Services4EO: the development of Open Data Cube and Cloud Optimized GeoTIFF for satellite imagery

Code: 21/21

Company: Deimos Space UK Ltd.

Location: Harwell Campus, Oxfordshire (or remote)

Company Description:

Deimos Space UK Ltd is a wholly owned subsidiary of Elecnor Deimos created in 2013 to address the UK and UK-export market for space systems, services and applications. Elecnor Deimos has extensive experience in aerospace activities; we are involved in the majority of European Space Agency programmes including science, exploration, earth observation, satellite navigation, launchers and human space flight. Deimos Space UK is located on the Harwell Oxford campus and offers expertise in the following areas:

- Flight Systems
- Ground Systems
- Space Situational Awareness
- Satellite Navigation
- Applications & Services

The Deimos Space UK commercial R&D portfolio covers diverse satellite applications from smart cities to precision farming and marine operations. The Earth Observation (EO) team have worked on numerous EO-related projects which has enabled them to develop their machine learning capability for object detection in satellite imagery. This has included work in collaboration with the UK and European Space Agency and multiple companies to detect deforestation, forest fires, coastal environmental threats, to monitor crops, pasture, solar farms using deep learning and neural networks for projects in Europe, Mongolia, Guatemala, Ethiopia and more.

Project Description:

Services4EO is the future marketplace for micro-geoservices of Deimos Space, connecting Earth observation service providers with users. The platform provides web services to applications using Earth Observation Imagery. For example, it helps farmers and agronomists to monitor their fields / crops using satellite imagery, UAV imagery and data acquired by tractors. The platform is involved in multiple applications like monitoring pasture in Mongolia, urban mapping in Europe and Africa, detecting environmental threats along the coast, detecting illegal logging in central America, monitoring ports around Atlantic and other applications using various technologies.

This placement opportunity will see the intern support the development of the platform by working on multiple tasks involving of using and producing Cloud Optimized GeoTIFF from satellite imagery such as Sentinel-2 or very high-resolution sensors. Further implementing the data in the Open Data Cube and test its utilities and effectiveness in the operational service's platform.

The student will be working as part of a friendly, small Earth Observation Applications team comprising of around 7 people within Deimos Space UK and which has been operational since the Deimos Space UK subsidiary was created. Most have backgrounds in geography, remote sensing, machine learning, physics, software engineering and GIS.

The successful applicant will gain a wide understanding of the work carried out in the EO team and exposure to the other business units. They will gain industry experience in the space sector, strengthen their python programming skills and develop an understanding of the software development life cycle, design patterns and continuous integration.

Applicant Specification:

The applicant will hold (or be near to completing) a degree in a scientific subject with an emphasis on data science, programming or geography with an interest in the space industry or in satellite imagery.

All applicants are encouraged to apply even if they only meet part of the criteria. We look forward to welcoming you!

Minimum Requirements:

- Experience with geographic data formats and projections
- Experience in Python programming or an understanding of object-oriented programming
- Experience working with large satellite and drone datasets

Preferred Additional Requirements:

- Familiarity with Data Cubes
- Familiarity with database structures and operations (e.g. Postgres, Oracle spatial, SQL etc.)

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 Monday 10 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.