

Nicholas Brand

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Work Experience

UMN, Precision Agriculture – Researcher

May 2024 - Present

- Led on site field teams for soil, water, and crop sampling with various tools: Lysimeters, Dualex, Fieldscan Crop Circle Phenotype, Dualex
- Built Python and R scripts to process and analyze large datasets for field and lab efficiency
- Led team in developing Precision Agriculture On-Farm Research Network Website and maintaining the Precision Agriculture Center Website
- Performed advanced geospatial analysis using LiDAR data, drone imagery, and weather data to create a robust and our first Geospatial Database in QGIS, SMS Basic, ArcGIS, and Yield Editor

City of Winona, Park & Rec – Assistant General Manager

April 2023 – May 2024

- Using geographic data to create new digital maps for updated Trail & Street maintenance
- Aided trail construction by creation of new maps, analysis of soil integrity, and erosion likeliness
- Ran 3 public facilities & aided with Adult Sports and Special Events throughout Winona

UMN, Precision Agriculture – Internship

May 2022 - July 2023

- Measuring boundary lines using survey equipment to update maps
- Used & organized source data from Landsat & Drone imagery
- Collection of soil, water, plant, and air samples from lysimeters, fields, streams, & collection area
- Geochemical analysis with pXRF & XRF spectrometers of thousands of samples

Education

Arizona State University – Geographic Information Science (BS)

August 2023 – May 2025

- **Relevant Courses:** Fundamentals of Coding, Geographic Info Science 1 - 3, Stats for Geography & Planning, Adv Stats Geography & Planning, Cartography & Georepresentation, Geodesign and Urban Planning, Env Mgmt Systems & Strategy, Rem Sen&Geo Ana Nat Res&Env, Basic Soil Science

Skills

Programming Languages: Java, C++, Python, Javascript, HTML/CSS, SQL, C, R, Bash

Tools and Platforms: Github, Windows, Esri Suite (ArcGIS, Collector, etc.), Visual Studio, Rstudio, Web Soil Survey, Citrix, GoDaddy, Squarespace, Drupal, MNTopo, SMS Basic, Yield Editor, QGIS, PlanetGIS, USGS Landsat, MNTopo

Projects

- **PAC Geodatabase:** creating departments 1st geospatial database with a searchable data system and summary sheet of analysis's
- **On-Farm Research Network Website:** creating departments research network page to display our findings and projects
- **Geospatial Analysis of Winona's Flooding Patterns:** an in-depth analysis of Winona's topography in correlation to flooding
- **Understanding Winona, Minnesota River Flooding:** a historical analysis of the river town's flooding and key infrastructures
- **Precision Nitrogen Management Project:** a grant funded project that I assisted in collecting data and analysis of data at UMN