

Andrew D. Mullen

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SUMMARY

- Engineer with over 10 years experience on NASA and NSF projects developing tools for ocean and space science.
- Member and leader of cross-functional teams conducting research in harsh polar and marine environments.
- Led the design of custom field instruments integrating optical, electrical, mechanical, and software elements.

EDUCATION

2018	Ph.D.	Electrical Engineering	University of California San Diego
2015	M.S.	Oceanography	University of California San Diego, Scripps Inst. of Oceanography
2011	B.S.	Civil Engineering	University of Notre Dame, <i>Magna Cum Laude</i>

PROFESSIONAL EXPERIENCE

2022-2024 Senior Research Engineer / Visiting Research Scientist, Cornell University

- Managed development and deployment of custom multi-sensor package for ROV exploration of deep-sea brines.
- Lead field engineer for geophysical studies of planetary analog ice formations in the Arctic.

2018-2022 Postdoctoral Fellow, NASA Postdoctoral Program & Georgia Institute of Technology

- Engineer on three Antarctic campaigns deploying underwater robot 'Icefin'. Team surveyed previously inaccessible sub-glacial environments providing critical measurements for modeling sea level rise.
- Led collaboration between Georgia Tech & NASA JPL developing a submersible Digital Holographic Microscope. Demonstrated system capabilities by observing microbial life in Antarctica, an analog for "ocean worlds".
- Co-led design of conceptual instrument payload for NASA mission to Europa. Coordinated 21 member team, surveyed state-of-the-art technologies, presented life detection payload integrating multiple sensors.

2012-2018 Graduate Research Fellow, UC San Diego

- Jointly developed and deployed first system to image seafloor corals in the ocean at micron-scale.
- Led development of imaging system to measure micro-scale fluid dynamics in the ocean using particle tracking.

AWARDS & HONORS

2021	Antarctic Service Medal	2014	Link Ocean Engineering Ph.D. Fellowship
2018	NASA Postdoctoral Program Fellowship	2012	NSF Graduate Research Fellowship Program
2017	Microscopy Today Innovation Award	2011	University of California Regents Fellowship

PUBLICATION HIGHLIGHTS

- Peer Reviewed Journals: *Nature*, *Nature Geoscience*, *Nature Communications*, *Science Advances*, *Planetary Science*
- Conference Papers: *Optical Society of America*, *IEEE Oceanic*, *American Institute of Aero and Astronautics*
- Media Coverage: *New York Times*, *BBC*, *Washington Post*, *Wall Street Journal*, *PBS*, *Scientific American*

FIELD WORK & TRAINING

- Field Seasons: Antarctica (x3), Arctic (x4), Red Sea (x2), Caribbean (x2), West Africa (x2), Pacific (x3)
- Operations Utilizing: SCUBA, Underwater Robotics, Research Vessels, Remote Field Camps
- Ocean Instruments: ROVs / AUVs, Custom Imaging Systems, Custom Sensor Payloads
- Training: Wilderness EMT (2024), Antarctic Field Training (2018, 2019, 2021), AAUS Scientific Diver (2012)

MANAGEMENT, ENGINEERING & MENTORING

- Management: led engineering and science efforts, written funding proposals, coordinated multi-institution efforts, developed project concepts, managed timelines and budgets, documented results through publication
- Technical: mechanical [*SolidWorks*], electrical [*Eagle*], software [*Python*, *Matlab*], and optical design
- Field Operations: organized logistics, developed operations plans, collaborated with international teams
- Mentoring: graduate and undergraduate student research, TA field-based diving and science courses