Matthew **Haffner**

Ph.D. Candidate · Graduate Research Assistant

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

Education

Oklahoma State University   *Stillwater, Oklahoma*
Doctor of Philosophy in Geography (Expected May 2018)   *Aug. 2014 - Present*
- Dissertation: Assessing the validity of location-based social media
- Co-advisors: G. Allen Finchum, Adam J. Mathews

Oklahoma State University   *Stillwater, Oklahoma*
Master of Science in Geography   *Aug. 2012 - July 2014*
- Thesis: Measuring social interaction potential in Oklahoma City and Tulsa
- Advisor: Hongbo Yu

Pittsburg State University   *Pittsburg, Kansas*
Bachelor of Science in Secondary Education   *Aug. 2007 - May 2012*
- Majors: Geography and Mathematics

Publications

Peer-reviewed Journal Articles

- **Haffner, M.**, A. J. Mathews., E. Fekete, G. A. Finchum. *Location-based social media behavior and perception: Views of university students*. Geographical Review. Accepted **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. **2017**.

Peer-reviewed Journal Articles (Under review)

- **Haffner, M.** *A (critical) spatial analysis of non-English Twitter activity in Houston, Texas. Under review*.

Manuscripts in Progress

- **Haffner, M.**. *A spatial analysis of racial protest and reaction to racial protest 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. J. Mathews, E. Fekete, G. A. Finchum. *Location-based social media behavior and perception: Views of university students*. Southwest AAG Annual Meeting. Huntsville, Texas. Paper presentation. *Forthcoming November* **2017**.

- **Haffner, M.***. *The development of shp2nosql: Command line tools for spatial data and NoSQL databases*. AAG 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 AAG 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 Franciso, 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**.

- **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. April **2015**.

- **Haffner, M.*** *Using ArcGIS, Python, and R to measure social interaction potential in Tulsa and Oklahoma City*. Technical presentation. Oklahoma South Central Arc User Group Meeting. Moore, Oklahoma. September **2014**.

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

  * Presenting author

Experience

Oklahoma State University   *Stillwater, Oklahoma*
GRADUATE RESEARCH ASSISTANT - DEPARTMENT OF GEOGRAPHY   *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

- *Maintaining graduate student life*. In GEOG-5001 - Professional Development in Geography. Oklahoma State University. *Forthcoming November 2017*, November **2016**.

- *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**	*Dept. of Geography, OSU*
2017	**Jerry Croft Award in Geography Education**	*Dept. of Geography, OSU*
2016	**Norris Conference Travel Scholarship**	*Dept. of Geography, OSU*
2016	**Featured Researcher (Spring)**	*High Performance Computing Center, OSU*
2015	**Research Materials Grant**	*GPSGA, OSU*
2015	**Most Outstanding First Year PhD Student**	*Dept. of Geography, OSU*
2015	**Susan Shaull Medal for Excellence in Teaching**	*Dept. of Geography, OSU*
2015	**Top Tier Graduate Fellowship**	*Grad. College, OSU*
2014	**SCAUG Regional Scholarship**	*South Central Arc User Group*
2014	**Norris Conference Travel Scholarship**	*Dept. of Geography, OSU*
2013	**OKSCAUG Scholarship**	*Oklahoma South Central Arc User Group*
2013	**Competition Finalist**	*Three Minute Thesis Competition, OSU*
2013	**Most Outstanding First Year Master's Student**	*Dept. of Geography, OSU*

Professional Memberships

President, OSU Forum of Geography Graduate Students	*Aug. 2016 - Present*
Member, American Geographical Society	*Apr. 2017 - Present*
Member, American Association of Geographers	*Nov. 2014 - Present*
Member, Gamma Theta Upsilon (Geography Honor Society)	*May 2013 - Present*
Treasurer, OSU Forum of Geography Graduate Students	*Aug. 2012 - July 2013*
Member, OSU Forum of Geography Graduate Students	*Aug. 2012 - Present*
Member & President, OSU Fellowship of Christian Graduate Students	*Aug. 2013 - May 2015*

Professional & University Service

- **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**.

- **Co-organizer**. *Forum of Geography Graduate Students invited colloquium presentations*. Stillwater, Oklahoma. Department of Geography Colloquia. **2016-2017**.

Technical Skills

Desktop GIS	R, PostGIS, QGIS, MATLAB Mapping Toolbox, ArcGIS
Web GIS	GeoServer, OpenLayers 3
Database 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, OSX, Windows
Certifications	Base SAS Programming for SAS 9
Graphics editing	Inkscape, Adobe Illustrator
Tools	Emacs (Spacemacs), Vim, Git, Microsoft Visual Studio
Miscellaneous	Docker, High Performance Computing