

Autonomous Formation Flying in spacecraft

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Abstract

Rapid collision identification and perturbation avoidance is a necessary capability for distributed implementation of path tools on formation flying spacecraft. This paper presents the solution of avoiding the obstacle and reach the goal, and further fuel optimal trajectory shaping around collisions, while in natural motion and along reconfiguration trajectories. Collision avoidance and vehicle trajectory shaping is also explored with respect to multiple manoeuvring spacecraft so that avoidance of perturbation disturbed from other spacecraft in on orbit. *In this method is to introduce a set of way-points through which the spacecraft are required to pass, combined with parameterizations of the trajectories which are energy-optimal for each spacecraft. The resulting embarrassed optimization problem is formulated as a quasi-quadratic parameter optimization problem in terms of the way-points parameters.* It has set off a great deal of research in advanced levels of planning and control, including mutual sensing and exploration, coordinated motion planning, and formation or cooperative control.

Keywords : Formation Flying, Path Planning, Collision Avoidance, Autonomous Vehicle and Trajectories parameters.