

Temasek Defence Systems Institute

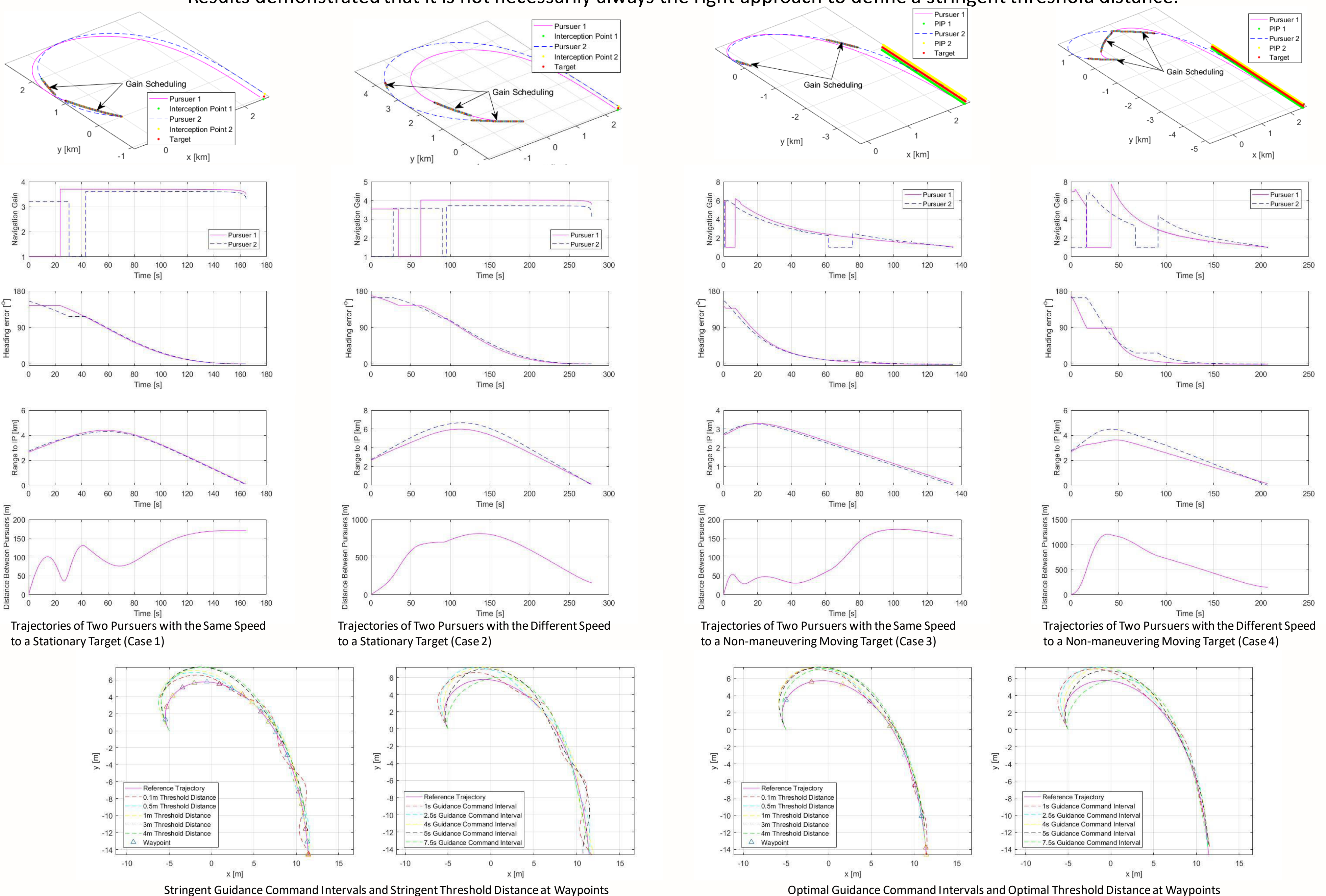
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# COORDINATED GUIDANCE STRATEGY FOR MULTIPLE USVs DURING MARITIME INTERDICTION OPERATIONS

Author: See Hongze Alex

Thesis advisors: Satadal Ghosh, Oleg Yakimenko

- Objectives
  - Develop a coordinated trajectory-shaping guidance strategy and its corresponding algorithms to surround a target to restrict its further maneuver to achieve successful interdiction missions.
  - Investigate the effects on USVs control from varying command guidance intervals and threshold distances at waypoints.
- Main Research Ideas
  - What is the engineering approach adopted to design the solution (i.e., swarming USVs system)?
  - What is the guidance strategy considered for the USVs to perform the interdiction successfully?
  - What are the possible factors affecting the control of the USVs?
- Research Results
  - Control of arrival time in the form of simultaneous arrival at desired arrival angles relative to the target's final states.
  - Results demonstrated that it is not necessarily always the right approach to define a stringent threshold distance.



- Benefits/Potential Applications of the Research
  - Unmanned platforms have proven in recent years to be capable and reliable and preferred to manned platforms in providing additional “advantages and contributions beyond replacing humans in dull, dirty and dangerous roles.
- Follow-up Research Activities
  - Inter-pursuer collision avoidance capability
  - Collision avoidance with surrounding objects/obstacle