IAF SPACE SYSTEMS SYMPOSIUM (D1)
Cooperative and Robotic Space Systems (6)

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FUCO (FUEL CONSUMPTION OPTIMIZATION): A DISTRIBUTED COMPUTING SOLUTION FOR
AUTONOMOUS MANEUVERS IN A CONSTELLATION

Abstract

Sky and Space Global is a new space company that aim to improve the lives of three billion people in three years, by providing Affordable narrowband communication services to the equatorial region.

After the successful commissioning of the world's smallest communication satellites (the three diamonds), and performing some "World First", the company now is moving full speed ahead for a constellation of about 200 nanosatellites.

A major element in the constellations' CONOPS (Concept of Operations) is autonomous maneuvring of satellites both for operational and safety needs.

From operational perspective, each and every satellite, which serves as a router in the network, needs to keep an accurate relative distance from other satellites to allow continues overlapping coverage of the communication footprint.

From safety perspective, the satellites are also required to perform avoidance maneuvers to maintain situation awareness and sustianability of service.

In order to optimize fuel consuption across the constellation, the comapy developed a unique collaberative algorithm that implements distributed computing online in space