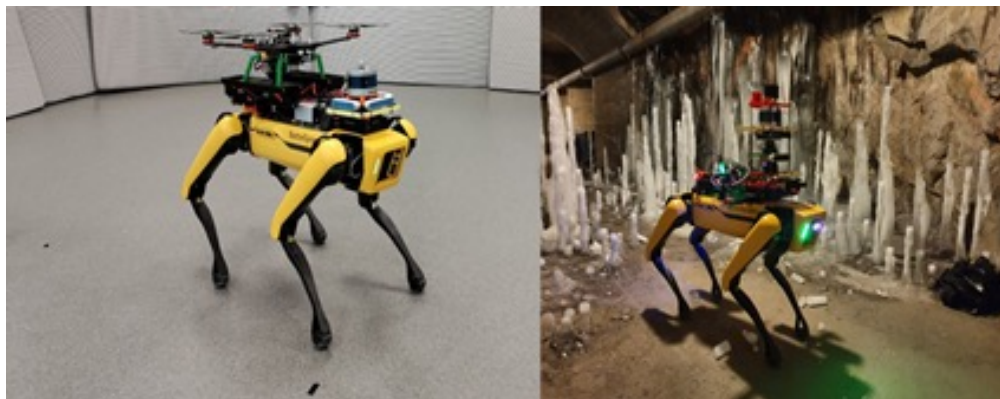


# Space Autonomy for Enabling the Next-generation Space Missions

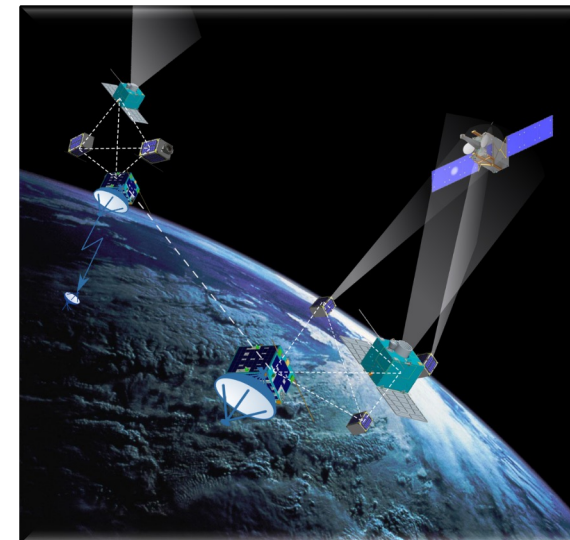
Aim is to introduce **resilient autonomous technologies**, *i.e.* characterized by **robustness**, **redundance** and **resourcefulness**, for future near-earth orbital and planetary missions

## Objectives

- O1)** Collaborative sensing and perception schemes
- O2)** Autonomous high-level mission planner and task allocation
- O3)** Risk-aware navigation and path planning
- O4)** Development and verification of key technologies



*Quadrotor integrated on top of the Spot legged robot and Unified Spot-UAV navigation*



*Collaborative debris removal scenario*

## Ongoing activities

1. Full unification of ground and aerial robots for the subterranean environment exploration
2. Collaborative sensing and perception using multiple robots equipped with different sensors
3. Visual navigation and pose estimation in proximity of an asteroid
4. Collaborative vision-based pose estimation of a non-cooperative target
5. Adaptive controller design to address changing spacecraft dynamics (post-grasping phase)
6. Friction-less hardware-in-loop test-setup to demonstrate and validate developed advanced algorithms

