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Education

- 2022 – 2026 (anticipated) 📖 **B.S., Aerospace Engineering** United States Naval Academy *Annapolis, MD*
GPA: 3.99 | Top 1% in academics
- 2018 – 2022 📖 **High School Diploma** Concord Carlisle Regional High School *Concord, MA*
GPA: 4.0 | High Honors | Community Service Award.

Awards and Achievements

- 2025 📖 **Summer International Service Leadership**
Organizing and executing a three-week community service trip to Arusha, Tanzania through Engineers Without Borders to assist with the construction of drinking water infrastructure and educating local populations about safe water and hygiene practices.
- 2024 📖 **Tau Beta Pi** Engineering Honor Society.
- 2024 📖 **Navy D-OS Sailing Qualification**
Command Navy sailing vessel during continuous offshore passages during day, night and reduced visibility in strong to heavy wind and sea conditions. 1000+ NM sailed.
- 2024 📖 **Navy Craftmaster Insignia** Qualified as Executive Officer of Navy sailboat.
- 2023 – 2024 📖 **Superintendent's List** *Spring Semester (AY23), Fall Semester (AY25).*
- 2021 📖 **Eagle Scout** Troop 132 *Concord, MA.*
Led team to replace trail signs at Great Meadows National Wildlife Refuge in Concord, MA. Team of 24 volunteers removed, constructed, and installed 82 signs on 26 posts. Raised over \$1700 to fund project.

Internship & Research Experiences

- 2025 📖 **Unmanned Surface Vessel Autonomy and Automatic Target Recognition Summer Research Internship** Draper Laboratory *Cambridge, MA.*
Further details forthcoming.
- 2025 – . . . 📖 **Sail Powered Unmanned Surface Vessel Autonomous Navigation in Marginal Ice Zone** Department of Naval Architecture and Ocean Engineering, United States Naval Academy *Annapolis, MD.*
Advisor: Professor Carolyn Judge, Ph.D.
Conducted a literature review and expert interviews to better understand past USV missions in the MIZ and current ice detection methods. Work in fall will focus on detection of ice with SONAR and camera systems and development of autonomous sailing capabilities for preexisting unmanned sailboat. Future work will be on integrating ice detection hardware and algorithms with autonomous sail boat for integrated testing.
- 2023 📖 **NASA: Spacecraft Outgassing Summer Research Internship** Planetary Magnetospheres Laboratory, Goddard Space Flight Center *Greenbelt, MD.*
Advisor: Dr. Rosemary Killen
Identified and quantified potential sources of outgassing related to proposed human activities on the moon during the Artemis program and beyond. Began to model propagation of gas into a local atmosphere in collaboration with Dr. Killen. (Publication in *Advances in Space Research*)

Internship & Research Experiences (continued)

2018 – 2021

- MIT: Extraterrestrial In-Situ Resource Utilization for Construction *High School Research Internship* Laboratory for Atomistic and Molecular Mechanics, Massachusetts Institute of Technology *Cambridge, MA*.
Advisor: Mr. Douglas Shattuck, Visiting Research Affiliate
Investigated methods for the use of lunar and martian regolith in the construction of extraterrestrial human settlements.

Publications

Journal Articles

- 1 R. M. Killen, B. T. Sprague, and W. M. Farrell, "Temporary atmospheres produced by human activities on the moon," *Advances in Space Research*, vol. 74, no. 11, pp. 6158–6171, 2024, ISSN: 0273-1177. [DOI](https://doi.org/10.1016/j.asr.2024.08.042): <https://doi.org/10.1016/j.asr.2024.08.042>.

Research Interests

Sailing Vessels, Unmanned Maritime Systems, Oceanic Data Collection Methods, Polar Studies, Climate Resiliency

Selected Leadership Experiences

- May. 2025 – . . .
 - 30th Company Leadership Development Officer
Leading staff of eight Midshipman to carry out training to facilitate the leadership, personal, and professional development of the 130 members of 30th company and particularly for the 30 freshman.
 - 30th Company Administrative Officer
Ensuring the proper submission and routing of all official documents and correspondences to, from, and within 30th Company.
- Jan. 2024 – . . .
 - Midshipman Group Study Program Leader
Leading weekly sessions one hour session for 2-7 Midshipman to provide extra academic support. Currently instructing Wind Tunnel Laboratory. Previously instructed Differential Equations and MATLAB.
- Aug. 2023 – Apr. 2025
 - Naval Academy Scout STEM Merit Badge Jamboree, President August 2024 – April 2025, Public Affairs Officer August 2023 – May 2024
Led staff of seven Midshipman to plan and execute Scout STEM Jamboree in April that brought 800 scouts and adults to Naval Academy and involved over 60 Midshipman and a budget of over \$20,000.
- 2024-2025
 - Large Sail Training Craft Officer, Skipper May-June 2025; Executive Officer May - June 2024 & May 2025
Commanded 44ft Navy sailing vessel for the Command and Seamanship Training Squadron (CSTS). Supervised watch section and assisted in crew training.

Selected Activities

- Aug. 2022 – . . .
 - Drum and Bugle Corps, Operations Officer
Leading the organization and execution of the logistics for over 120 Midshipman during eight hours of practice a week and over 100 performances to ensure their musical, personal, and professional success.

Selected Activities (continued)

Aug. 2024 – Nov. 2024



Naval Academy Science & Engineering Conference, Moderator

Developed and led roundtable discussion for 13 undergraduate students and one faculty member on effects of climate change on marine weather forecasting and modeling and how those changes impact ship design