

Small sounding rocket launch programme for education and training

Code: 20/44

Company: Joint internship with UK Launch Services Ltd & Raptor Aerospace

Supervisor: Andy Grey, UKLSL

Location: To Be Agreed (remote working opportunity)

Company Description:

UKLSL was founded in 2017 to provide expert support to organisations developing space launch services. We are a launch operations service provider offering management, regulatory support, logistics support, range services and operations planning services for commercial small satellite launch. UKLSL also has significant technical knowledge of launch vehicles, their technology and comprehensive knowledge of all potential UK launch sites (as well as the global market and competition). UKLSL staff have wide ranging experience with outreach related to launch activities, including a founding role in the national rocket championship, UKSEDS positions, guest lecturing and hands-on teaching experience at universities and running short courses and events with rocket related themes

Raptor Aerospace Ltd is a suborbital and atmospheric launch service provider based in the East of England. Founded in 2018 and based upon 30 years of prior rocket design and launch experience, the company was founded to offer practical experience and immediate launch capability to the UK space sector to train staff, provide educational launch services and ready the UK for commercial launch activity in the coming years. Raptor staff have been involved in educational launch activities for over twenty five years and recently completed two dozen launches in support of the ESERO/STEM Learning UK CanSat competition. The Raptor team are keen to expand on this experience and the lessons learned to give UK students a true advantage in the global space job market and boost experience levels in the UK Space Sector

Project Description:

Suborbital rocket launches can support education & training elements of commercial spaceflight. Low altitude suborbital vehicles in particular are already available in the UK (eg: built by Raptor). Small student rocket events have been run since 1999 by AspireSpace and now UKSEDS. Regular CANSAT (payload) competitions are run by ESERO, although UK students have, until this year, had no opportunity to flight test their payloads unlike their European counterparts, and attending the benchmark Spaceport America Cup is costly and impractical for many. The UK has spaceport candidates with infrastructure able to support low altitude sounding rocket launch and recovery, and who are looking to run precursor commercial spaceflight activities.

A briefing will be prepared by UKLSL and Raptor Aerospace and reviewed by UKSA and at least one spaceport, aiming to create opportunities and programmes for educational sounding rockets in the UK. The applicant guided by this briefing and support from both companies will:

- Plan an operations concept (CONOPS) in stages, including safety requirements venue and launch campaign,
- Engage with prospective universities and determine their support requirements.
- Specify the launch platform and interfaces. *The initial stage of our programme will provide a reliable, tested suborbital rocket platform available for student teams to interface a CANSAT class payload to. Later stages are intended to provide a platform design to be built by participants, and / or support flight of a bespoke platform, subject to a suitable safety case.*

Applicant Specification:

- STEM degree but also open to applicants studying economics or similar disciplines

Minimum Requirements (please highlight how you meet these in your application):

- Strong, demonstrable interpersonal skills
- Prior STEM outreach activity
- Ability to work independently

Preferred Additional Requirements:

- Prior hands-on experience building launching and recovering small rockets eg solid fuel model or 'high power' rockets.
- A strong motivation to contribute to the growth of the UK space industry and its commercial spaceflight programme.
- A technical interest in launch vehicle design and architecture,
- An interest in working with students and university academic staff members to mentor, support and review their approaches.
- Hardworking & self-motivated. Both UKLSL and Raptor Aerospace are startups so we like people who are willing to try to start solving problems after only a short briefing period and a limited set of information
- Candidates who are able and willing to work remotely, until COVID-19 restrictions are relaxed.

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate but nominally with a start date around 15 July 2020 to attend an online SPIN Induction day hosted remotely with the Satellite Applications Catapult. Salary is £350 / week gross.

Closing Date for Applications: 5pm Friday 3 July 2020

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.