

A comparison of drone mapping software for image mosaicking

Code: 19/25

Company: Deimos Space UK Ltd.

Location: Harwell Campus, Oxfordshire

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 most 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 company employs around 20 people in the UK and is planning to recruit several more in 2019.

Our knowledge of satellites, data systems and location-based services puts the company in a unique position when developing satellite applications. Future target markets for new applications of Earth Observation data based on Deep Learning include agronomy/environment, urban mapping and coastal monitoring.

Project Description:

Deimos Space UK have developed an operational platform known as Service4EO that enables the downloading, storing, processing and delivery of satellite and UAV images or derived products as services to farmers and agronomists, which includes a machine learning capability for object detection. The intern will be supporting this platform with the main task to carry out a comparison study between commercial drone mapping software.

Work will consist of, but not be limited to:

1. Comparing and evaluating different types of drone mapping software that are available, mainly for UAV image mosaicking. This will include writing a report to describe their findings.
2. Support for Service4EO satellite and UAV image processing as well as our machine learning capability – improvements, bug fixes, refactoring and updating libraries as appropriate
3. Documentation of python scripts - defining existing public interfaces
4. Addition of appropriate comments for all public methods and classes to auto-generate documentation using tools such as sphinx, pdoc, pydoctor, doxygen etc.

The student will help to develop a tool that will be used in several applications including field surveys for farmers and agronomists and beach monitoring to detect litter and environmental threats.

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, maths, software engineering and GIS.

The successful applicant 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. They will gain experience and knowledge working with large satellite and drone datasets for an operational service.

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

Applicant Specification:

The placement would be well-suited to an undergraduate or graduate with python programming skills and who would like experience in the space industry. Ideally, the intern will have an interest in UAV/satellite imagery, photogrammetry and prior experience with point cloud software/ UAV mapping software.

Minimum Requirements:

One of the following:

- Experience in Python programming
- Understanding of an object-oriented programming language

Preferred Additional Requirements:

- Background in Earth Observation/ Remote Sensing/ GIS/ Data Science/ Software Engineering or similar



- Experience with image processing
- Experience with point cloud processing, photogrammetry or drone mapping software

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate but nominally with a start date around 17th June, 2019 to attend the SPIN Induction day at the Satellite Applications Catapult, and completion before 20th September for the Showcase the following week. Salary is £1,500 per calendar month gross.

Closing Date for Applications: 5pm on Monday 8 April 2019

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.