

# Zachary K. Smith

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## Experience

### Senior Data Scientist

*Aclima* | Remote | January 2023 - Present

- Build and deploy data pipelines in Python on Airflow-esque system
- Develop and deploy gas leak localization models to aid utilities in region prioritization (numpyro)
- Develop spatio-temporal models for air quality prediction using GPyTorch
- Refactor vehicle route planning code into modular python package for ease of expansion/testing
- Define and implement proper cross-validation scheme for flagship spatio-temporal model to quantify model improvements

### Data Scientist

*NCX* | Remote | April 2021 - November 2022

- Build and deploy datapipelines in Python and R on MapReduce infrastructure
- Build deep learning and probabilistic models to predict forest carbon using remote sensing data (pytorch)
- Process large scale geospatial vector and raster datasets (python, stac, xarray, rasterio)
- Create Bayesian Optimal Experimental Design package to target field data collection: ABODER
- Implement Multi GPU training on AWS (pytorch-lightning)
- Track and serve models using MLFlow and Databricks

### Data Scientist / Research Engineer

*Aptima Inc.* | Fairborn, OH | November 2018 - April 2021

- Develop particle filter based interior localization algorithm for iOS app
- Develop POMDP algorithms for adaptive training systems and agent based simulations (C#)
- Create predictive and anomaly detection algorithms for automated alert systems
- Develop Bluetooth/MQTT/Arduino based cognitive load measurement device (Arduino)

### Associate Computational Biologist

*UES Inc.* | WPAFB, OH | June 2017 - November 2018

- Analyze high dimensional datasets for biomarker discovery of human physiological state
- High throughput sequencing analysis
- Provide statistical consultation and data analysis throughout the course of studies

## Hydrology Technician

*Miami Conservancy District* | Dayton, Ohio | October 2012 - June 2017

- Create desktop / web / mobile applications for the collection, formatting, and uploading of field data including the server and database processes. (C#, Android/Java)
- Lead project development of web/map based data access applications for the public. (C#, Javascript)
- <http://apps.mcdwater.org/waterapps/wellnetwork>

## Education

### M.S. Applied Statistics

*Wright State University* | Dayton, Ohio | December 2018

### B.S. Earth Science, Minor Soil Science

*California Polytechnic State University* | San Luis Obispo, California | June 2012

## Tools

Python	NumPyro	Pytorch	GCP
R	Stan	Scikit-learn	AWS
C/C#	SQL	GPyTorch	Databricks