

Matthew Haffner, Ph.D

Assistant Professor •
Department of Geography
and Anthropology

🏠 <https://geohaff.com>

📞 +1 715.836.2316

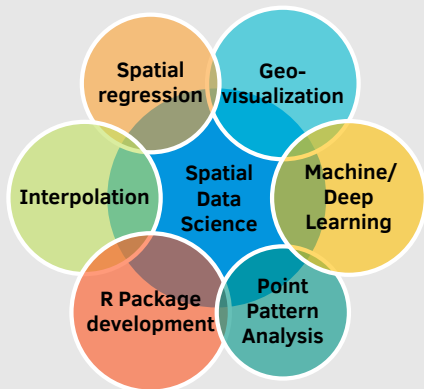
✉ haffner.matthew.m@gmail.com

🐙 [mhaffner](#) | [mhaffner](#)

📄 [matthew-haffner-07296176](#)

Skills

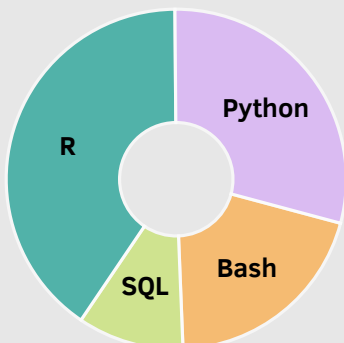
Expertise



Tools



Programming



Experience

- 2018 - pres. **Assistant Professor** [University of Wisconsin - Eau Claire](#)
Department of Geography and Anthropology
- Lead a research team that uses machine learning to address spatial questions
 - Teach *GIS 3, GIS 2, GIS 1, Quantitative Methods for Geography, Intro. to Urban and Regional Planning, and Human Geography*
- 2012 - 2018 **Graduate Assistant** [Oklahoma State University](#)
Department of Geography
- 2015 (smr.) **Programmer** [Oklahoma State University](#)
Department of Plant and Soil Sciences
- Built a production system for estimating soil moisture using regression kriging
 - Designed the leave-one-out cross validation functions for a kriging library
 - **Tools: MATLAB, OpenLayers**

Education

- 2014 - 2018 **Ph.D. in Geography** [Oklahoma State University](#)
- Collected and cleaned 4TB of geolocated tweets in dissertation
 - Analyzed results using geographically weighted regression
 - **Tools: Python, R, Bash, ElasticSearch**
- 2012 - 2014 **M.S. in Geography** [Oklahoma State University](#)
- Completed a master's thesis on social interaction potential
 - **Tools: Python, R, ArcGIS Network Analysis**
- 2007 - 2012 **B.S.Ed. in Secondary Education** [Pittsburg State University](#)
- Majors: Mathematics and Geography

Selected Projects

- 2020 - pres. **Wisconsin Landscape Search Engine**
Research project using digital elevation models, satellite imagery, and neural networks for location analysis
- **Tools: Python, TensorFlow, rasterio, R, GDAL, Shiny**
- 2021 - pres. **Evaluating perceptions of cycling safety in Eau Claire, WI**
Research project analyzing spatial and non-spatial responses
- Designed, deployed, and distributed a spatially-enabled web survey
 - Conducted statistical analyses of responses by demographic groups
 - **Tools: R, caret, Shiny, leaflet, AWS**
- 2020 - 2021 **sfe (R package)**
Package for feature engineering with spatially-enabled survey data
- **Tools: R, devtools, sf, dplyr**
- 2018 - 2019 **ispat: Interactive spatial analysis tool**
Web application for teaching quadrat and nearest neighbor analysis
- **Tools: R, Shiny, Docker, Linode**

Selected publications

- **Haffner, M.**, P. Hagge, C. Brown, R. Heyrman, and C. Perkins. Fusing machine learning with place-based survey methods: Revisiting questions surrounding perceptual regions. *Revisions submitted July 2021*.
- Ochsner, T., E. Linde, **M. Haffner**, J. Dong. Mesoscale soil moisture patterns revealed using a sparse in situ network and regression kriging. *Water Resources Research* 55(6): 4785-4800. **2019**.
- **Haffner, M.** A spatial analysis of non-English Twitter activity in Houston, TX. *Transactions in GIS* 22(4): 913-929. **2018**.