Connor **Reed**

cwreed | connor.william.reed@gmail.com | connor-reed

Professional Experience

Aquabyte — *New York, NY*
Machine Learning Engineer — *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 review
- Built ML dataset registry and Python library with common computer vision preprocessing and annotation methods to support model reproducibility and fast dataset curation
- Conduct live and simulation experiments to estimate effects of new models and research proposals on company objectives
- Serve on company's ESG committee; wrote report for investor on the company's impact, responsibilities, and plans to advance sustainable aquaculture in the wider industry, establishing internal ESG objectives

Indigo — *Boston, MA*
Soil Data Research Intern, Carbon Experimentation — *June – August 2021*

- Crafted quantitative framework, analysis, and data visualizations used by the CEO to evaluate risk-reward tradeoffs of key agricultural carbon market opportunities
- Developed generative Bayesian models to create synthetic soil data combining information from published 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 — *New York, NY*
Graduate Research Assistant, McDermid Lab — *July 2020 – September 2022*

- Developed end-to-end deep learning pipeline to detect floods and smallholder croplands in Sentinel-1 and Sentinel-2 satellite image time series over sub-Saharan Africa
- Conducted geospatial time series analysis using econometric modeling techniques to assess the impact of floods on food security in sub-Saharan Africa from 2009-2020 [1]

Yale School of the Environment — *New Haven, CT*
Research Assistant, The Bradford Lab — *January 2016 – August 2020*

- Assisted with field and laboratory data collection for experiments studying the ecological function, formation, and rapid measurement of soil organic carbon
- Conducted meta-analysis (data collection, statistical 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

[1] **C. Reed** *et al.*, "The impact of flooding on food security across Africa," *Proceedings of the National Academy of Sciences*, vol. 119, no. 43, p. e2119399119, 2022, doi: 10.1073/pnas.2119399119.

Education

New York University — *New York, NY*
Master of Science, Data Science — *2020 – 2022*

Yale University — *New Haven, CT*
Bachelor of Science, Environmental Studies *with distinction, cum laude* — *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, A/B testing, structural causal models, generative models
Other	Research, writing, public speaking, food systems, ecology, food security, climate change, music (bass)