Ryan P. O'Shea

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SKILLS

- **Software:** Visual Studio Code, Visual Studio, Docker, Arduino, ROS, ROS2, Unity, RVIZ, Windows, Linux
- **Programming**: Python, C++, C, C#, Jupyter Notebook, Anaconda, Git
- **Libraries:** OpenCV, Numpy, Pytorch, Tensorflow, Keras, Matplotlib, Eigen

WORK EXPERIENCE

Naval Air Systems Command (NAVAIR), Lakehurst, NJ

Research & Development Computer Engineer   *July 2020 - Present*

Member of the Robotics and Intelligent Systems Engineering (RISE) lab focused on the development and deployment of various autonomous and intelligent systems to the U.S Navy fleet. Provided expertise in the areas of computer vision, machine learning, and software engineering to various lab research efforts.

- Responsible for developing computer vision systems for various research efforts focused on real time tracking and pose estimation of various objects within the fleet
- Researched various machine learning validation and verification techniques and their potential applications to intelligent systems with a focus on out of distribution data detection
- Leveraged various simulation technologies in tandem with generative models to produce high fidelity labeled training data for various machine learning efforts

Principal Investigator for Autonomous Fleet Firefighting System Effort   *Dec 2020 - Present*

Team lead (5+ members) for the research and development of an autonomous system for fighting uniquely challenging fires in the fleet. Awarded and executed over $500k in funding across a multi-year research effort.

- Explored the feasibility of creating a mobile autonomous system for firefighting operations across various areas of the fleet
- Researched the effectiveness of various sensor modalities and their combinations for the real time detection and tracking of fires and ideal targeting locations within them
- Designed control algorithms in Python and C for accurate delivery of coolant onto intended targets

Fleet Information System R&D Project Portfolio Manager   *Nov 2021 - Present*

Managed the active portfolio of R&D projects for two crucial fleet information management systems.

- Worked closely with various stakeholders to gauge fleet needs and the ability of our labs to meet them via targeted R&D efforts
- Tracked progress of in house and industry R&D efforts to ensure proper resources are being allocated to efforts and fleet needs are being met

Naval Research Laboratory (NRL), Washington DC (Remote)   *Aug 2022 - Jan 2023*

Worked with researchers across various NRL centers to develop machine learning tools for various underwater acoustics applications in the fleet.

- Developed several classification and generative models for key feature identification, prediction, and generation in various underwater acoustic profile representations

SELECTED PUBLICATIONS

- Hart, K. M., Englot, B., **O'Shea, R. P.**, Kelly, J. D., & Martinez, D. (2023). Monocular Simultaneous Localization and Mapping using Ground Textures. arXiv preprint arXiv:2303.05946.

  https://doi.org/10.48550/arXiv.2303.05946

- Hart, K. M., Goodman, A. B., & **O'Shea, R. P.** (2021, July). Automatic Generation of Machine Learning Synthetic Data Using ROS. In Artificial Intelligence in HCI: Second International Conference, AI-HCI 2021, Held as Part of the 23rd HCI International Conference, HCII 2021, Virtual Event, July 24–29, 2021, Proceedings (pp. 310-325). Cham: Springer International Publishing.

  https://doi.org/10.1007/978-3-030-77772-2_21

EDUCATION

Steven Institute of Technology, Hoboken NJ: B.E Computer Engineering   *Awarded May 2020*

- **GPA: 3.92   Major GPA: 4.0**
- **Honors:** Harry Heffes Award For Outstanding Studies in Mathematics, Modeling and Simulation, Best Mechanical Engineering Senior Design Project Award, Tau Beta Pi and Eta Kappa Nu Honor Societies