

# Tony Cannistra, Ph.D.

Geospatial Software Engineer & Researcher

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[github.com/acannistra](https://github.com/acannistra)

## EXPERIENCE

**Gaia GPS / Outside, Inc.** Remote

*Senior Engineer* Aug. 2022 – Present

*Engineer III* Jan. 2020 – Aug. 2022 (2 yrs., 8 mo.)

- Designed + and implemented an OpenStreetMap-based GIS **vector data conflation + tiling pipeline** that added **119,000 miles of backcountry roads and trails** to our flagship base map, Gaia Topo, plus more metadata. (ECS+S3/Python/PostGIS/Mapbox/GDAL)
- Led implementation of a **near-real-time satellite imagery map** overlay based on Sentinel-2 and Landsat 8/9 Cloud-Optimized GeoTIFFs in AWS. (DynamoDB+ECS+S3+Lambda/Python/PostGIS/rasterio)
- Designed and implemented real-time **situational awareness data layers for wildfires** based on satellite infrared detections, open APIs, and NOAA weather models. (ECS+S3/GDAL/GRIB2)

**Dept. of Biology, University of Washington** Seattle, WA

*Doctoral Research Assistant* Sep. 2016 – May 2020 (3 yrs., 9 mo.)

- Developed, implemented, and published a **computer vision / neural network-based method** to extract **snow-covered area** from PlanetScope imagery, a 3m, 4-band imagery product from Planet, Inc. (Sagemaker/Python/GDAL)
- Developed a planet-scale analysis combining **remotely-sensed sea surface temperature measurements** and model-derived ecological predictions to assess the ecological consequences of sea surface temperature anomalies (GCP Storage+Compute, Xarray, Dask, rasterio)

**Skylight Global / Vulcan, Inc.** Seattle, WA

*Data Analyst Intern* Jun. 2016 – Aug. 2016 (3 mo.)

- To support analysis and enforcement of illegal fishing, I built and presented a GIS analysis of open-ocean fishing vessel “rendezvous” events via **synthetic-aperture radar** observations, gridded oceanographic datasets, and **spatial statistical learning techniques**.

## PROJECTS

Check out my GitHub for my latest personal projects: [github.com/acannistra](https://github.com/acannistra)

## SKILLS

Python  
6 years

GDAL/osgeo  
5 years

Docker  
4 years

Amazon Web Services  
5 years

Postgres/PostGIS  
3 years

Remote Sensing  
4 years

UNIX/git/CLIs  
6 years

## EDUCATION

**Univ. of Washington**

*PhD., Ecology*

September 2016 – May 2020  
Seattle, WA

**Tufts University**

*B.S., Computer Science*

September 2011 – May 2015  
Medford, MA

## INTERESTS

Land stewardship +  
climate education

Public avalanche safety

Backcountry skiing,  
ultrarunning