

Matthew M. Haffner

PH.D STUDENT · DEPARTMENT OF GEOGRAPHY · OKLAHOMA STATE UNIVERSITY

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Academic interests: GIScience, Urban Geography, Big Data

Education

Oklahoma State University

DOCTOR OF PHILOSOPHY IN GEOGRAPHY

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
- GPA: 3.88

Publications

PEER-REVIEWED JOURNAL ARTICLES (UNDER REVIEW)

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

MANUSCRIPTS IN PROGRESS

- **Haffner, M.**. *The development of shp2nosql: Command line tools for spatial data and NoSQL databases*. In progress.
- **Haffner, M.**. *A spatial analysis of non-English Twitter Activity in Houston, Texas*. In progress.

Professional Conference Presentations

- **Haffner, M.***, A. Mathews., E. Ellis. *GIS-based modeling of tornado siren sound propagation in Stillwater, Oklahoma*. Southwest AAG Annual Meeting. Denton, TX. 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**.

* Notes 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
- 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 kriging library for use in MATLAB

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

STUDENT TEACHER

Pittsburg, Kansas

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

MATHEMATICS TUTOR - MATHEMATICS DEPARTMENT

Pittsburg, Kansas

Jan. 2009 - May 2001

- 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

- *High Performance Computing in the Social Sciences*. MATH-2910 - High Performance Computing. Oklahoma State University. March **2016**.
- *The Emergence of Urban Segregation in the United States* GEOG-1113 - Introduction to Cultural Geography. Oklahoma State University. March **2016**.
- *GIS Programming with PostgreSQL and PostGIS*. GEOG-4383 - Introduction to GIS Programming. Oklahoma State University. March **2016**.
- *Volunteered Geographic Information, Twitter, and Big Data*. 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 (\$200)	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
2015	Competition Finalist	Three Minute Thesis Competition, OSU

Technical Skills

GIS	R, PostGIS, QGIS, MATLAB Mapping Toolbox, ArcGIS
Databases	ElasticSearch, PostgreSQL, MongoDB, MS SQL Server
Programming	Bash, R, Python, SQL, MATLAB, SAS
Shells	Zsh, Bash, Eshell
Operating systems	Arch Linux (Manjaro), 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	High Performance Computing