Rai Fajardo
Environmental Resources Enginner

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About me

I am engineer specializing in Geographic Information Systems (GIS) and Remote Sensing, integrating tools such as Google Earth Engine, Python, R, QGIS, and ArcGIS for conservation and sustainable development projects. I have collaborated in deforestation and carbon emissions monitoring (REDD+, ARR), as well as working with Indigenous communities and conducting drone surveys. With experience in technical report writing in English and the implementation of early warning systems, I strive to adopt innovative approaches that add value and contribute to environmental protection. Always open to learning and refining new technologies, I seek to collaborate effectively and respectfully with multidisciplinary teams to achieve common goals.

Experience

FRONTERRA
GIS and Remote Sensing Specialist – Consultancy (December 2024)

- Analyzed 352 georeferenced plots using three applications developed in Google Earth Engine for land use change and deforestation detection.
- Conducted historical land use assessments for each plot, verifying changes up to 10 years prior to the planting year.
- Recorded and documented results in an Excel database, including: forest status until the year of analysis, land use change detection, presence of residual forest, observations, and photographic records.
- Reviewed and corrected observations related to plots with 0/5 residual forest, ensuring final validation.
- Assisted in reviewing datasets from other consultants to ensure data accuracy and consistency.

AIDER
GIS Specialist (February 2023 – November 2024)

Worked in collaboration with 28 Indigenous communities in Huánuco and Ucayali, contributing to environmental conservation and land monitoring efforts.

- Automated deforestation alert mapping using Python, QGIS, and ArcGIS, improving monitoring efficiency in key areas.
- Developed forest and environmental maps, including land tenure, DEMA, carbon storage, land use, and geographic location maps.
- Led the Early Warning System developed by AIDER, utilizing radar imagery for deforestation alert detection.
- Created Google Earth Engine scripts for object detection and advanced geospatial analysis using optical and radar imagery.
- Managed the MERGIN MAPS platform, programming the mobile application to record and manage geometries (points, lines, polygons) with data linked to Territorial Security and Economic-Productive components, including biodiversity records, technical assistance, patrol monitoring, and cadastral mapping of productive plots.
- Trained Indigenous community monitoring committees in the proper use of MERGIN Maps for registering patrol and biodiversity records.
- Processed spatial and statistical data using R, conducting in-depth deforestation and environmental impact analysis.
- Delivered PowerPoint presentations on deforestation alerts and forest monitoring, providing key updates to decision-makers.
- Processed drone imagery collected by Indigenous communities to generate high-precision maps and enhance territorial monitoring.
- Prepared technical reports documenting findings, methodologies, and recommendations.
- Provided technical support for forest census and inventory data analysis to quantify stored carbon levels.

University of Valencia
Research assistant (January 2023 – November 2023)

Project: CloudSEN 12 v2
Developed a high-quality database of Sentinel-2 imagery using Google Earth Engine, Deep Learning, and IRIS, ensuring precision and consistency in geospatial analysis and automated detection.

Global GIS

GIS Consultant Assistant (October 2021 – December 2022)

- Thematic Mapping: Designed and generated high-precision thematic maps for the visualization and analysis of key geospatial variables using satellite imagery and geospatial datasets.
- Google Earth Engine Scripting: Developed scripts for satellite image processing, including land use change detection, deforestation monitoring, and supervised classification.
- Drone Image Processing: Processed drone imagery, creating mosaics and conducting detailed parcel-level analysis.
- Process Automation with Python and Toolboxes: Developed Python scripts and customized toolboxes to automate geospatial workflows and optimize cartographic production.
- GPS Data Collection and Validation: Conducted field data collection and spatial validation using GPS devices.
- Technical Report Writing: Prepared technical reports summarizing geospatial analyses and findings.
- Data Analysis and Visualization: Processed, analyzed, and presented geospatial and statistical data through graphs, reports, and dashboards using R and Excel.

Education

UNAS (National Agrarian University of the Jungle)

Degree in Renewable Natural Resources Engineering (2017 – 2022)

- Graduated among the Top 10% of my class for five consecutive years.

Volunteering

SERNANP (National Service of Protected Natural Areas)

Volunteer Park Ranger – Tingo María National Park (PNTM) (February - April 2019)

- Identification of Melliferous Plants for Use in Living Fences in the Buffer Zone of Tingo María National Park – Río Oro Hamlet.

Capabilities & Skills

Programming & GIS Tools:

- Python, R, JavaScript, HTML, CSS, Google Earth Engine, QGIS, ArcGIS, PostGIS, Pix4D, Agisoft.

Remote Sensing & Spatial Analysis

- Satellite Image Processing (Landsat, Sentinel-2)
- Land Use Change & Deforestation Monitoring
- Drone Data Processing & Photogrammetry

Data Analysis & Reporting

- Data Analysis with R & Excel
- Map Automation & Custom GIS Workflows
- Technical Report Writing (English & Spanish)

Carbon Accounting & Conservation

- REDD+ & ARR Methodologies
- Early Warning Systems for Deforestation
- Forest Inventory & Carbon Stock Estimation

Technical Skills

- Certified RPAS Drone Pilot (MTC – Peru)

Research

- CloudSEN12+: The Largest Dataset of Expert-Labeled Pixels for Cloud and Cloud Shadow Detection in Sentinel-2
- Forest Cover in 2021 in the Province of Leoncio Prado, Peru

Languages

- Spanish - Native
- English - B2 (Intermediate)