



Victor Boyd

Postdoctoral Researcher, Environmental Artificial Intelligence

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STRENGTHS

- 🔧 **Independent Research**
Defined environmental questions, built reproducible workflows, and carried studies from initial framing through publication.
- ✅ **Model Evaluation**
Compared models with held out data, sensitivity checks, and domain baselines, revealing limits beyond headline accuracy.
- ♥️ **Scientific Writing**
Led manuscript development, figures, methods documentation, and revisions, helping collaborators move research toward journal submission.
- 💬 **Interdisciplinary Communication**
Translated model behavior and uncertainty for computing and sustainability audiences, with conference talks and research demonstrations.
- ➡️ **Responsible AI**
Questioned assumptions behind automated recommendations and documented alignment, safety, provenance, and failure conditions for decisions.

SKILLS

Artificial intelligence
Computational data science
Machine learning
Environmental sustainability
Water quality Ecosystem function
Landscape ecology
Spatial modeling

SUMMARY

Early career environmental AI researcher completing a PhD in Computer Science in 2026, with more than three years of graduate research applying machine learning, **computational data science**, **spatial environmental modeling**, **dynamic systems modeling**, and **knowledge representation** to sustainability questions. Research covers water quality, ecosystem function, landscape ecology, and environmental decision support. Leads projects from research framing through reproducible analysis, model evaluation, uncertainty documentation, manuscript preparation, journal submission, and conference presentation. Works independently on defined questions while collaborating across computer science and environmental science teams. Additional research examines responsible AI, model alignment, AI safety, and transparent use of computational outputs in environmental decisions. Brings clear scientific writing, interdisciplinary communication, and a thoughtful approach to useful, interpretable research.

EDUCATION

PhD in Computer Science

University of Colorado Boulder 🎓 GPA: 0 📅 2026 📍 Boulder, CO

Coursework: Machine learning, spatial modeling, knowledge representation, responsible AI

Bachelor of Science in Computer Science

Colorado State University 🎓 GPA: 0 📅 2021 📍 Fort Collins, CO

Coursework: Artificial intelligence, data science, algorithms, environmental applications

TECHNICAL SKILLS

- **Programming Languages:** Python, SQL, R
- **Machine Learning:** Scikit learn, supervised learning, model evaluation
- **Spatial Analysis:** GeoPandas, QGIS, spatial feature engineering
- **Environmental Modeling:** Water quality modeling, ecosystem modeling, landscape ecology
- **Dynamic Modeling:** Dynamic systems modeling, simulation, sensitivity analysis
- **Knowledge Systems:** Knowledge models, knowledge representation, structured reasoning
- **Data Science:** Computational data science, data pipelines, exploratory analysis
- **Research Methods:** Cross validation, ablation testing, error analysis
- **Reproducible Research:** Version control, provenance tracking, documented workflows
- **Scientific Publishing:** Manuscript development, journal submission, peer review
- **Research Communication:** Conference presentations, research posters, scientific writing
- **Responsible AI:** AI safety, model alignment, interpretable AI

EXPERIENCE

Doctoral Researcher, Environmental AI

University Research Lab 📅 August 2023 - Present 📍 Boulder, CO

Leads dissertation research applying AI, **computational data science**, and spatial modeling to watershed, landscape, and sustainability questions. Supports interdisciplinary research from study design through reproducible analysis, publication, and conference communication.

- Framed watershed studies with scientists, documenting assumptions for reproducible environmental analysis.
- Built **Python** geospatial pipelines linking monitoring, land cover, and hydrologic observations.
- Compared predictive and dynamic models through cross validation and sensitivity analysis.
- Led **manuscript development** from research framing through figures, review, and journal submission.
- Presented uncertainty and model behavior at conferences and interdisciplinary departmental seminars.

[Dynamic systems modeling](#)

[Knowledge representation](#)

[Responsible AI](#) [AI safety](#)

[Model alignment](#)

[Scientific communication](#)

[Manuscript development](#)

LANGUAGES

English Native

Spanish Intermediate

MY CAREER



● Doctoral Researcher,
Environmental AI at University
Research Lab (3.1 Years)

● Graduate Research Fellow,
Spatial Sustainability Modeling
at Academic Research (10
Months)

● AI Research Lead,
Environmental Decision Support
at Capstone Project (7 Months)

- Examined knowledge representation, **model alignment**, and **AI safety** for environmental decisions.

Graduate Research Fellow, Spatial Sustainability Modeling

Academic Research 📅 September 2022 - July 2023 📍 Boulder, CO

Developed **landscape ecology** research connecting geospatial features, computational data science, and ecosystem indicators. Produced documented workflows, structured **knowledge models**, conference materials, and manuscript content through close faculty collaboration.

- Studied land use patterns and ecosystem indicators through spatial **sustainability** modeling.
- Implemented Python preprocessing, feature engineering, evaluation, and visualization workflows.
- Linked environmental entities, measurements, and actions within structured knowledge representations.
- Tested modeling choices against held out observations and literature supported expectations.
- Prepared a first author conference presentation explaining validation and environmental interpretation.
- Converted findings into reproducible figures, literature synthesis, and manuscript workflows.

AI Research Lead, Environmental Decision Support

Capstone Project 📅 January 2022 - August 2022 📍 Boulder, CO

Led a supervised graduate capstone exploring AI assisted decision support for environmental interventions under competing objectives and incomplete information. Coordinated interdisciplinary integration, testing, documentation, and presentation of an interpretable prototype.

- Designed decision support research for competing ecological objectives and incomplete information.
- Combined structured environmental knowledge with **machine learning** outputs for scenario comparison.
- Tested case scenarios using ablation checks and error analysis to identify failures.
- Documented provenance, assumptions, evaluation criteria, and responsible use constraints.
- Coordinated technical integration across an interdisciplinary student research team.
- Presented interpretability, environmental relevance, and **AI safety** findings to faculty reviewers.

PROJECTS

Watershed Decision Modeling Study 📅 2026

Applied machine learning and spatial environmental modeling to watershed data, comparing predictive behavior, uncertainty, and domain informed baselines for water quality research.

Landscape Ecology Knowledge Model 📅 2023

Connected land use, ecosystem indicators, measurements, and management actions through a structured knowledge model supporting interdisciplinary sustainability analysis.

Responsible Environmental AI Prototype 📅 2022

Created interpretable decision support using environmental knowledge and machine learning, documenting provenance, failure modes, evaluation criteria, and responsible use limits.

LEADERSHIP & AWARDS

- Graduate Research Fellowship, 2024
- Outstanding Graduate Research Presentation, 2025
- Doctoral Research Travel Award, 2026

CERTIFICATIONS

- Responsible AI Practices 📅 2025
- Geospatial Data Science 📅 2024

PROFESSIONAL AFFILIATIONS

- Graduate Environmental Computing Reading Group, Discussion Coordinator
- Interdisciplinary Sustainability Research Forum, Student Presenter
- Graduate Peer Research Mentoring Program, Peer Mentor

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST