GHGMI Graduate Research Internship

Spatial Analytics & Machine Learning (GHG Data & MRV Systems)

The Greenhouse Gas Management Institute (GHGMI) is seeking a highly motivated graduate student, or recent graduate, with strong technical skills in GeoAI, remote sensing, geographic information systems (GIS), spatial analysis to support applied research in greenhouse gas (GHG) accounting and modeling.
This internship offers an opportunity to work at the intersection of geospatial science, environmental data systems, and climate analytics, contributing to the development of higher-resolution GHG inventories at national and subnational levels.

About the Role

The intern will support the analysis and synthesis of spatial environmental datasets—including land use/land cover, soil characteristics, carbon stock data, and satellite imagery—to improve methodologies for estimating and reporting GHG emissions and removals.
The role sits at the intersection of GIS, machine learning, and MRV (Measurement, Reporting, and Verification) systems, with a focus on producing robust, reproducible, and policy-relevant analytical outputs.

About GHGMI

GHGMI is a U.S. non-profit organization with a mission to enable meaningful climate action by governments, corporations, and organizations by growing and supporting a global community of experts and institutions with the highest standards of professional practice in measuring, reporting, verifying, accounting for, and managing greenhouse gas emissions. Founded in 2007, the Institute has become a global leader in capacity development in applied GHG management with staff and faculty expertise from around the world. We are dedicated to creating an ever-improving professional community composed of globally recognized, highly competent, and ethical professionals that are committed to providing the foundation and leadership for climate change management.
Please send your resume/CV, along with a cover letter explaining how your qualifications are a good fit for this opportunity. Send directly to alissa.benchimol@ghginstitute.org with "GIS and MRV Internship" in the subject line.

Position Details

Type: Graduate Internship (Master's or PhD level)
Schedule: Part-time (up to 20 hours/week); full-time possible with external funding
Location: Remote or Hybrid (Los Angeles, CA)
Anticipated Start Date: June–August 2026 (flexible)
Duration: 3 months; 6+ months possible with external funding
Compensation: USD $25/hour (up to 20 hours/week)

Key Responsibilities

- Conduct spatial analysis using ArcGIS Pro and/or QGIS
- Develop and automate geospatial workflows using Python and ArcPy
- Process and analyze large raster and vector datasets (e.g., NLCD, SSURGO, forest canopy, carbon density datasets)
- Perform geospatial data cleaning, transformation, and harmonization
- Apply machine learning techniques to environmental and land-use datasets

- Develop reproducible workflows and technical documentation to inform a peer-reviewed research publication
- Support the design and implementation of spatial components of GHG inventories and MRV systems

Main Research Questions

1. How can spatially explicit land-use datasets be systematically translated into IPCC-compliant activity data and emission estimates through reproducible, automated workflows?
2. What data architecture and interoperability standards are required to enable seamless integration between geospatial data pipelines and national GHG inventory systems?
3. How can remote sensing–derived land-use and land-cover change products be operationalized into consistent and accurate activity data for national GHG inventories?
4. What are the methodological and uncertainty implications of integrating multi-source remote sensing datasets into MRV systems for land-sector GHG estimation?

Qualifications

- Currently enrolled or Recent Graduate in a **Master's or PhD program** in:
  Geospatial Science, Environmental Science, Geography, Geospatial Analytics, Environmental Engineering, Data Science (with an environmental focus), or a related field
- Strong proficiency in:
  - Python
  - ArcGIS Pro or QGIS
  - Raster and vector geospatial analysis

Experience with:

- Machine learning applied to geospatial or environmental datasets, including:
  - Classification (e.g., land-use/land-cover)
  - Regression (e.g., emissions estimation, biomass modeling)
- Relevant libraries and tools such as:
  - scikit-learn, XGBoost, LightGBM
  - Google Earth Engine (strongly preferred)
  - Raster-based ML workflows
- Familiarity with **statistical analysis** and **uncertainty assessment** (preferred)
- Demonstrated ability to work with large spatial datasets and manage geodatabases
- Strong **analytical**, **documentation**, and **problem-solving skills**
- Strong **written communication skills**, with preferred experience contributing to or publishing in peer-reviewed journals