Emulating Thermal Infrared Satellite Images

Code: 21/18

Company: Super-Sharp Space Systems Ltd

Location: Virtual

Company Description:

Super-Sharp Space Systems Limited is an Earth-imaging company developing unfolding space telescopes to capture high-resolution thermal infrared (TIR) images of the earth. Our fundamental innovation is our patent-pending self-alignment technology which positions our optics to better than one-hundredth of the width of a human hair. This allows us to fit a large telescope in a small box, making low-cost, high-resolution, and high-revisit Earth-imaging possible. Our innovative and disruptive technology makes powerful TIR space telescopes much more affordable (up to 100x lower cost) while achieving 10x greater resolution than the current state-of-the-art solutions. The images captured by our space telescopes can be used for applications such as wildfire detection, crop monitoring, as well as contributing to the sustainability of our planet. We are determined to offer high-quality affordable Earth-imaging solutions to empower our world in responding to global change.

Project Description:

High-resolution TIR satellite images will open the market to new opportunities, with various commercial applications. At Super-Sharp Space Systems, we are developing innovative unfoldable space telescopes to capture these images at a high-resolution and revisit rate.
As part of our commercialization plan, we are currently running commercial trials that consist of interacting with customers in different industries to demonstrate the benefits of TIR images. Although we don't have any telescopes operating in space at the moment, we are capturing localized thermal images using a drone. To emulate a satellite image that will be taken with our telescopes, we need to stitch these drone images and downgrade their resolution. This SPIN project consists of assisting in the data processing efforts of these images and comparing their performance to optical satellite images for applications such as detecting dehydration in crops, detecting wildfires at an early stage and monitoring illegal fishing vessels.

Activities that the intern will undertake include:

- Processing multiple thermal images taken by a drone to create an emulated satellite image. Repeating this process to create multiple emulated satellite images of different locations.
- Comparing the performance of the emulated images to an optical satellite image taken by Sentinel/Landsat satellites.

- Writing a report detailing the benefits and drawbacks of thermal satellite imaging compared to optical satellite imaging.
- Presenting the results of the study to the management team of Super-Sharp Space Systems

Applicant Specification:

We are looking for motivated candidates that are interested in Earth Observation and working in a fast-paced start-up. Ideal candidates should have experience in image processing and an understanding of the applications of satellite images.

Minimum Requirements:

General programming experience in high level languages such as python, good communication skills, ability to work autonomously.

Preferred Additional Requirements:

Experience in image processing, familiarity with the space industry.

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 7 May

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.