

Tony Cannistra, Ph.D.

Geospatial Software Engineer and Research Scientist

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EXPERIENCE

onX Maps, Inc. Remote

Senior Software Engineer I – Cartography Feb. 2023 – Present (1.5yr)

- Lead development of **vector and raster geospatial data pipelines**, API development, and tooling for **outdoor recreation cartography**, supporting the three onX apps for outdoor adventurers: onX Hunt, onX Offroad, and onX Backcountry.
- Led several **green-field projects**, including: a real-time event-driven vector tiling engine, a Mapbox stylesheet composition workflow for cartographers, real-time vectorization of NOAA weather model output.
- Tech: Go, Python, GDAL, PostGIS, Airflow, k8s on Google Cloud.

Gaia GPS / Outside, Inc. Remote

Senior Software Engineer – Geospatial Aug. 2022 – Dec. 2022 (5 mo.)

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

- Conceptualized, designed, implemented, and maintained a wide variety of **geospatial data processing systems** to create a **beautiful outdoor map**, including OpenStreetMap processing and conflation, **vector and raster tile pipelines**, and **real-time data pipelines** for e.g. real-time Sentinel and Landsat imagery, avalanche forecasts, and wildfires.
- Tech: Python, GDAL, PostGIS, RasterIO, FastAPI on AWS ECS

Buckley Lab, University of Washington. Seattle, WA

Doctoral Researcher Sep. 2016 – May 2020 (3 yrs., 9 mo.)

- My PhD Dissertation was focused on **remote sensing and machine learning-based methods** for spatial forecasting and analysis of ecological responses to climate change.
- Used Planet Labs **PlanetScope 4-band imagery and airborne LiDAR** to create a novel snow presence dataset for ecological research.
- Tech: Python, PyTorch, TensorFlow, Xarray, RasterIO, GDAL, AWS

Skylight Global / Vulcan Inc., Seattle, WA

Data Analyst Intern Sep. 2016 – May 2020 (3 mo.)

- GIS analysis of open-water fishing vessel rendezvous via **SAR data**

TECHNOLOGIES

LANGUAGES

Python, Go

TOOLS/LIBRARIES

Spatial: GDAL, QGIS, OGR, STAC, COGs, tippecanoe, go-spatial, orb, rasterio

Data: Numpy, Dask, Xarray, Pandas/GeoPandas, TensorFlow, PyTorch

APIs: FastAPI, Chi, Mux

CLOUD

Google Cloud: Storage, Compute, GKS, Composer, Pub/Sub

AWS: S3, EC2, ECS, Lambda, IAM, SNS

EDUCATION

PhD., Ecology

University of Washington

September 2016 – May 2020

Seattle, WA

B.S., Computer Science

Tufts University

September 2011 – May 2015

Medford, MA

INTERESTS

Land stewardship

Backcountry skiing, ultra-running