

Creating and evaluating training data for deep learning models using satellite imagery

Code: 21/20

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. The developed operational platform enables the downloading, storing, processing and delivery of satellite and UAV images or derived products as services for various users, which includes a machine learning capability for object detection.

This placement opportunity will see the intern support the development of the platform by looking at pressures on intertidal zones in Europe. Work will consist of initial research and

evaluation of available training data and methods for the detection of features in satellite imagery. He/she will also be involved in the preparation of training and validation data, that will be used with AI algorithms available in our existing deep learning framework. They will generate a final industry-standard report of their work at the end of the internship.

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 learn how to use GIS applications and work with satellite imagery, gaining valuable industry experience in the space sector and stronger skills in data analysis, machine learning applications and programming in an industry setting.

Applicant Specification:

The applicant will hold (or be near to completing) a degree in a scientific subject.

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

Minimum Requirements:

- Attention to detail and good research skills
- Experience working with imagery (satellite and drone datasets)

Preferred Additional Requirements:

- Good knowledge of python programming
- Experience in image processing or with geographical information systems (GIS)

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.