

Aspiring Geospatial Data Scientist

GIS Analyst pursuing a career in geospatial data science with the goal of solving agricultural, climate change, and sustainable development problems using satellite imagery and other remotely sensed data. Skilled in analyzing quantitative data in a GIS and/or IDE, identifying relationships between data, and effectively communicating these relationships visually and verbally.

CORE COMPETENCIES

* Python	* PyTorch	* Spatial and Temporal Modeling
* GDAL/OGR	* TensorFlow	* Deep Learning
* ArcPy	* Leaflet API	* Machine Learning
* R	* Google Maps API	* Analytical Hierarchy Process
* PostgreSQL	* ArcGIS API (Python & JavaScript)	* Multi-Criteria Decision Making
* Snowflake	* Google Earth Engine	* LiDAR Processing

EDUCATION

Master of Science, GEOGRAPHIC INFORMATION SCIENCE	May 2022
Clark University, Worcester, MA	
Doctoral Coursework, ATMOSPHERIC SCIENCES	August 2019 – January 2021
University of Washington, Seattle, WA	
Bachelor of Science, ENVIRONMENTAL SCIENCE	May 2018
Allegheny College, Meadville, PA	

RELEVANT EXPERIENCE

GIS ANALYST	June 2022 –
EarthDefine, Redmond, WA	
* Automated address integration pipeline using GDAL/OGR and ArcPy for use in geocoding API. Added 21 million new addresses as a result of this pipeline, leading to over 50% reduction in third-party API calls.	
* Created PostgreSQL database of 215 million addresses, with access across any machine on the network. Increased query efficiency by over 90% compared to standard ArcGIS and QGIS querying methods.	
REMOTE SENSING RESEARCHER	January – April 2022
NASA DEVELOP National Program, Langley Research Center	
* Utilized Python and NASA Earth Observation Satellites to conduct cutting-edge research showcasing the capabilities of NASA satellites.	
* Produced a technical paper that the National Park Service actively references to monitor air quality at Guadalupe Mountain and Carlsbad Caverns National Parks.	
GIS ANALYST	May 2021 – January 2022
Flow Path AgTech, Newbury Park, CA	
* Automated harvest scheduling and management workflows using ArcGIS for Python API. Achieved 98% automation from a fully manual process.	
* Created map products using the ArcGIS Online suite of applications to support the technical and operational management of a grape-growing and marketing company.	
* Assisted in the production of a machine learning model that detects harvest readiness of grapes. Contributions led to a seamless transfer of model outputs to an ArcGIS Online hosted feature service that allows for easy comparison between model and human assessments.	
LIDAR ASSOCIATE	July 2018 – July 2019
Michael Baker International, Moon Township, PA	
* Digitized engineering features (buildings, curbs, road shoulders, etc.) into a CAD environment for use by the client.	
* Performed accuracy assessment of point cloud data by tying together points from multiple sensors; removed underground noise points; created and smoothed bare-earth models using MicroStation.	
* Led a data collection group for three sites in Virginia, planned out collection paths, maintained the hardware and software of the LiDAR truck, and performed collection process. Lauded by supervisor as being responsible for the cleanest data he had ever processed.	

RESEARCH EXPERIENCE

Winter 2022

Spatiotemporal Analysis of Precipitation in Hawaii Using High-Resolution Gridded Rainfall Data, Research Paper (ongoing)

Calculated multiple precipitation frequency and intensity metrics across the Hawaiian islands from 1990 – 2014 using R with the goal of understanding long-term climate trends in the state. Presented at AAG 2022 and AGU 2023.

NASA DEVELOP

Spring 2022

Spatiotemporal Analysis of Air Pollutants Collected from Ground and Space Instruments Around the Guadalupe Mountains and Carlsbad Caverns National Parks, Research Project

Examined average monthly, seasonal, and annual tropospheric column concentrations of NO₂ in Carlsbad Caverns and Guadalupe Mountain National Parks using measurements from OMI and TROPOMI satellites.

Clark University, Worcester, MA

Summer 2021

High resolution, annual maps of the characteristics of smallholder-dominated croplands at national scales, Research Project

Compiled and assessed quality of 3-class labels for Republic of Congo with the goal of producing a raster layer of all smallholder farms in the country.

University of Washington, Seattle, WA

Summer 2020 – Winter 2023

Atmosphere and ocean energy transport in extreme warming scenarios, Research Paper ([link](#))

Evaluated outputs from three climate models showing extreme climate sensitivities out to 2300 from the SSP5-85 extension scenario of the newly released CMIP6 ensemble.

Allegheny College, Meadville, PA

Fall – Spring 2018

GIS Suitability of Agrivoltaic Array Installation to Mitigate Climate Stress on Crops

Used ArcGIS Desktop and TerrSet to create a suitability analysis of optimal farm locations to install agrivoltaics to mitigate increasing heat stress on crops and provide solar energy to the local community.

Identifying Short-eared Owl (*Asio flammeus*) Roosting Locations in Southwestern Pennsylvania using GIS

Compared weighted linear combination, Boolean, and fuzzy GIS approaches to identify potential roosting locations for short-eared owls in Pennsylvania.

Spring 2018

Comparison of Unsupervised and Supervised Classification for Urban Sprawl in Beijing, China

Used supervised and unsupervised classification in TerrSet to assess urban development changes between 1988 & 2009 to determine urban sprawl resulting from the 2009 Olympics.

Spring 2017

Using LiDAR to Locate Nutrient Loading Sources in Lake Wilhelm Watersheds

Performed hydrologic modeling in TerrSet from DEMs. Leveraged ArcGIS Desktop to assess agriculture lands within buffer zone of each river.

Spring 2017

Prioritization of Landowners in Pennsylvania for Sustainable Forest Management

Performed suitability analysis to find forestland that fit criteria that Foundation for Sustainable Forests (FFSF) specified so that they can effectively inform landowners of sustainable forestry practices.

Spring 2015

ADDITIONAL EXPERIENCE

SOCIAL MEDIA INTERN / CLIMATE CHANGE BLOG WRITER

Reduce, Bellingham, WA

May 2020 – January 2021

RESIDENT ADVISOR

Allegheny College Residence Life, Meadville, PA

August 2016 – May 2018

PROFESSIONAL AFFILIATIONS

* ASSOCIATION OF PACIFIC COAST GEOGRAPHERS

March 2021

* ASSOCIATION OF AMERICAN GEOGRAPHERS

March 2021

* PI MU EPSILON, Mathematics Honor Society

April 2017

* PHI GAMMA DELTA, Pi Chapter

January 2015