

Senior Earth Observation Scientist (tropical forest)

About Us

We're a fast-growing tech company headquartered in Edinburgh. We are on a mission to enable zero deforestation and degradation, and support mass forest restoration. We do this by producing the highest quality nature mapping data products, and passing these to clients with high quality custom analysis and advice.

Our clients include major international companies (e.g. Apple), expert consultancies (e.g. The Biodiversity Consultancy), major NGOs (e.g. WCS and TNC), funders/sellers of carbon credits (e.g. Everland), and forest carbon project developers across the tropics.

All of our work is based on extensive scientific research with our expert science and technology team including 12 with PhDs in ecology or satellite science, and world-class AI and software engineers.

Role Overview

This position is part of our Science team. The key focus of this role is to produce satellite-based maps with the aim of saving/restoring forests!

The main role of the Senior Earth Observation Scientist (tropical forest) will be to lead on the creation landcover and/or forest carbon storage maps, taking responsibility for (or providing technical direction on) the creation of high quality training data and implementing and improving our methodologies. Also leading on the analysis of satellite data and the application of machine learning methods; and the communication of results and challenges internally as well as externally. You will use your specific expertise in the strengths and weaknesses of different types of satellite data and analysis methods, as applied to different to different ecosystems and problems, to guide the team towards producing audit-grade maps. This will be done working as part of small interdisciplinary teams (pods) in a fast-paced environment.

This role will report to one of our Senior Mapping Scientists (Pod Lead) You will join one of our four pods, the teams that make the maps. These are made up of normally 4-5 people, including a Lead, 1-2 Data Scientist(s), 1-2 Data Analyst(s), and an Ecologist. You would likely be the most experienced person in the pod excluding the Pod Lead.

Role and Responsibilities:

Main responsibilities:

- Lead the creation of satellite-based maps, interpret them and present results, specifically:
 - Create high quality samples for model training by:
 - Using your expertise to know which remote sensing datasets are likely to be most useful for polygon selection in landcover mapping, or what pre-processing is needed for carbon map training (e.g. GEDI or ICESAT-2 LiDAR data), then lead the process of collecting, processing and analysing these data
 - Using your experience of working in various landscapes to help ecologists delineate sample areas for calibration and validation
 - Conducting experiments and pre-processing for satellite LiDAR data for carbon mapping
 - Use your expertise to decide which remote sensing datasets are ideal for the mapping problem (area, year) at hand, and lead the creation of seamless high quality EO datasets. Review these when produced through our internal data platform, and decide on modifications/if additional datasets as needed.
 - Use your experience to recognise artefacts in EO mosaics, and know how to remove them or find alternative datasets.
 - Select appropriate machine learning methods, and use them to train models that capture relationships between remote sensing data and specific land characteristics
 - Initialise and maintain cloud computing environment, ensuring optimal use of cloud resources. Interact directly with our Data Team to flag improvements, or fix bugs.
 - Critically analyse results, identify problems and implement solutions to improve the performance of the models and the accuracy of the maps
 - Lead the the generation of reports, via summarising map data in an interpretable format and presenting map outputs in publishable quality

- Report to the pod lead, both general progress as well as possible areas of concern or of opportunity
- Provide on-the-job training to Data Analysts/Scientists, so your knowledge and experience can be used to improve the skills of less experienced members of the team
- Lead the statistical analysis of results and the calculation of uncertainties
- Lead the writing of the reports that will be sent to the clients
- Communicate with and present results to clients

Additional responsibilities:

- Use technical knowledge to find solutions to bespoke problems
- Collaborate with the engineering team to produce and maintain code. Improve modelling and mapping pipelines
- Collaborate with the Research team to participate in R&D projects. Help develop new products and lead small projects independently
- Direct and evaluate scientific solutions

- Contribute to white papers, scientific publications and/or blog posts

Profile/Experience

Education

- Bachelor's degree in a physical science or computing subject, with a 2:1 or higher, or equivalent work experience
- PhD in Earth Observation applied to vegetation characteristics/changes plus at least a year's post-PhD experience applying this knowledge; or an MSc with at least 4 years' relevant work experience (e.g. ~4 years gaining experience as a Data Scientist creating maps of forest properties, landcover or biomass; or working as a researcher in a related field in a University or other research environment)
- Experience with data science, or machine learning for land cover mapping or carbon estimation using remote sensing
- Experience with applying statistical techniques, for example Mixed Models and Monte Carlo simulations
- Knowledge of the theory of satellite remote sensing and spatial data analysis, gained, for example, through a University course or experience gained during ~4 years as a remote sensing Data Scientist. Experience using optical, SAR and LiDAR satellite data to create outputs, evidenced for example in authoring scientific papers using these tools, or leading analysis using them for a company or NGO.
- Experience with GIS software (e.g. QGIS) and GIS packages (e.g. GDAL)
- Knowledge of / analysis experience with data pertaining to forest ecosystems and/or land surface processes.

Programming experience

- At least 4 years experience coding using python, especially for scaled analysis - where during at least 2 years coding in Python was a major part of your job
- Experience working with Google Earth Engine or Planetary Computer
- Experience using R for statistical or geospatial analysis
- Experience using github or another version control system
- Experience using cloud computing services like AWS or Azure
- Experience using parallel computing libraries such as Dask

General background and interests

- Scientific mindset – you're able to create hypotheses and experiments to test them, as well as recording and sharing your findings in a concise manner.
- Enjoy working in small multidisciplinary teams
- Strong ability to prioritise and focus

Other Requirements

- Willing to give presentations inside the company and outside, attend networking events, communicate with clients. Evidence of past experience of such external interactions in your role.

Willing to work with the R&D team and lead the publication of white papers or peer review



papers. Evidence of past publication of such papers necessary for the job.

What if you don't meet our spec 100% ?

There is no such thing as the perfect CV, or someone that checks every box. We need people to be able to do the job but also look at potential. So, we encourage you to apply even if your experience doesn't exactly match our role but it would make you excited to come to work each day. You can address the gaps, and more, in your cover letter, if you wish.

Working for Space Intelligence

At Space Intelligence, we offer a competitive salary, 33 holiday days per year, an extra day off for your birthday, a good pension plan offering salary sacrifice for tax efficiency, an Employee Savings on Purchases Platform and an Employee Assistance Programme, as well as other benefits. We have a friendly, fun and supportive workplace, and we strongly value work-life balance. We are emphatically not a company with a long-hours culture, and we are family-friendly and support working flexible and part-time. We also schedule a range of events including lunches, escape rooms, pub trips, crazy golf, bowling and much more. In addition, we do company and team away days.

We are, proudly, a diverse, multicultural team: with almost as many women as men (unusual in a tech/science company) and our employees come from 11 different countries.

Where will I work?

We are looking for a candidate who will be based in our office on George Street, Edinburgh. Most of our team are in the office most days, and we feel you will learn fastest if you are in the office most days too. However, we support hybrid working and would be happy for you to work 1-2 days a week from home.

Please note, at the start date, you must have the right to work in the UK and we currently don't sponsor work visas.

Salary

Very competitive salary and benefits depending on experience/qualifications. Pro rata, if part time.

Adjustments (because we are not all the same)

We are committed to offering opportunities for all and we recognise that some people may need adjustments in order to participate fairly in our hiring process. If you require an adjustment (we have done this for others), please contact Helen, our Head of People and Culture (helen.scott@space-intelligence.com). Helen knows from first hand experience the importance of levelling the playing field and will do all she can to make your experience a

positive one. This can include adjustments before submitting your CV, guaranteed in-person interviews (if virtual isn't your thing) and seeing the interview questions in advance. Please just ask.

How to apply

Please send your CV and a cover letter explaining why you're particularly suited for this role to careers@space-intelligence.com. Please also include your name in the title of any attached documents. This really helps our brilliant Office Administrator when doing her part in the recruitment process.

If you have work you can share eg GitHub profile, scientific papers then please include too. If you can't share due to confidentiality reasons, please explain that in your cover letter.

Closing date: Thursday 20th June, 5pm