — 2014
- Solid Mechanics — 2014
- Thayer School Machine Shop Instructor— 2014–2016

Software Carpentry Instructor Training *UCSD, San Diego, CA*

- 16-hour training in evidence-based teaching practices and creating an effective environment to teach computational research skills

Mentorship and Volunteering

Volunteer Science Guide, Scripps Outreach for Public Education *SIO* Aug. 2022 – Present

- Guiding science tours at Scripps to highlight ongoing research and local ecology.

Undergraduate and Graduate Student Mentor, Marine Physical Lab *SIO* June 2022– Aug. 2023

- Mentorship of undergraduate and graduate engineering students on robotics algorithm development, software engineering, and embedded systems development.

ENLACE Mentor Program, Jacobs School of Engineering *UCSD* June 2022–Aug. 2022

- Mentored two students through the ENLACE program which encourages the participation of undergraduate students in research science and promotes cross-border research relationships between Latin America and the United States.

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