

# Morgan McClure

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## Data Science & Analytics

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Performance-driven data scientist building high-efficiency tools for environmental and spatial analytics. Experienced in extracting insight from geospatial rasters, vectors, tabular data, time series, and imagery. Skilled in cleaning, transforming, and modeling diverse datasets—from large tabular and time series data to experimental and observational studies. Developing and deploying reproducible, automated pipelines using statistical methods like k-means stratification and conditioned Latin hypercube sampling. Adept at integrating machine learning models, exploratory data analysis, and interactive visualizations to support decision-making. Excited to bring a precision-driven mindset to both spatial and non-spatial challenges.

## SKILLS

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- **Programming:** R, python, JavaScript, SQL
- **Tools:** ArcGIS, R Shiny, Observable Framework, Netlify, Git/Github
- **Data Science:** Machine learning, statistical modeling

## EXPERIENCE

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*Associate Data Scientist – The Soil Inventory Project*  
2023 – Present

- **Interactive Soil Data Monitoring Dashboard (Observable Framework, R, Javascript)**
  - o Developed an automated reporting dashboard that provides users with real-time analysis, dynamic data visualizations, and interactive maps responsive to user-submitted soil data. Designed to support land management decision-making.
- **Automated Sampling Design Application (R Shiny)**
  - o Created optimized, interactive sampling design software using geospatial statistical methods, tailored to user-defined spatial inputs and constraints.
- **Cross-Platform App Suite Collaboration**
  - o Work closely with the development team on a suite of mobile and web applications that enable users to create soil sampling campaigns, upload previously collected data, and generate insights through integrated visualizations and analysis tools.

*Post Baccalaureate Data Fellow – Skidmore College*  
2022 - 2023

- **Data Analysis Lab Materials and Coursework Development (R, ArcGIS, QGIS, python)**
  - o Collaborated with faculty across disciplines to develop lab activities and instructional materials integrating statistical methods, data visualization, and reproducible workflows with collected data and real-world datasets.
- **Undergraduate Research Mentorship (R, ArcGIS, python)**
  - o Guided students through independent data analysis projects, from question formulation and data wrangling to visualization and final presentations.

## PUBLICATIONS

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### **Rapid soil harvesting using a novel soil auger system for farm-scale soil carbon estimates**

*Soil Science Society of America Journal*, 2024

Evaluated a novel drill-auger system against traditional push-probe methods for soil carbon sampling. Demonstrated comparable accuracy with significantly faster collection times, supporting more efficient monitoring of carbon sequestration in agricultural systems.

## ADDITIONAL PROJECTS

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### **Soil Carbon in Vineyards**

*Jackson Family Wines & The Soil Inventory Project*

Analyzed soil carbon distribution across vineyard ecosystems at multiple spatial scales. Focused on quantifying carbon differences between tractor rows and vine rows, offering insights into how vineyard management practices influence soil carbon sequestration.

### **Grazing Lands Assessment in the Contiguous US**

*Skidmore College & The Nature Conservancy*

Conducted large-scale statistical analysis and mapping of U.S. grazing lands, classifying ownership by private, state, and federal jurisdictions at the county level. Integrated TNC resilience data to evaluate implications for sustainable land management.

## EDUCATION

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Skidmore College 2018-2022

BA Environmental Science, Statistics Minor