# POSITION DESCRIPTION

**Position title:** Geospatial Software Engineer
**Location:** Hybrid – Brisbane (QLD) or Newcastle (NSW) regions
**Employment Type:** Permanent (1.0 FTE)

**Business Unit Core team:** Technical and R&D
**Reports to:** Geospatial Processing Manager

**Working with:** Technical Director, Systems Integration Manager, Remote Sensing Analysts, Managing Director

## ABOUT CIBO LABS

Cibo Labs offers robust, user-friendly online platforms and mobile apps that harness satellite technologies to map and monitor pastures and permanent farm vegetation in near-real-time. These tools enable producers and agricultural supply chain stakeholders to make informed land management and business decisions.

Designed with a "producer-first" philosophy, our solutions integrate across paddocks, farms and on a national scale empowering producers to access and control their data while unlocking value for the broader agricultural industry and economy.

At Cibo Labs we believe livestock producers are the true change-makers. By understanding and managing their land, they drive sustainable stewardship and create meaningful impact for Australia's families, business, communities, economies and landscapes.

Using world-leading agricultural data science, we aim to empower producers and transform how the world adapts and manages land, livestock and resources. Our purpose is to foster connected agricultural ecosystems where technology and data enable informed decisions, enhance productivity and protect natural ecosystems for future generations.

### Our Values

**Integrity**: Upholding ethical behaviour and transparency in all interactions, ensuring trust and accountability among team members, customers, and partners.

**Collaboration**: Promoting teamwork and open communication to achieve shared goals, while valuing the diverse perspectives and contributions of all employees.

**Innovation**: Encouraging a culture of creativity, continuous learning, and forward-thinking solutions to drive growth and adapt to changing market conditions.

**Employee Well-Being**: Prioritising the health, safety, and overall happiness of employees through supportive policies, benefits, and a healthy work-life balance.

**Customer Focus**: Ensuring that all employees understand their impact on the customer experience, fostering a company-wide commitment to delivering value and excellence.

## WORKING AT CIBO LABS

At Cibo Labs, we are a team of passionate, driven, and highly skilled individuals dedicated to making a meaningful impact in agriculture. As a 100% remote business, we have built an incredibly strong, supportive, and collaborative culture where trust, autonomy, and flexibility are at the heart of how we work.

### How We Work at Cibo Labs

- A collaborative and passionate team – Our people are our greatest asset. We thrive on sharing knowledge, supporting each other, and embracing new ideas to drive innovation.
- Flexibility & freedom – Work from anywhere, structure your day in a way that suits you, and enjoy the autonomy to make decisions and take ownership of your work.
- Impactful work – We partner with progressive clients, helping them unlock powerful insights that shape better decisions for their businesses. Seeing the real-world impact of our work is what drives us.
- Growth & development – We value initiative and encourage continuous learning. Work alongside experts, expand your skillset, and contribute to strategic decisions that shape the future of AgTech.

## ROLE PURPOSE

As a Geospatial Software Engineer, you will be the engine room behind our national-scale analysis. You will architect, build, and optimize the high-performance processing pipelines that turn petabytes of satellite imagery into actionable pasture insights for Australian farmers.

This is a hands-on backend engineering role heavily focused on scalability. You will move beyond simple desktop GIS scripting to build robust, cloud-native systems using **AWS Batch**, **Python**, and **PostGIS**. You will work closely with our Remote Sensing Scientists to translate complex algorithms into production-ready code that runs efficiently at scale.

We are looking for someone who understands the nuances of geospatial data (projections, raster/vector interactions) but applies rigorous software engineering practices to solve them.

## RESPONSIBILITES AND DUTIES

| Key Responsibility Area | Outcomes & Key Tasks | Success Indicators |
|---|---|---|
| 1. Geospatial Pipeline Engineering | • Design and implement scalable image processing workflows using AWS Batch and Step Functions.<br>• Optimise Python code for performance (multiprocessing, memory management) when handling massive raster datasets.<br>• Translate R&D algorithms into production-hardened Python packages. | • Pipelines run reliably within cost/time budgets.<br>• Reduction in processing latency.<br>• Code is testable, modular, and documented. |
| 2. Data Management & Architecture | • Manage complex vector datasets in PostGIS, optimising queries for spatial performance.<br>• Implement modern geospatial standards (STAC, COG) to improve data accessibility.<br>• Maintain efficient storage lifecycles in AWS S3. | • Query performance improvements.<br>• Successful implementation of STAC catalogues.<br>• Data integrity maintained across national datasets. |
| 3. DevOps & Infrastructure | • Deploy infrastructure using Infrastructure as Code (Terraform/CDK/CloudFormation).<br>• Build and maintain CI/CD pipelines for automated testing and deployment.<br>• Containerise applications using Docker for consistent execution environments. | • Zero-downtime deployments.<br>• Infrastructure is reproducible and version controlled.<br>• High system availability (99.9%). |
| 4. Application programming interfaces and developer engagement | • Design and troubleshoot APIs in collaboration with our software partners<br>• Build, deploy and maintain APIs that deliver data to our software partners<br>• | • Zero-downtime deployments<br>• Software partners satisfied with API performance and stability<br>• |
| 5. Collaboration & R&D Support | • Bridge the gap between science and engineering by mentoring analysts on coding best practices.<br>• Contribute to architectural decisions and technology selection. | • Positive feedback from the technical team.<br>• Seamless handovers from |

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|---|---|---|
| | • Debug complex spatial edge-cases in collaboration with the science team. | R&D to Production. |
| 6. AWS Systems administration | • Manage users, groups and roles in AWS IAM and IAM Identity Centre | • Proactive management of user and application access to company assets |

## SKILLS & EXPERIENCE

### The "Must Haves" (Technical Stack)

- Advanced Python: You are not just scripting; you build robust, well-constructed applications. You know your way around pytest, type hinting, and packaging.
- API Design & Contract Definition: You understand the importance of reliable, stable, and well-documented APIs. You are proficient in defining strict API contracts (e.g., OpenAPI/Swagger) and JSON schemas to ensure frontend teams have clear specifications to build against, preventing integration bottlenecks.Core Geospatial Libraries: Deep experience with GDAL/OGR bindings. You understand affine transforms, CRS conversions, and raster algebra.
- Knowledge of STAC (SpatioTemporal Asset Catalogue) and Cloud Optimised GeoTIFFs (COG).
- AWS Compute & Batch: Proven experience running heavy workloads on AWS, specifically using AWS Batch, ECS, or Lambda. You understand how to dynamically scale compute resources and understand the importance of cost optimisation
- Database: Strong proficiency in SQL and PostgreSQL/PostGIS. You can write complex spatial joins and index strategies.
- Containerisation: Comfortable writing Dockerfiles and managing container registries.
- Data management: experience working with large data archives and object data stores like AWS S3, designing and adhering to data management frameworks and policies

### The "Nice to Haves"

- Experience with Infrastructure as Code (Terraform, AWS CDK, CloudFormation).

- Experience with implementing AWS security policies
- Experience with RIOS and PyShepSeg.
- Basic understanding of frontend mapping (Leaflet, Mapbox, OpenLayers) to understand how your data is consumed.
- Experience running GPU workloads for machine learning model inference on AWS infrastructure
- Interest in and or track record of delivering "Nature Positive" or environmental monitoring solutions.
- Interest in and or track record of delivering outcomes for the Australian Agricultural or Livestock sector.

COMPETENCIES

- Engineering Mindset: You prioritise maintainability, reliability, and automated testing over "quick fixes."
- Problem Solver: You enjoy debugging complex spatial intersections or memory leaks in large processing jobs.
- Customer focus: you want a smooth customer experience, be that an end user of our applications or data analysts and software developers at our partner organisations
- Autonomous: Experience with defined development cycles (e.g., Shape Up). As a remote worker, you can manage your backlog, communicate problems early, and drive features to completion.
- Curious: You stay up to date with the changing landscape of FOSS4G and cloud technology.

QUALIFICATIONS

- Bachelor's degree in Computer Science, Software Engineering, Geomatics, or equivalent industry experience.
- 5+ years of experience in software development with a heavy focus on geospatial technologies.

## CAREER DEVELOPMENT AT CIBO LABS

Cibo Labs is committed to supporting the professional growth of our team. As part of a growing business, you will have opportunities to develop your skills, take on new challenges, and progress in your career.

Career Development Discussions will be incorporated into Quarterly Performance Reviews with your manager. These discussions will:

1. Align your career aspirations with business opportunities.
2. Identify skills and experiences required for growth.
3. Outline available development resources, such as training, mentorship, or internal projects.

## WORKPLACE HEALTH & SAFETY OBLIGATIONS

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

1. Participate in the development of a safe and healthy workplace, wherever the location is on the day.
2. Comply with instructions given for their own safety and health and that of others, in adhering to safe work procedures in an office, event and farm environment.
3. Co-operate with management in the fulfilment of its legislative obligations. Take reasonable care to ensure their own safety and health, and that of others, and to abide by their duty of care under the legislation.
4. To report any injury, hazard or illness immediately, where practical to their supervisor.
5. Not place others at risk by any act or omission.
6. Not wilfully or recklessly interfere with safety equipment or livestock.