

Nicholas Brand

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Education

Arizona State University

Tempe, AZ

Bachelors of Science, Geographic Information Science

August 2023 – May 2025

Relevant Coursework: 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

Experience

University of Minnesota Precision Agriculture Center

St.Paul, MN

Researcher / Field Coordinator

May 2024 – Present

- Applied geospatial analysis using LiDAR, drone imagery, satellite imagery, and weather data in ArcGIS and QGIS to build and maintain a geospatial database
- Developed Python and R scripts to automate processing of large geospatial and agricultural datasets, improving efficiency in GIS Operations, data collection, and technical documentation.
- Led cross functional teams in designing and maintaining a Precision Agriculture Research Network Website.
- Conducted fieldwork and GPS guided data collection (water, soil, crop, and instrument sampling), ensuring accurate digitizing, plotting, and spatial integration directly supporting field to database workflows.
- Engaged stakeholders (farmers, researchers, and the public) to coordinate sampling, interpret data, deliver actionable insights and products.

City of Winona Park and Recreation

Winona, MN

Assistant Manager

April 2023 – May 2024

- Aided trail construction by creation of new maps, analysis of soil integrity, and erosion likeliness.
- Updated and created new Trail & Street maintenance.
- Ran 3 public facilities and Special Events throughout Winona as well as aiding Adult Sports.
- Analyzed the park to person demographic & distance to park per area throughout Winona to find where the city lacks adequate space for the community

University of Minnesota Precision Agriculture Center

St.Paul, MN

Internship

May 2022 – July 2023

- Measuring boundary lines using survey equipment to update field maps.
- Ran analysis and organized source data from Landsat, MNTopo, and drone imagery.
- Supervised and led field work on Soil, water, crop, and air pollution samples from various pieces of equipment.
- Conducted geochemical spectroscopy analysis with pXRF & XRF spectrometers

Projects

- **PAC Geodatabase:** creating UMN Pac Dept.'s 1st geospatial database with searchable data and summary sheet of analysis
- **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 UMN project that I lead in collecting data and analysis of data

Skills & Interests

Technical: Java, C++, Python, Java, HTML/CSS, SQL, C, R, Bash, Github, Windows, Esri Suite (ArcGIS, Collector, etc.), Visual Studio, Rstudio, Web Soil Survey, Drupal, SMS Basic, Yield Editor, QGIS, PlanetGIS, USGS Landsat, MNtopo, Tinkercad

Language: English

Laboratory: Lysimeters, pXRF, XRF, Crop Circle Phenom, Dualex, and SenTek soil moisture sensors

Interests: Hiking, Camping, Geocaching, and Coding side project