

Project 18.30: Developing and Deploying Feature Extraction Algorithms using innovative new methods

Company: Spottitt Ltd

Supervisor: William Ray

Location: Electron Building, Fermi Avenue, Harwell Campus, Didcot, Oxfordshire, OX11 0QR

Company Description:

Spottitt is a start-up specialising in fully automated analysis of satellite imagery. Currently we provide a fully automated, cloud based, remote sensing analysis service. We provide the tools to perform Land Cover Analyses, Rooftop Recognition and Wind Roughness Analyses that onshore wind developers can use in site selection.

<https://www.spottitt.com/>

Project Description:

One of the most challenging issues when developing global machine learning algorithms is processing and creating suitable training & validation datasets.

Currently, we manually digitise building footprints to create training and validation.

However, datasets such as Open Street Map offer the possibility to label large reference datasets very quickly.

The applicant would be expected to improve the current algorithm, not just by adding more training data but also improving the pre-processing steps taken before classification and testing the effectiveness of adding more bands to the image data creating “Frankenband” imagery. If time allows the applicant will also be expected to explore the feasibility of creating a sensor agnostic algorithm.

Lastly, the applicant will be expected to produce a technical report detailing their methodology and approach as well as a detailed assessment of the accuracy and precision of their algorithm comparing it to the existing algorithm.

The majority of development work will be completed in a cloud-based environment training the neural network using cloud based solutions. This will be completed using Microsoft Azure’s tools. The applicant will also have access to GBDX Notebooks and Digital Globe’s imagery archive.

Applicant Specification:

Graduate with a background in Computer Science with an interest in Earth Observation and GIS would be ideal. In particular we are looking for a willing learner who wants to combine EO data & machine learning.

Minimum Requirements:

Knowledge of machine learning concepts and algorithms; in particular deep learning and neural networks. The applicant should be confident in using Python 2/3 and familiar with the various data science libraries in python.



Preferred Additional Requirements:

Some experience using Jupyter Notebooks, or other similar cloud based platforms. Some experience or awareness in using EO and GIS data, GIS Desktop software (ArcGIS, QGIS)

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate but nominally with a start date around 18 June 2018, when the SPIN Induction Day will be held at the Satellite Applications Catapult, Harwell. Salary is £1,500 per calendar month.

Closing Date for Applications: 12:00, Tuesday 5 June 2018

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.

Apply here: <https://sa.catapult.org.uk/people/space-placements-industry-spin/>