Integrating Machine Learning Architectures for Swarm Defense Simulation and Strategy

Generative AI rendering of swarm-on-swarm arial combat.

Problem Statement

- Develop operational simulations and playbooks for defense against drone swarms through the application of different machine learning architectures.

- Phase 1 focuses on updating the existing generic simulation platform to reflect current drone and UAV technologies. Phase 2 involves the creation of an optimized playbook for swarm engagements, informed by these enhanced simulations.

Impact

- The project aims to transition theoretical concepts into operational tools, aligning with research themes like command and control of autonomous systems in complex naval environments.

- Provides warfighters and mission planners with robust, adaptable strategies for dealing with new types of large-scale drone or swarm engagements.

- Success will be measured by the accuracy and efficiency of our simulation predictions.

Transition

- Marine Corps Systems Command, GBAD, and mission planners interested in evolving types of engagements involving autonomous or semi-autonomous drones and swarms.

- We seek continued support from ONR's "Science of Autonomy" program and DARPA. Potential for long-term partnerships with Triton Systems and other technology companies working on unmanned systems for naval environments.

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