

Connor Reed

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Professional Experience

- Aquabyte**
Machine Learning Engineer

New York, NY
June 2022 – present

 - Developed, optimized, and deployed custom small-object detector model to detect sea lice on salmon with quantified uncertainty, yielding a 75% reduction in annotation COGS while enabling more effective treatment and regulation
 - Developed, optimized, and deployed model to detect body wounds on salmon
 - Built system to integrate model servers into production pipeline, scaling inferences from tens to hundreds of thousands per day
 - Built internal service to automatically curate important training/evaluation samples from production pipeline for human QA
 - Built ML dataset registry and Python library with common computer vision preprocessing and annotation methods to support model reproducibility and reduce friction to model iteration
 - Conduct experiments to estimate effects of new models and other research proposals on company objectives
 - Wrote report for investors on the company's plans to advance sustainable aquaculture, establishing internal ESG objectives
- Indigo**
Soil Data Research Intern, Carbon Experimentation

Boston, MA
June – August 2021

 - Crafted quantitative framework and visualizations used by the CEO to evaluate risk-reward tradeoff of key agricultural carbon market opportunities
 - Developed generative Bayesian models to create synthetic soil data from published scientific (prior) and proprietary data
 - Created pipeline to automatically clean, map, and interpret soil sample data for customers

Research Experience

- New York University, Department of Environmental Studies**
Graduate Research Assistant, McDermid Lab

New York, NY
July 2020 – September 2022

 - Developed deep learning pipeline to detect floods on smallholder croplands in sub-Saharan Africa using Sentinel-1 and Sentinel-2 satellite image time series
 - Conducted geospatial time series analysis to assess the impact of floods on crop yields and food security in sub-Saharan Africa
- Yale School of the Environment**
Research Assistant, The Bradford Lab

New Haven, CT
January 2016 – August 2020

 - Assisted with laboratory and field data collection for experiments studying the ecological function, formation, and rapid measurement of soil organic carbon
 - Conducted meta-analysis of long-term experiments to quantify the mediating effect of soil organic carbon on the relationship between conservation agriculture practices and crop yield stability

Publications

- Reed, C. et al. The impact of flooding on food security across Africa. *Proceedings of the National Academy of Sciences* **119**, e2119399119 (2022)

Education

- New York University**
Master of Science, Data Science

New York, NY
2020 – 2022
- Yale University**
Bachelor of Science, Environmental Studies with distinction

New Haven, CT
2015 – 2019

 - Thesis title:* Engaging open-source precision viticulture to manage spatial heterogeneity and improve cover-cropping practice on an organic vineyard ([Abstract](#))

Skills

- Programming**

Python, R, SQL, Bash
- ML Tools**

PyTorch(Lightning), scikit-learn, experiment tracking (e.g., Hydra, Guild AI), TensorRT
- DevOps**

Git, Docker, Terraform, dbt, AWS
- Statistics**

Machine learning, deep learning, computer vision, time series, geospatial, probabilistic models, Bayesian inference, hypothesis testing, structural causal models, A/B testing, generative models
- Other**

Scientific research, food systems, ecology, food security, climate change, music (bass)