

**Address:**  
7435 Lyndale Ave. S. Unit 7  
Richfield, MN 55423

# Shannon Josephine Rose

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## Education

### University of Massachusetts-Amherst Amherst, MA

September 2018- May

2019

Non-Degree (Graduate Student)

GPA: 4.00/4.00

- Completed two graduate school courses (Remote Sensing and Image Interpretation and Python for ArcGIS) in the Geosciences Department as a part of my Research Fellow staff position on campus

### University of Wisconsin-Eau Claire Eau Claire, WI

September 2014- May

2018

Bachelor of Science- *Biology & Geography* Minor- *Environmental Science* Certificate- *Geographic Information Systems*

GPA: 3.70/4.00 (Magna Cum Laude)

- Dean's List- College of Arts and Sciences Fall 2015 & Spring 2016 & Spring 2017 & Fall 2017 & Spring 2018
- Wisconsin Intercollegiate Athletic Conference Scholastic Honor Roll March 2015 & 2016
- Nominated for the National Society of Collegiate Scholars June 2015
- Nominated for the National College Senior Honor Society February 2017

**Relevant Classes:** Conservation of the Environment, Animal Form and Function, Vegetation Ecology, GIS I, GIS II, Geospatial Field Methods, Remote Sensing of the Environment, Biostatistics, Environmental Chemistry

### Study Abroad- Belize

January 2017

- Took the course Studies in Tropical Environments to learn about conservation methods, terrestrial & aquatic biodiversity, cultural diversity, politics, history, religion, climate change

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## Publications

Kraatz, Simon., Rose, Shannon., Cosh, Michael., Torbick, Nathan., Huang, Xiaodong., and Siqueira, Paul. (2021). Performance Evaluation of UAVSAR and Simulated NISAR Data for Crop/Non- crop Classification over Stoneville, MS. *AGU Earth and Space Science*. <https://doi.org/10.1029/2020EA001363>

Kraatz, Simon., Siqueira, Paul., and Rose, Shannon. (2021). ISCE Docker Tools: Automated Radiometric Terrain Correction and Image Coregistration of UAVSAR MLC Data. *Institute of Electrical and Electronics Engineers*. <https://doi.org/10.1109/IGARSS39084.2020.9324658>

Rose, Shannon., Kraatz, Simon., KelIndorfer, Josef., Cosh, Michael., Torbick, Nathan., Huang, Xiaodong., and Siqueira, Paul. (2021). Evaluating NISAR's cropland mapping algorithm over the conterminous United States using Sentinel-1 data. *Remote Sensing of Environment*. <https://doi.org/10.1016/j.rse.2021.112472>

Wilson, Cyril., Liang, Bingqing., and Rose, Shannon. (2018). Projecting future land use/land cover by integrating drivers and plan prescriptions: the case for watershed applications. *GIScience & Remote Sensing*. <https://doi.org/10.1080/15481603.2018.1533158>

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## Relevant Experience

**Biological Science Technician (GS-7)- U.S. Fish and Wildlife Service- Bloomington, MN**  
Present

March 2020-

- Works as a key contributor to high priority projects to meet FWS director level deadlines  
40 hours/week  
for delineating and digitizing the wetland boundaries protected by wetland easement acquisitions  
\$48,530/Year
- Works with ArcPro to use image interpretation, georeferencing, and digitization skills to map easement wetlands and manage large databases of GIS data
- Implements quality control and assurance practices to ensure high data quality
- Develops new models and workflows to increase efficiency better use available technology
- Helps develop and follow strict formatting guidelines to generate thousands of legally binding maps
- Works with ArcGIS Online data portals and dashboards to manage and share data throughout the region and provides training to Wetland Management District managers on how to access and use spatial data
- Provides customer service to Wetland Management District managers by preparing maps and spatial data to better protect wetland easements in Region 3

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**Shannon Josephine Rose- Page 2**

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**Research Fellow (GIS Specialist)-** *University of Massachusetts- Amherst, Amherst, MA*  
February 2020

June 2018-

- Developed algorithms using synthetic aperture radar (SAR) for land cover classification,  
Hours/Week 40  
forest biomass estimation, and forest disturbance detection  
\$33,000/Year
- Created, managed, and distributed GIS data including raster and vector datasets and maps
- Processed SAR, LiDAR, and optical images, including writing python scripts for image processing and analysis
- Collaborate with researchers at UMass, NASA, USDA, and international partners on various satellite projects including NISAR and SMAP
- Involved in field campaigns including hiring and managing my own summer field crew for forest surveys

**Biological Science Technician-** *USGS-Northern Prairie Wildlife Research Center- Jamestown, ND*  
July 2017

May 2017-

- As a student contractor monitored breeding Piping Plovers on sandbars and shorelines  
Hours/Week 50+
- Collected field data through bird-banding, band-resighting, nest-searching, various bird  
\$16.93/Hour  
trapping techniques, telemetry, GPS field navigation and coordinate collection
- Used trap cameras, DSLR cameras, spotting scopes, binoculars, mapping nest coordinates with QGIS and data entry and error checking in Access

**Research Intern-** *Cedar Creek Ecosystem Science Reserve, East Bethel, MN*  
2016

May 2016- August

- Maintained biodiversity for the BioCON experiment at the University of  
Hours/Week 40  
Minnesota and developed a knowledge of local plant species. \$10/Hour
- Collected fields measurements and samples such as soil cores and biomass.

**Undergraduate Student Research-** *University of Wisconsin- Eau Claire, Eau Claire, WI*  
May 2018

June 2017-

- "Simulating the potential impacts of future climate change on forest carbon  
Hours/Week 20  
sequestration capacity and crop health in the Lower Chippewa River Watershed" \$2,300  
stipend
- Used computer software (WinEPIC) and remote sensing imagery and technology to model the impacts of climate change on crop health and forest growth, predictions made for years 2030 and 2040

- Used Erdas Imagine remote sensing software to edit land use land cover predictions for 2030 and 2040
- Presented a research poster at UWEC Celebration of Excellence in Research and Creative Activity (CERCA) and the 2018 annual conference of American Association of Geographers (AAG) in New Orleans

**Lab Assistant-** *University of Wisconsin- Eau Claire, WI*  
2018

September 2016- May

- Educated and tutored students in Geography 338: Remote Sensing of the Environment by holding scheduled office hours weekly  
Hours/Week 7.5  
\$8/Hour
- Graded lab assignments and assisted instructor with answering students questions

## Geospatial Skills

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- Knowledge of sub-orbital and orbital remote sensing theory and techniques and spatial applications
- Perform advanced remote sensing image processing techniques
- Processing LiDAR data sets and creating Digital Surface Models, Digital Terrain Models, and Intensity images
- GIS skills including: data analysis, data conversion, georeferencing, data editing, data management, network analysis, raster modeling, map creation, data flow modeling, python scripting, using ArcGIS online
- Completed ESRI certificates for several courses including: Getting Started with the Geodatabase program, Working with Geodatabase Domains and Subtypes in ArcGIS, Getting Started with Geodatabase Topology, ESRI Imagery in Action MOOC
- Knowledgeable on the applications of the computer software ArcGIS product suite, Erdas Imagine, SNAP, Map Ready, ENVI, QGIS, Jupyter Notebook, SPSS, Geoda, PolSARpro

## Achievements and Awards

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*FWS Great Lakes Regional Director's Employee Excellence Award 2021 – Team Excellence Award*  
May 2021

- Received award as a contributing member of the team that met the FWS Director's deadline to delineate and map all FWS protected wetlands on wetland easements acquired prior to 1976 totaling about 1,000 easements, also known as the Pre-1976 Wetland Mapping Project.