TRAINING FOR ENLISTED ROBOTICS OPERATOR / MAINTAINERS

AT A GLANCE

WHAT IS IT?

A seven-week robotics optainer (operator+maintainer) training program developed through an ONR applied research award. The program demonstrated success in two study cohorts and is being offered as standalone training.

HOW DOES IT WORK?

Students undergo six weeks of hands-on training with 8 different robots, building knowledge, skills, and confidence in and across all fundamental domains of robotics. In the seventh week, they solidify and prove their skills in a final challenge.

WHAT WILL IT ACCOMPLISH?

The training will:

- Prepare attendees to operate and maintain a wide variety of autonomous platforms, including near-future AI-enabled platforms
- Engage trainees who dislike typical “textbook” training, and prefer hands-on learning
- Increase attendee confidence in operating, maintaining, and overseeing full-scale systems
- De-silo knowledge across robotics domains (electrical, mechanical, software) to improve troubleshooting

Training is available immediately, and is 3-4x faster than alternatives.

Background. Researchers at Carnegie Mellon University recently completed two successful rounds of training with experimental robotics curriculum to prepare new enlisted Naval Robotics Warfare Specialists for current and near-future robotics systems. Participants reported very high engagement, demonstrated knowledge gains, and transferred their learning to new platforms in a culminating competition including field-trainable AI capabilities.

Opportunity. The program is being made available as interim training for robotics operators and maintainers broadly. It is seven weeks in total duration, and can accommodate up to 18 attendees per session.

Relevance. While initially aligned with the occupational standards identified for the Robotics Warfare Specialist rating, the modules target foundational robotics skills and understandings that all field robotics practitioners need and use. Course-takers with active duty robotics assignments have reported high relevance to real tasks, giving feedback such as, “This is what I’m actually doing at work!”

Training Format. The training is 6 weeks in duration and includes modules covering electrical, structural, drive, sensing, and control subsystems, integration of those subsystems, autonomy & AI, and routine operation of robotic platforms. Each module uses hands-on activities building from basic domain elements up to functional robotic systems. The pattern is repeated with increasingly sophisticated platforms across modules to emphasize common technical elements and optainer tasks while building up to a capstone challenge in the final week.