Bachelor / Master Thesis

Creating a 2 cm space object population

YOUR MISSION:

During planning of many space missions, simulations need to be performed, which investigate the interaction of that mission with the overall space environment. For this purpose, space object populations are required that contain a realistic in-orbit population. Different populations already exist, as ESA's Master population or populations based on TLE data. Nevertheless, access to these populations is restricted and their use is regulated. Therefore, in this thesis, an approach to create an alternative population of space objects shall be created that delivers a scientifically sound image of the current objects in space.

In more detail, the following steps are to be performed:

- Research publicly available source for in-orbit objects,
- Develop an approach to automatically create a 2 cm population, using these sources,
- Create the population for certain to be defined snapshots in time,
- Compare the characteristics of the population against reference populations from ESA and potentially NASA.

YOUR PROFILE:

- Studying Aerospace engineering or a related field of study,
- Basic knowledge of orbital mechanics,
- Basic knowledge of spaceflight and the space debris environment are an advantage,
- Practical programming skills,

YOUR BENEFITS:

- Team of motivated entrepreneurial colleagues and experts in the space domain
- Fair payment
- Free coffee, lunch routines and fun office events

ABOUT US:

OKAPI:Orbits is a young start-up developing an innovative AI-based platform for automated collision avoidance of satellites. We value entrepreneurial-minded, creative people, who are willing to take responsibilities to actively contribute to the development of OKAPI:Orbits and its products.

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