Connor **Reed**

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Professional Experience

Aquabyte — *New York, NY*

Senior Machine Learning Engineer — *December 2024 – present*

Machine Learning Engineer — *June 2022 – December 2024*

- Developed and deployed sea lice detection system serving 350+ fish farm pens, processing ~90,000 images daily; built PyTorch ensemble (YOLOv9, DinoV2, custom neural field transformer) achieving >0.7 F1 on challenging underwater small object detection problem (targets often <2% width of image with blur and varying water conditions); iterated through 3 model generations using thousands of tracked experiments (Guild AI, Hydra)
- Reduced Lice product COGS by ~90% by automating statistical aggregation pipeline (Python) that combines model predictions with minimal human QA; validated through field trials, with customers reporting highest accuracy among competitors
- Built 16-day lice forecasting model (LightGBM) with graph features and intervention simulation deployed to 350+ pens
- Architected microservices infrastructure (FastAPI, PostgreSQL, Docker, Terraform) that serves as ML backbone for Welfare product; scaled model inference throughput from tens of thousands to 2+ million images per day through continuous minibatch processing and queue management across multiple model servers
- Created internal Python package/CLI for reproducible CVML dataset creation, enabling developers to export and process training data from production pipeline with configurable options documented in YAML metadata files

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*

- 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*

Skills

Programming	Python, SQL, Bash
ML Tools	PyTorch, scikit-learn, NumPy, pandas, ONNX, TensorRT, FiftyOne, experiment tracking (Hydra, MLFlow, Weights & Biases, Guild AI)
Databases	PostgreSQL, Snowflake
DevOps	Git, Docker, Terraform, dbt, Airflow, AWS
Statistics	Machine learning, deep learning, computer vision, time series, geospatial, probabilistic models, Bayesian inference, hypothesis testing, A/B testing, generative models
Other	Research, writing, public speaking