

# Matthew M. 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

DOCTOR OF PHILOSOPHY IN GEOGRAPHY (EXPECTED MAY 2018)

Stillwater, Oklahoma

Aug. 2014 - Present

- Dissertation: Assessing the Validity of Location Based Social Media
- Advisors: G. Allen Finchum (Chair), Adam Mathews (Research Advisor)

### 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: Hongo 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

- **Haffner, M.**, A. Mathews., E. Fekete, G. A. Finchum. *Location-based social media behavior and perception: Views of university students*. Geographical Review. **2017**.
- Mathews, A., **M. Haffner**, E. Ellis. *GIS-based modeling of tornado siren sound propagation: Refining spatial extent and coverage estimations*. International Journal of Disaster Risk Reduction. **2017**.

### PEER-REVIEWED JOURNAL ARTICLES (UNDER REVIEW/REVISION)

- **Haffner, M.** *Shp2nosql: Command line tools for spatial data and NoSQL systems*. Under revision.
- **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

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- **Haffner, M.\***, Adam J. Mathews, Emily Fekete, G. Allen 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. 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. 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**.
- A. Finchum\*, **M. Haffner**, A. 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**.
- **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

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### Oklahoma State University

GRADUATE RESEARCH ASSISTANT - DEPARTMENT OF GEOGRAPHY

Stillwater, Oklahoma

Jan. 2016 - Present

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

#### GRADUATE TEACHING ASSISTANT - DEPARTMENT OF GEOGRAPHY

Aug. 2012 - Dec. 2015

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

#### PROGRAMMER - DEPARTMENT OF PLANT AND SOIL SCIENCES

May 2015 - Aug. 2015

- Led a workshop session on soil moisture mapping using the MATLAB Mapping Toolbox
- Helped develop an automated soil moisture mapping system
- Aided in developing 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 incoming freshmen
- Was the sole instructor in a class of 22 students

#### 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

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- *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

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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

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

## Professional/University Service

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- **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. 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

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<b>Desktop GIS</b>	R, PostGIS, QGIS, MATLAB Mapping Toolbox, ArcGIS
<b>Web GIS</b>	GeoServer, OpenLayers 3
<b>Database systems</b>	ElasticSearch, PostgreSQL, MongoDB, MS SQL Server
<b>Programming</b>	Bash, R, Python, SQL, MATLAB, SAS
<b>Shells</b>	Zsh, Bash, Eshell
<b>Operating systems</b>	Manjaro, CentOS, Ubuntu, Fedora, OSX, Windows

**Certifications**  
**Graphics editing**  
**Tools**  
**Miscellaneous**

Base SAS Programming for SAS 9  
Inkscape, Adobe Illustrator  
Emacs (Spacemacs), Vim, Git, Microsoft Visual Studio  
Docker, High Performance Computing