Earth Blox: back end functionality for planetary-scale space data analyses

Code: 20/30

Company: Quosient Ltd. (trading as Earth Blox)

Location: Any – work from own work environment.

Company Description:

Our motivation with EarthBlox (Patent filed) is to remove the barriers preventing widespread adoption of global satellite data. Our vision is to democratise the power of global satellite data and intelligence. EarthBlox's innovation leverages the power of cloud processing without the need for computer coding or high level earth-observation expertise. It enables the processing of terabytes of planetary scale geospatial data and the creation and download of actionable insights with unprecedented power and ease.

Satellites and planetary-scale data are available at unprecedented rates of acquisition for deforestation, urban expansion and large-scale disasters mapping. Environmental consultancies, supply-chain managers, insurers, retail and decision-makers in public institutions want to access this information yet are hindered by the complexity, cost and skill levels required to exploit the data. EarthBlox removes these barriers: its innovation lies in the complete removal of coding skills, making space data accessible to the masses, globally.

Project Description:

During this project, the student will support the development of the back end functionalities to Earth Blox. This will involve building the API link between the Earth Blox back end and the planetary scale satellite data repositories. This will require conversion of the code in the user interface, to functions that can be executed on the server. These functions will be custom built to operate with any given satellite/EO data repository.

Moreover, the student will support the development of Earth Blox's User data and Security. This work will consist of two components, the first will be to develop the functionality for users to upload, download, and store their own data (such as existin EO datasets, AOI data, externally generated datasets, field data for calibrating and validating models). This will require the development of a user interface to enable this. In addition we will build upon the existing suite of output formats including map interface for displaying output data live, graphs enabling statistical analysis, data download for offline use, and non-standard outputs such as GIF for presenting time series analysis.

To protect the user data, as well as any personal information stored, the student will help develop the required security features to ensure GDPR compliance which includes a

strengthened Firebase Authentication. They will support the development of functionality to give the users control over their privacy settings, both enable secure storage of data, but also the ability to share with colleagues.

Applicant Specification:

Academic:

Has attained or is in the process of attaining a Bachelors degree in one of the following:
- Computer Science - or any of its derivatives (i.e. Artificial Intelligence, Software Engineering, Web Design...)
- Geoscience

Minimum Requirements:

- Knowledge of Python, JavaScript, HTML and CSS;
- Basic understanding of Servers;
- Some experience with Cloud functionality;
- Ability to work in a small team

Preferred Additional Requirements:

- Knowledge of both the Earth Engine Python API and the JavaScript API;
- Experience with deploying and managing apps on Google App Engine;
- Understanding python web-applications, and knowledge of python's webapp2 plugin;
- Knowledge of authentication flows, and user management;
- Some experience with web security in relation to the development of web apps

Further details:

The internship will be a minimum of 8 weeks (with potential extension) but when you start and end is to some extent flexible, as we recognise that that Covid-19 require more flexible arrangements. The placement will require working remotely. To support this, we have robust support mechanisms (including bi-weekly team meetings and various connectivity options for team work). While the start date can be flexible, we would ideally want you to start early to mid-June 2020, to attend the SPIN Induction from the Satellite Applications Catapult. We would expect completion before 20 September for the Showcase the following week. Salary is £1,500 per calendar month gross.

Closing Date for Applications: 5pm Wednesday 27 May 2020

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.