

# Peter Whitman

St. Paul, MN | +1-919-593-8917 | [peterjosephwhitman@gmail.com](mailto:peterjosephwhitman@gmail.com) | [LinkedIn](#) | [GitHub](#) | [Google Scholar](#)

## Summary

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Experienced data science researcher with expertise in remote sensing and geographic information science (GIS). Led high-performance computing projects at the U.S. Environmental Protection Agency focused on satellite-based water quality monitoring, which resulted in numerous peer-reviewed articles that influenced federal and state policy decisions. Received a M.Sc. in Geography from the University of British Columbia and a B.A. in GIS and Environmental Science from Carthage College. Skilled in Python, R, JavaScript, and ESRI ArcGIS, with a strong background working in hybrid teams on data science projects.

## Experience

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### Freelance Consulting

St. Paul, MN

*Data Science and GIS Consultant*

11/2023 – Present

- Used Python and Adobe Creative Cloud to create detailed waterway navigation map from satellite data for the 30,000 Islands Archipelago.

### Sabbatical

St. Paul, MN

*Personal Development*

10/2022 – 10/2023

- Collaborated with colleagues from the U.S. Environmental Protection Agency to publish three peer-reviewed articles.
- Focused on physical & mental wellness.
- Hiked the Superior Hiking Trail (300+ miles).

### U.S. Environmental Protection Agency

Raleigh, NC

*Oak Ridge Institute of Science and Education Research Fellow*

09/2019 – 09/2022

- Completed competitive fellowship program and produced five peer-reviewed publications and multiple technical reports.
- Led projects in collaboration with NASA to evaluate water quality applications of multispectral, hyperspectral, and synthetic aperture radar (SAR) satellites.
- Developed software in Python, JavaScript, and R to analyze terabytes of satellite and geospatial data using high-performance computing resources.

### University of British Columbia

Vancouver, BC

*Graduate Research Assistant*

05/2018 – 08/2019

- Developed innovative image processing techniques in MATLAB and developed machine learning algorithms for image classification in Python to automate analysis of historical airborne image data.
- Conducted advanced spatial and aspatial analysis of population mortality in R.
- Mined, cleansed, and analyzed geospatial data to identify variables that influence cardiac arrest outcomes.

*Graduate Teaching Assistant*

09/2017 – 05/2019

- Taught 300+ students geographic information science and remote sensing.
- Provided comprehensive learning opportunities through live Python and ESRI ArcGIS demonstrations, labs, lectures, and individualized assistance.

### Carthage College

Kenosha, WI

*Undergraduate Teaching Assistant*

09/2016 – 05/2017

- Taught 100+ students geographic information science.
- Engaged with students through live ESRI ArcGIS demonstrations and individualized assistance.

*Student Manager*

09/2016 – 05/2017

- Led a team of 15 students and provided mentorship to improve performance.
- Analyzed geospatial data with ESRI ArcGIS and created reports to increase alumni donations through optimized engagement strategies.

**City of Edina****Edina, MN***Geographic Information Systems Intern*

06/2016 – 08/2016

- Used Python to automate individualized updates to flood zone maps for hundreds of homeowners.
- Managed and analyzed terabytes of geospatial data to support public works projects.

**Minnesota Department of Natural Resources****St. Paul, MN***Invasive Species Program Intern*

06/2015 – 09/2015

- Developed image classification algorithms with Python to identify invasive species within aerial imagery of Minnesota.
- Conducted multi-day field campaigns to validate image classification algorithms.
- Created habitat suitability models to further refine results of image classification algorithms.

**City of St. Paul****St. Paul, MN***Urban Forestry Intern*

06/2014 – 08/2014

- Managed 3,000+ trees and identified suitable sites to plant new trees using ESRI ArcGIS products.

**Education****University of British Columbia****Vancouver, BC***Master of Science, Geography*

09/2017 – 08/2019

- Geography Department Outstanding Teaching Assistant Award

**Carthage College****Kenosha, WI***Bachelor of Arts, Geographic Information Science and Environmental Science*

09/2013 – 05/2017

- Geospatial Science Department Distinguished Senior Award
- Environmental Science Department Distinguished Senior Award
- Conducted field research on endangered species in Chilean Patagonia and took coursework with Round River Conservation Studies.

**Skills**

**Languages:** Python (GDAL, TensorFlow, OpenCV, NumPy, ArcPy, Matplotlib, netCDF4, Pandas, GeoPandas), R (ggplot2, raster, ncdf4, stats, caret, sp, sf, rgdal, spatstat, maxent, boot, glcm), MATLAB, JavaScript, SQL

**Technology Stack:** Unix shell, Visual Studio Code, RStudio, MATLAB IDE, Google Earth Engine, GitHub, ESRI ArcGIS Products, ENVI/IDL, Agisoft Metashape, Adobe Photoshop, Adobe Illustrator, Google Workspace, Microsoft Office Suite

**Methods:** data science, statistics (Bayesian and frequentist), machine learning (random forest, support vector machine, neural networks), spatiotemporal statistics, geospatial analysis, object-based image analysis, image processing, image classification, geometric correction, atmospheric correction, data visualization, cartography, high performance computing, parallel processing

**Communication:** Peer-reviewed publications, technical writing, public speaking, technical demonstrations, stakeholder engagement, mentorship, teaching, teamwork and collaboration, AGILE development