NONLINEAR INVERSE DYNAMIC CONTROLLER FOR THE CONFLICT RESOLUTION OF FREE FLYING AIRCRAFTS

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ABSTRACT

The problem of congestion in air traffic route due to the development of today's booming air traffic can be solved by the concept of Free Flight. An aircraft under free flight condition is prone to conflicts with other aircrafts. The conflict detection and resolution of a free flying aircraft is considered in this paper. By considering the various modes, the aircraft is modelled in hybrid form based on conflict free maneuvrings. The control of lateral dynamics of a mode based flight is addressed in this work. A control law for velocity, heading angle and inertial position tracking is developed using Nonlinear Inverse Dynamic controller.

KEYWORDS: Conflict Detection, Free Flight, Hybrid Systems, Nonlinear Inverse Dynamics, Resolution