

Analysis of small debris in Low Earth Orbit

Code: 21/19

Company: Astroscale Ltd

Location: Harwell Campus, Oxfordshire

Company Description:

Astroscale is the first private company with a mission to secure long-term spaceflight safety and orbital sustainability for the benefit of future generations. Founded in 2013, Astroscale is developing innovative and scalable solutions for satellite end-of-life and active debris removal services in order to mitigate the growing and hazardous build-up of debris in space. Headquartered in Japan with offices in the UK, Singapore, Israel and the US, Astroscale is a rapidly expanding venture company, preparing to solve a growing environmental concern.

Astroscale launched its second mission, ELSA-d, a technology demonstration for end-of-life services and pursuing complementary missions with potential customers in March 2021.

Project Description:

Astroscale is seeking an intern to support our exploration of small debris, including the following activities:

- Research and build up knowledge on the current understanding of the small debris population in-orbit, including any databases currently available.
- Develop a tool to interface with a publicly accessible spacecraft data source (e.g. SpaceTrack via their API) as well as an openly available small-debris model (e.g. ESA's DRAMA tool) with a suitable high level language (e.g. Python).
- Through use of this tool, explore how different spacecraft or objects in different orbits are impacted by small-debris.
- Write a short summary paper of the above activities.

The intern will be provided with background information and internal training to support them with these activities, as required. This internship will include working closely with the business development team and the engineering team and feed into wider business analysis of Astroscale's future operations.

Applicant Specification:

Good knowledge of an engineering, scientific or mathematical discipline, or equivalent science based/engineering experience, is essential. Interest/experience with the space or aerospace industry would be preferable.

Minimum Requirements:

The intern should have a reasonable knowledge or significant interest of space and the satellite industry, as well as demonstrable quantitative analytic skills; Other requirements include:

- Experience in the use of a high-level programming language, ideally Python, and developing code to solve technical problems.
- A good understanding of how real-world problems can be represented as a numerical models (some experience in building models would be advantageous)
- Analytical mindset and strong quantitative skills – ability to think critically and creatively, working with large datasets methodically, and drawing sensible, evidence-based conclusions.
- Strong communication skills (written and verbal) including relaying technical information to both technical and non-technical audiences
- Ability to work in a team and individually
- Self-motivated, proactive, and willing to take initiative
- Working knowledge of MS Office tools (e.g. Excel, PowerPoint etc..).

Preferred Additional Requirements:

- Experience developing mathematical models to represent and solve problems in the real world.
- Experience in technical analysis of space sustainability and space debris
- Experience in report writing

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate. Virtual Induction Event to be held on 21 June, 2021. Ideally to complete before the start of the next academic year. Salary is £1,500 per calendar month gross.

Closing Date for Applications: 5pm Friday 14 May 2021

Applications should be made through the online form attaching a CV, before the closing date. Please note that elements of the form left incomplete will be deemed to render the application ineligible. They will be checked for eligibility and forwarded to the employer.