

## **Cooperative 2-On-1 Bounded-Control Linear Differential Games**

A linearized 2-on-1 engagement is considered, in which the players' controls are bounded and have first order dynamics and equal terminal instants. A capturability analysis is performed, presenting necessary and sufficient conditions for the feasibility of exact capture against any target maneuver and for arbitrary control dynamics. Wishing to formulate the engagement as a zero-sum differential game, a suitable cost function is proposed and validated, and the resulting optimization problem and its solution are presented. Construction and analysis of the game space for the case of strong pursuers is shown, and the players' closed form optimal controls are derived.