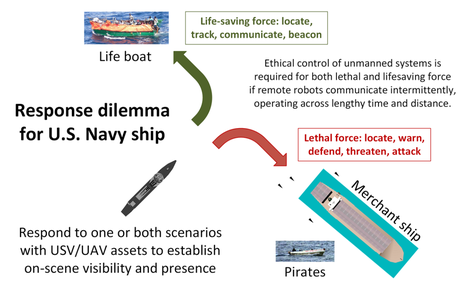
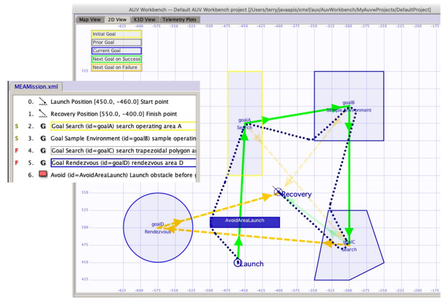
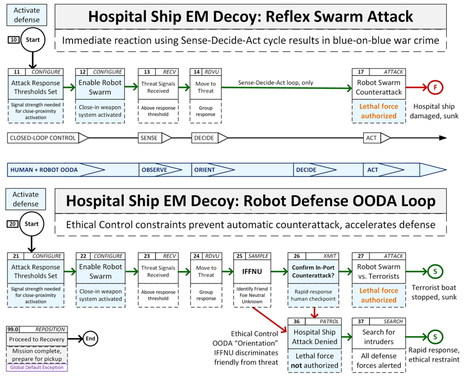
Ethical Control of Unmanned Systems: Repeatable Mission Evaluation Through Unmanned Systems Data Strategy

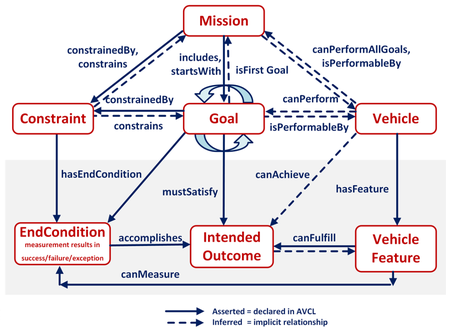
CRUSER
Consortium for Robotics and Unmanned Systems Education and Research

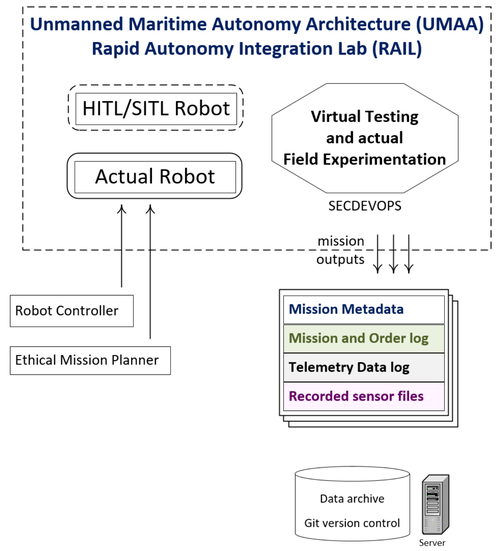




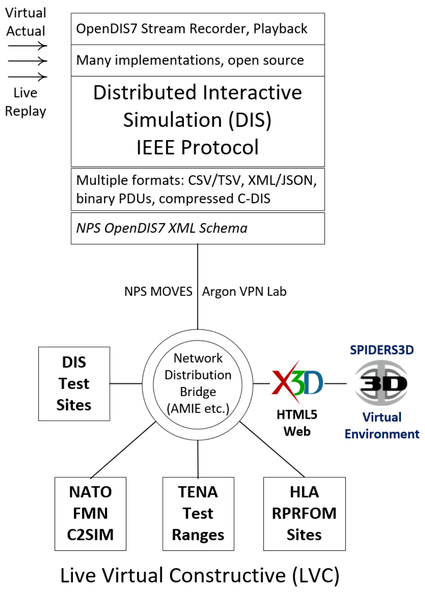
Mission Execution Ontology (MEO) evolving







Mission Data Strategy for Unmanned Systems



Live Virtual Constructive (LVC)

Why / Objectives

- Ethical control of unmanned systems can be accomplished through structured mission definitions that are trusted, consistently readable, validatable, repeatable and understandable by humans and robots.
- Orders must be lawful. Unmanned systems must behave ethically and comprehensibly if they are to support manned military units effectively.
- Well-structured mission orders can be tested and trusted to give human commanders confidence that offboard systems *will do what they are told to do*, and further *will not do what they are forbidden to do*.
- Demonstrate that no technological limitations exist that prevent applying the same kind of ethical constraints on robots and unmanned vehicles that already apply to humans, in lethal and life-saving scenarios.

https://savage.nps.edu/EthicalControl

What / Deliverables

- Unmanned Systems Data Strategy is fundamental need for progress, otherwise all experiments (real or virtual) are unrepeatable, transient.
- Mission orders, metadata, track telemetry and sensor records together provide repeatable archiving of robot system testing for live-virtual-constructive (LVC) reuse, for replay live or rehearsal analysis.
- Update Mission Execution Ontology (MEO) concepts demonstrated in tests and simulation, building to perform field experimentation (FX).
- Define, simulate, and test combination of real-world goals and ethical constraints to robot mission tasking across set of canonical scenarios.
- Illustrate how human-robot teams meet moral and legal requirements if deploying unmanned systems with potential for lethal, life-saving force.

NPS PRAESTANTIA PER SCIENTIAM

Building on Simulation, Experimentation

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