William Henshaw

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Aspiring Environmental Spatial Analyst

GIS graduate student interested in pursuing a career in spatial analysis 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

- **ArcGIS Desktop**
- **ArcGIS for Python API**
- **ArcGIS Online**
- **TerrSet**
- **QGIS**
- **SPSS**
- **Google Earth Engine**
- **Git / GitHub**
- **Python**
- **R**
- **SQL**
- **JavaScript APIs (Leaflet, ArcGIS, Google Maps)**
- Raster and Vector Analysis
- Advanced Statistics
- Advanced Mathematics
- Spatial and Temporal Modeling
- LiDAR
- Image Mosaicking and Georeferencing
- Supervised & Unsupervised Classification
- Analytical Hierarchy Process
- Multi-Criteria Decision Making

EDUCATION

Master of Science, GEOGRAPHIC INFORMATION SCIENCE — **Expected 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 — **May 2021 – Present**
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.

ENVIRONMENTAL CLEANUP / BROWNFIELDS INSPECTOR — **May 2015 – August 2015**
Pennsylvania Department of Environmental Protection, Norristown, PA

- Updated documents and databases for coworkers. Streamlined consulting process by eliminating the need for administrative work for each site.
- Collected water samples at low-flow sources at residential and business sites for TCE delineation underground, which increased productivity and efficiency at each site.
- Organized the division's legal documents associated with over 30 Superfund sites. Alphabetized each site, removed duplicates, and sorted by date.

RESEARCH EXPERIENCE

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

***Climate Dynamics of Extreme Warming Scenarios (Working Title),* Research Paper** — **Summer – Fall 2020**

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

GIS Suitability of Agrivoltaic Array Installation to Mitigate Climate Stress on Crops — **Fall – Spring 2018**

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 — **Spring 2018**

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

Comparison of Unsupervised and Supervised Classification for Urban Sprawl in Beijing, China — **Spring 2017**

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

Using LiDAR to Locate Nutrient Loading Sources in Lake Wilhelm Watersheds — **Spring 2017**

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

Prioritization of Landowners in Pennsylvania for Sustainable Forest Management — **Spring 2015**

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.

Multi-Criteria Evaluation for Suitable Honeybee Pockets in Erie, Crawford, and Chautauqua Counties — **Fall 2015**

Ranked, weighted, and combined multiple criteria layers using ArcGIS tools to identify most suitable locations for honeybee “pockets” in Erie, Crawford, and Chautauqua Counties, to minimize rate of local extinction.

Assessing Factors of Invasive Species Proliferation in an Allegheny Hardwood Stand — **Fall 2015**

Created transects randomly throughout an area of tree harvesting and recorded the type and number of occurrences of each invasive species.

ADDITIONAL EXPERIENCE

SOCIAL MEDIA INTERN / CLIMATE CHANGE BLOG WRITER — **May 2020 – January 2021**
Reduce, Bellingham, WA

RESIDENT ADVISOR — **August 2016 – May 2018**
Allegheny College Residence Life, Meadville, PA

GENERAL BUNK COUNSELOR — **June 2016 – August 2016**
Camp Canadensis, Canadensis, PA

READING TUTOR — **September 2014 – April 2015**
Operation Read, Meadville, PA

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**