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Optimal Intelligence Gathering and Defense Strategies against a Swarm Attack on a High Value Naval Unit

Kaminer, Isaac

Monterey, California: Naval Postgraduate School

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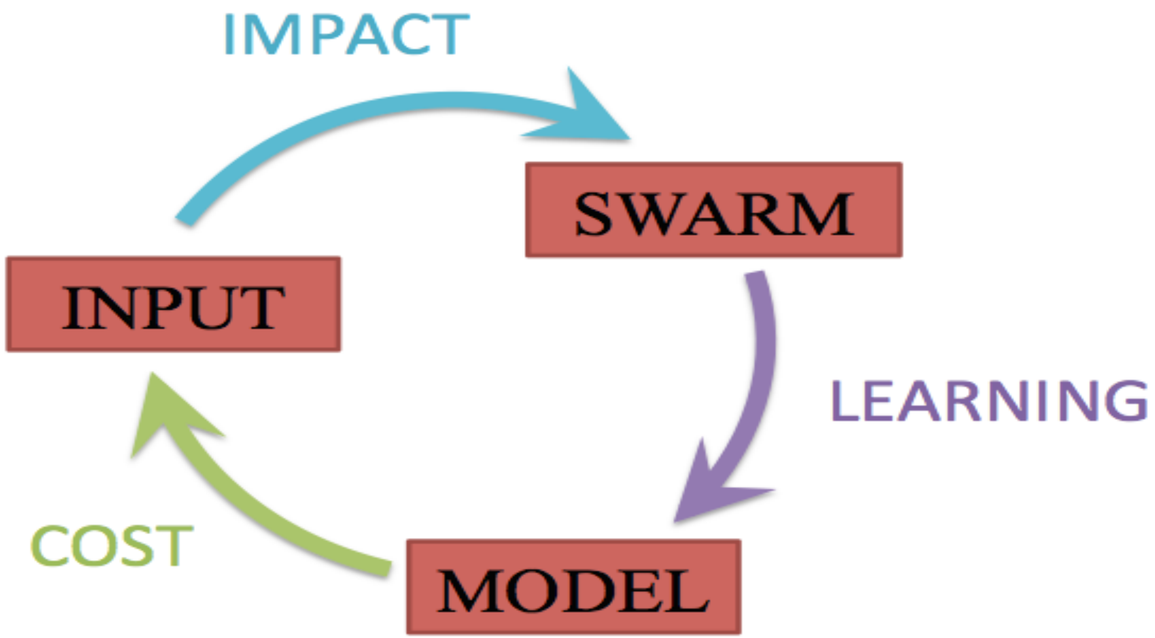

- Find Swarm using only probabilistic a priori intelligence
- Design an aggressive information-gathering maneuver to identify the intelligence capabilities of USV attackers
  - yields maximal information on swarm structure with regards to model identification
- Neutralize attackers
  - Utilize this reconnaissance information to ascertain attacker intelligence models
  - Use the intelligence models to design optimal defender trajectories

- Develop new optimal strategies for intelligence gathering and defense against attack on a High Value Naval Unit (HVNU) by a swarm of Unmanned Surface Vehicles (USV).
- Previous Cruser-funded research:
  - Optimally utilize prior information to protect HVNU from uncertain swarms
- Next Step:
  - Optimally gather information on uncertain attacker swarms
  - Ascertain swarm intelligence/structure

- Swarm intelligence/structure reveals distinct strategic possibilities
  - *Kamikaze coverage*: non-evasive attackers equipped only with target tracking; defenders cover regions of interception
  - *Herding*: attackers with collision avoidance algorithms; can **herd them away** or **have them collide**
  - *Predator Prey*: attackers with reactive onboard intelligence algorithms; larger array of possible models, information-heavy strategies.

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Prof. Isaac Kaminer
Email: kaminer@nps.edu
Phone: 831-656-3459
MAE Department, SECRET

NRC Fellow Claire Walton
Res. Assc. Prof. Vladimir Dobrokhodov
Res. Assc. Prof. Kevin Jones