

Zachary K. Smith

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Experience

Senior Data Scientist

Aclima | Remote | January 2023 - Present

- Develop and deploy gas leak localization models
- Develop spatio-temporal models for air quality prediction using sparse GPs and deep learning
- Refactor vehicle route planning code into modular package for ease of expansion/testing
- Define and implement proper cross-validation scheme for flagship spatio-temporal model

Data Scientist

NCX | Remote | April 2021 - November 2022

- Build deep learning and probabilistic models to predict forest carbon using satellite imagery
- Process large scale geospatial vector and raster datasets
- Create Bayesian Optimal Experimental Design package to target field data collection: ABODER
- Implement Multi GPU training on AWS

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
- Create predictive and anomaly detection algorithms for automated alert systems
- Develop Bluetooth/MQTT/Arduino based cognitive load measurement device

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

Certificates

Data Structures by University of California, San Diego & Higher School of Economics on Coursera. April 7, 2017

Algorithmic Toolbox by University of California, San Diego & Higher School of Economics on Coursera. January 7, 2017

Patents, Papers, and Presentations

US11481904B1: Automated determination of tree inventories in ecological regions using probabilistic analysis of overhead images (2022)

J. Beaubien, E. Oster, Z. Smith, V. Kypraios “Teaming Artificial Intelligence with Digital Twins to Improve Training Effectiveness” I/ITSEC Conference Paper (2020)

S. Cole, K. Beabout, K. Turner, Z. Smith, et al. “Quantification of Interlaboratory Cell-free Protein Synthesis Variability”. ACS synthetic biology (2019)

S. Harshman, R. Pitsch, N. Schaeublin, Z. Smith, et al. “Metabolomic stability of exercise-induced sweat”. Journal of Chromatography B (2019)

J. Martin, S. Harshman, R. Pitsch, Z. Smith, et al. “Characterization of a Standard Breath Sampling Device for Off-Line Field Use”. Journal of Breath Research (2019)

S. Harshman, R. Pitsch, Z. Smith, et al. “The proteomic and metabolomic characterization of exercise-induced sweat for human performance monitoring: A pilot investigation”. PloS one (2018)

W. Lyon, Z. Smith, B. Geier, et al. “Evaluating an Upper Respiratory Disease Panel on the Portable MinION Sequencer”. bioRxiv (2018)

Z. Smith, B. Geier, W. Lyon “Microbial Community Identification and Analysis”. Poster Session at the Synthetic Biology for Defense Workshop, Arlington, VA. (2018)

Tools

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