

Matthew Haffner

PHD CANDIDATE · GRADUATE RESEARCH ASSISTANT

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Academic interests: GIScience, Urban Geography, Big Data, Volunteered Geographic Information

Education

Oklahoma State University

DOCTOR OF PHILOSOPHY IN GEOGRAPHY (EXPECTED MAY 2018)

Stillwater, Oklahoma

Aug. 2014 - Present

- Dissertation: Assessing the validity of location-based social media
- Comprehensive exam areas: GIScience, Urban Geography, the GeoWeb
- Co-advisors: G. Allen Finchum, Adam J. Mathews

Oklahoma State University

MASTER OF SCIENCE IN GEOGRAPHY

Stillwater, Oklahoma

Aug. 2012 - July 2014

- Thesis: Measuring social interaction potential in Oklahoma City and Tulsa
- Advisor: Hongbo Yu

Pittsburg State University

BACHELOR OF SCIENCE IN SECONDARY EDUCATION

Pittsburg, Kansas

Aug. 2007 - May 2012

- Majors: Geography and Mathematics

Publications

PEER-REVIEWED JOURNAL ARTICLES (ACCEPTED/PUBLISHED)

- **Haffner, M.** A spatial analysis of non-English Twitter activity in Houston, Texas. *Transactions in GIS*. Accepted **2018**, pending license agreement and final edits.
- **Haffner, M.**, A. J. Mathews., E. Fekete, G. A. Finchum. Location-based social media behavior and perception: Views of university students. *Geographical Review*. doi:10.1111/gere.12250. **2017**.
- Mathews, A. J., **M. Haffner**, E. Ellis. GIS-based modeling of tornado siren sound propagation: Refining spatial extent and coverage estimations. *International Journal of Disaster Risk Reduction* 23:36-44. doi:10.1016/j.ijdr.2017.04.004. **2017**.

PEER-REVIEWED JOURNAL ARTICLES (UNDER REVIEW)

- **Haffner, M.** A place-based analysis of #BlackLivesMatter and color-blind racism on Twitter.

MAPS

- **Haffner, M.** Location of Greenwood Historic District within Tulsa's contemporary food desert. In *Resilience, Environmental Justice, and the City*. Eds. B. H. Caniglia, M. Vallee, and B. Frank. pp. 84. **2017**.

Professional Conference Presentations

- **Haffner, M.*** A spatial analysis of non-English Twitter activity in Houston, Texas. *American Association of Geographers Annual Meeting*. New Orleans, Louisiana. Paper presentation. *Forthcoming April 2018*.
- Finchum, G. A.* **Haffner, M.** How good is Twitter data: Comparing phone usage patterns using social media vs. calculated home location. *American Association of Geographers Annual Meeting*. New Orleans, Louisiana. Poster presentation. *Forthcoming April 2018*.
- **Haffner, M.***, A. J. Mathews, E. Fekete, G. A. Finchum. Location-based social media behavior and perception: Views of university students. *Southwest American Association of Geographers Annual Meeting*. Huntsville, Texas. Paper presentation. November **2017**.
- **Haffner, M.*** The development of shp2nosql: Command line tools for spatial data and NoSQL databases. *American Association of Geographers Annual Meeting*. Boston, Massachusetts. Paper presentation. April **2017**.
- **Haffner, M.***, A. J. Mathews., E. Ellis. GIS-based modeling of tornado siren sound propagation in Stillwater, Oklahoma. *Southwest American Association of Geographers Annual Meeting*. Denton, Texas. Poster presentation. November **2016**.
- **Haffner, M.***, A. J. Mathews. A multi-dimensional topology for crowd-sourced geographic information. *NSF Workshop on Geospatial Data Science in the Era of Big Data and CyberGIS*. Urbana, Illinois. Paper presentation. July **2016**.
- G. A. Finchum*, **M. Haffner**, A. J. Mathews, E. Fekete. Analyzing smartphone usage patterns at colleges with strong gender differences using social media. *Association of American Geographers Annual Meeting*. San Francisco, California. Poster presentation. April **2016**.
- **Haffner, M.*** Conquering big spatial data: Towards a new philosophy in geographic information science. *Oklahoma State University Research Symposium*. Poster presentation. February **2016**.
- Ochsner, T. E.*, J. Dong, **M. Haffner**, A. Patrignani, J. C. Patton. Developing an operational system for daily 800-m resolution soil moisture estimates across Oklahoma. *American Geophysical Union Fall Meeting*. San Francisco, California. Paper presentation. December **2015**.
- Patton, J. C.*, T. E. Ochsner, A. Patrignani, J. Dong, **M. Haffner**. Towards a high resolution soil moisture map of Oklahoma. *American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting*. Minneapolis, Minnesota. Poster presentation. November **2015**.
- **Haffner, M.***, H. Yu. Measuring social interaction potential in Oklahoma City and Tulsa. *Association of American Geographers Annual Meeting*. Chicago, Illinois. Paper presentation. April **2015**.
- Finchum, G. A.*, **M. Haffner**. Using Twitter data to analyze mobile device usage patterns in urban areas. *Association of American Geographers Annual Meeting*. Chicago, Illinois. Poster presentation. April **2015**.
- **Haffner, M.*** Using ArcGIS, Python, and R to measure social interaction potential in Tulsa and Oklahoma City. *Oklahoma South Central Arc User Group Meeting*. Moore, Oklahoma. Technical presentation. September **2014**.

- **Haffner, M.*** Measuring social interaction potential in Tulsa and Oklahoma City: A case study. *Oklahoma State University Research Symposium*. Stillwater, Oklahoma. Paper presentation. April **2014**.

*Presenting author

Experience

Oklahoma State University

GRADUATE RESEARCH ASSISTANT - DEPARTMENT OF GEOGRAPHY

Stillwater, Oklahoma

Jan. 2016 - Present

- Diagnosed and fixed issues in Microsoft SQL Server databases
- Wrote programs in C#, designed web pages in the Microsoft .NET framework
- Improved the functionality, security, and aesthetics of Oklahoma's State Historic Preservation websites

GRADUATE TEACHING ASSISTANT - DEPARTMENT OF GEOGRAPHY

Aug. 2012 - Dec. 2015

- Taught *Introduction to Cultural Geography* (lecture) for three semesters
- Taught *Introduction to Physical Geography* (lecture) for one semester
- Taught *Introduction to Physical Geography* (laboratory) for five semesters

PROGRAMMER - DEPARTMENT OF PLANT AND SOIL SCIENCES

May 2015 - Aug. 2015

- Worked with a research team to develop an automated soil moisture mapping system
- Led a workshop session on soil moisture mapping using the MATLAB Mapping Toolbox
- Helped develop a MATLAB kriging library

Association of Central Oklahoma Governments

Oklahoma City, Oklahoma

TRANSPORTATION INTERN

May 2013 - Aug. 2013

- Conducted spatial analysis using ArcGIS
- Wrote vast formulas in Microsoft Excel to organize data for over 125,000 car crashes
- Updated land use shapefiles in a network geodatabase

Neosho County Community College

Pittsburg, Kansas

CAVE INSTRUCTOR

Aug. 2011 - Dec. 2011

- Taught *Intermediate Algebra* to 22 incoming freshmen
- Designed all class assignments, delivered all lectures, wrote and proctored all exams

St. Mary's Colgan High School

Pittsburg, Kansas

STUDENT TEACHER

Jan. 2011 - May. 2011

- Taught two sections of *Algebra II* and two sections of *Geometry*
- Substitute taught in *Calculus*, *Algebra III*, and *Junior High Physical Education*

Pittsburg State University

Pittsburg, Kansas

MATHEMATICS TUTOR - MATHEMATICS DEPARTMENT

Jan. 2009 - May 2011

- Tutored students in *Calculus I*, *Calculus II*, *Calculus III*, *Discrete Mathematics*, *Abstract Algebra*, *Mathematical Modeling*, *Probability and Statistics*, *Elementary Statistics*, and *College Algebra*

Invited Lectures

- Topology. In *GEOG-5343 - Advanced Geographic Information Systems: Resource Management Applications*. Oklahoma State University. February **2018**.

- Maintaining graduate student life. In *GEOG-5001 - Professional Development in Geography*. Oklahoma State University. November **2017**, November **2016**.
- Big data, spatial data science, and volunteered geographic information. In *GEOG-2344 - Digital Tools for Environmental Exploration*. Oklahoma State University. September **2017**.
- High performance computing in the social sciences. In *MATH-2910 - High Performance Computing*. Oklahoma State University. March **2016**.
- The emergence of urban segregation in the United States. In *GEOG-1113 - Introduction to Cultural Geography*. Oklahoma State University. March **2016**.
- GIS programming with PostgreSQL and PostGIS. In *GEOG-4383 - Introduction to GIS Programming*. Oklahoma State University. March **2016**.
- Volunteered geographic information, Twitter, and big data. In *GEOG-2344 - Digital Tools for Environmental Exploration*. Oklahoma State University. January **2016**, November **2015**.

Honors & Awards

2017	Norris Conference Travel Scholarship (\$550)	<i>Department of Geography, OSU</i>
2017	Jerry Croft Award in Geography Education (\$1500)	<i>Department of Geography, OSU</i>
2016	Norris Conference Travel Scholarship (\$350)	<i>Department of Geography, OSU</i>
2016	Spring Featured Researcher	<i>High Performance Computing Center, OSU</i>
2015	Research Materials Grant (\$200)	<i>GPSGA, OSU</i>
2015	Most Outstanding First Year PhD Student (\$2000)	<i>Department of Geography, OSU</i>
2015	Susan Shaull Medal for Excellence in Teaching (\$500)	<i>Department of Geography, OSU</i>
2015	Top Tier Graduate Fellowship (\$7500)	<i>Graduate College, OSU</i>
2014	SCAUG Regional Scholarship (\$1500)	<i>South Central Arc User Group</i>
2014	Norris Conference Travel Scholarship (\$500)	<i>Department of Geography, OSU</i>
2013	OKSCAUG Scholarship (\$500)	<i>Oklahoma South Central Arc User Group</i>
2013	Three Minute Thesis Competition Finalist	<i>Graduate College, OSU</i>
2013	Most Outstanding First Year Master's Student (\$1000)	<i>Department of Geography, OSU</i>

Professional Memberships

American Geographical Society	<i>Apr. 2017 - Present</i>
American Association of Geographers	<i>Nov. 2014 - Present</i>
Gamma Theta Upsilon (Geography Honor Society)	<i>May 2013 - Present</i>
OSU Forum of Geography Graduate Students	<i>Aug. 2012 - Present</i>
Fellowship of Christian Graduate Students	<i>Aug. 2013 - May 2015</i>

Professional & University Service

- **Alternate Member.** *OSU Student University Technology Services Fee Committee (UTSF)*. Oklahoma State University. November **2017** - present.
- **Secretary.** *Gamma Theta Upsilon (Geography Honor Society)*. Oklahoma State University. August **2017** - present.
- **President.** *Forum of Geography Graduate Students*. Oklahoma State University. August **2016** - February **2018**.

- **Co-organizer.** *Forum of Geography Graduate Students invited colloquium presentations.* Stillwater, Oklahoma. Department of Geography Colloquia. August **2016** - present.
- **Co-organizer.** *Open source software in geography: Theories, developments, and pathways toward openness.* AAG Annual Meeting. Boston, Massachusetts. Paper Session. April **2017**.
- **Co-organizer.** *Open source software in geography: Theories, developments, and pathways toward openness.* AAG Annual Meeting. Boston, Massachusetts. Panel Session. April **2017**.
- **Co-organizer.** *Securing positions in academia.* Forum of Geography Graduate Students Special Sessions. Stillwater, Oklahoma. Three Part Lecture Series. January **2017**.
- **President.** *OSU Fellowship of Christian Graduate Students.* Oklahoma State University. August **2013** - May **2015**.
- **Treasurer.** *Forum of Geography Graduate Students.* Oklahoma State University. August **2012** - July **2013**.

Technical Skills

Desktop GIS	R (various libraries), PostGIS, ArcPy, QGIS, MATLAB Mapping Toolbox, ArcGIS
Web GIS	GeoServer, OpenLayers 3
Databases/NoSQL systems	ElasticSearch, PostgreSQL, MongoDB, MS SQL Server
Languages	Bash, R, Python, LaTeX, SQL, MATLAB, HTML, CSS, SAS
Shells	Zsh, Bash, Eshell
Operating systems	Manjaro, CentOS, Ubuntu, Fedora, OS X, Windows
Web Frameworks	Hugo, Jekyll, Microsoft .NET
Tools	Emacs (Spacemacs), Vim, Git, Docker, RStudio, Microsoft Visual Studio
APIs	Twitter, Flickr, Zillow
Presentation software	reveal.js, LibreOffice Impress, MS PowerPoint
Certifications	Base SAS Programming for SAS 9
Graphics editing	Inkscape, Adobe Illustrator
Miscellaneous	High Performance Computing, RStudio Server, Linode