

# Sara Lafia, Ph.D.

Postdoctoral Research Fellow, ICPSR

University of Michigan, Ann Arbor, MI

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## Education

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<b>Ph.D. in Geography, UC Santa Barbara, CA</b>	2020
<i>Emphasis:</i> Information Technology and Society	
<i>Dissertation:</i> Designing for Serendipity: Research Data Curation in Topic Spaces	
<i>Committee:</i> Werner Kuhn (Chair), James Frew, Kelly Caylor, and Daniel Montello	
<b>B.S. in Urban Planning, Geography - GIS, Cal Poly Pomona, CA</b>	2014
Kellogg Honors College ( <i>Valedictorian</i> )	

## Appointments

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<b>Postdoctoral Research Fellow</b>	2020 - present
ICPSR, University of Michigan, Ann Arbor, MI	
<b>Graduate Student Researcher</b>	2014 - 2020
Center for Spatial Studies, UC Santa Barbara, CA	
<b>Engineering Intern</b>	2017
Esri Research & Development, Arlington, VA	
<b>Informatics Intern</b>	2016
National Center for Ecological Analysis and Synthesis, Santa Barbara, CA	

## Honors and Awards

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<b>ESIP Community Fellow:</b> Earth Science Information Partners (ESIP), Discovery Cluster	2020 - present
<b>Best Paper of the Year Award:</b> Journal of Map & Geography Libraries, Volume 14	2020
<b>Excellence in Teaching Award:</b> Department of Geography, UC Santa Barbara	2019
<b>Mellichamp Ph.D. Research Fellowship:</b> 21st Century Global Dynamics, UC Santa Barbara	2019
<b>Hackathon Winner (Womxn/Hacks: Best Use of Google Cloud Platform):</b> UC Santa Barbara	2019
<b>Spatial Hackathon Finalist (SAP + Esri: Geo-machine learning):</b> Esri DevSummit	2018
<b>Robert Raskin Scholarship:</b> Earth Science Information Partners (ESIP)	2018
<b>Jack &amp; Laura Dangermond Graduate Fellowship:</b> Department of Geography, UC Santa Barbara	2017 - 2018

Greater Research Opportunities (GRO) Fellowship: U.S. Environmental Protection Agency	2012 - 2014
Prete Environmental Education Fellowship: Lyle Center for Regenerative Studies	2012 - 2013

## External Funding

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<b>National Science Foundation</b>	2021 - present
Co-Principal Investigator with Libby Hemphill (PI), & A.J. Million. “ <a href="#">Transforming Data Discovery Through Behavior Modeling and Recommendation</a> ” (#2121789). SBE Social and Economic Sciences, Science of Science: Discovery, Communication, and Impact. \$362,861.	
<b>Michigan Institute for Data Science</b>	2021 - present
Co-Principal Investigator with J. Trent Alexander (PI), Katie R. Genadek, & David A. Bleckley. “ <a href="#">Images to Integrated Data: Piloting new methods to digitize, parse, and link historical records</a> ”. Propelling Original Data Science (PODS) Grants. \$69,910.	

## Publications

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### Journal Articles

- Lafia, S., Kuhn, W., Caylor, K., & Hemphill, L. (2021). [Mapping Research Topics at Multiple Levels of Detail](#). *Patterns*, 100210.
- Lafia, S., & Kuhn, W. (2018). [Spatial Discovery of Linked Research Datasets and Documents at a Spatially Enabled Research Library](#). *Journal of Map & Geography Libraries*, 14(1), 21-39.
- Coggins, B. L., Lafia, S., & Torghabeh, B. V. (2018). [Dramatic Change in North Korea: Instability and Human Flight Propensity](#). *North Korean Review*, 14(1), 49-70.
- Lafia, S., Jablonski, J., Kuhn, W., Cooley, S., & Medrano, F. A. (2016). [Spatial Discovery and the Research Library](#). *Transactions in GIS*, 20(3), 399-412.

### Conference Papers

- Lafia, S., Thomer, A., Bleckley, D., Akmon, D., & Hemphill, L. (in press). [Leveraging Machine Learning to Detect Data Curation Activities](#). In Proceedings of 17th IEEE eScience 2021, Innsbruck, Austria, September 20-23. Institute of Electrical and Electronics Engineers (IEEE).
- Lafia, S., Zhu, R., Regalia, B., & Kuhn, W. (2021). [Reimagining GIS Instruction through Concept-Based Learning](#). AGILE: GIScience Series, 2, 1-7.
- Hervey, T., Lafia, S., & Kuhn, W. (2020). [Search Facets and Ranking in Geospatial Dataset Search](#). In *11th International Conference on Geographic Information Science (GIScience 2021)*. Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik.
- Lafia, S., Last, C., & Kuhn, W. (2019). [Enabling the Discovery of Thematically Related Research Objects with Systematic Spatializations](#). In *14th International Conference on Spatial Information Theory (COSIT 2019)*. Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik.

**Lafia, S.,** Turner, A., & Kuhn, W. (2018). [Improving Discovery of Open Civic Data](#). In *10th International Conference on Geographic Information Science (GIScience 2018)*. Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik.

Allen, C., Hervey, T., **Lafia, S.**, Phillips, D. W., Vahedi, B., & Kuhn, W. (2016). [Exploring the Notion of Spatial Lenses](#). In *International Conference on Geographic Information Science* (pp. 259-274). Springer, Cham.

### **Short Papers**

**Lafia, S.,** Xiao, J., Kuhn, W., & Hervey, T. (2019). [Talk of the Town: Discovering Government Data via Conversational Voice Assistants](#). In *14th International Conference on Spatial Information Theory (COSIT 2019)*. Schloss Dagstuhl-Leibniz-Zentrum fuer Informatik.

Golubovic, N., Krintz, C., Wolski, R., **Lafia, S.**, Hervey, T., & Kuhn, W. (2016). [Extracting Spatial Information from Social Media in Support of Agricultural Management Decisions](#). In *Proceedings of the 10th Workshop on Geographic Information Retrieval* (p. 4). ACM.

**Lafia, S.,** & Staehli, L. (2016). [From Research Objects to Research Networks: Combining Spatial and Semantic Search](#). In *SDW@ GIScience* (pp. 35-40).

### **News and Reports**

**Lafia, S.,** & Kuhn, W. (2019). [Enabling the Spatial Discovery of Research Data in Libraries](#). In *US National Report. (US National Committee for the International Cartographic Association)*.

Seltmann, K., **Lafia, S.**, Paul, D., James, S., Bloom, D., Rios, N., ... & Davis, E. (2018). [Georeferencing for Research Use \(GRU\): An Integrated Geospatial Training Paradigm for Biocollections Researchers and Data Providers](#). *Research Ideas and Outcomes*, 4, e32449.

**Lafia, S.** & Kuhn, W. (2017). [Opening Access to University Scholarship through Spatial Discovery](#). ESRI, ArcUser.

## **Presentations**

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### **Invited Talks**

[“Measuring the Impacts of Curatorial Actions on Research Data Reuse.”](#) LIBER Webinar. Online. 2020

“Designing for Serendipity: Supporting Data Discovery with Spatial Curation.” ICPSR: Ann Arbor, Michigan 2020

“Discovering Spatial Data for Our Changing Earth.” ESIP Summer Meeting. Tucson, Arizona 2018

### **Oral Presentations**

[“Analyzing Data Curation Work at a Social Science Archive with Machine Learning.”](#) RI4WebSci: Online 2021

[“Designing for Serendipity: Research Data Curation in Topic Spaces.”](#) UCSB: Dissertation Public Defense 2020

“Enabling the Discovery of Thematically Related Research Objects.” COSIT: Regensburg, Germany 2019

“Talk of the Town: Discovering Government Data.” COSIT: Regensburg, Germany 2019

“Spatially Supported Thematic Discovery of Research Data.” COSIT: Regensburg, Germany 2019

"Re-creating and Exploring Research Neighborhoods." FORCE11 Summer Institute: UCLA	2019
"Spatial Data Discovery at UCSB: Future Directions." Library Open Access Week: UCSB	2018
"Improving Discovery of Open Civic Data." GIScience: Melbourne, Australia	2018
"Discovering and Sharing Campus Scholarship." Center for Spatial Studies Lightning Talks: UCSB	2017
"Linking Geographic Footprints to Topic Spaces." Graduate Slam Competition: UCSB	2017
"From Research Objects to Research Networks." WAML: Stanford University	2016
"Spatial Discovery and the University Library." TGIS Session at ESRI User Conference: San Diego, CA	2016
"People and Places: Resource Discovery in a Library Context." AAG: San Francisco, CA	2016
"Degrees of Separation: Measuring Musicians and Places." Center for Spatial Studies: UCSB	2016

### **Poster Presentations**

" <a href="#">How Does Data Curation Impact Discovery?</a> " ESIP Winter Meeting: Online	2021
" <a href="#">Measuring and Improving the Efficacy of Curation Activities in Data Archives.</a> " RDA 16th Plenary: Online	2020
" <a href="#">Supporting Interdisciplinary Research Reviews with Multi-Level Topic Maps.</a> " MIDAS 2020: Online	2020
"Mapping Research Topics at Multiple Levels of Detail." AIDR Symposium 2020: Online	2020
"Research Trajectories: Topic Models of UCSB Graduate Research." MAT EoYS: Santa Barbara, CA	2017
"Computing with Core Concepts of Spatial Information." COSIT: Santa Fe, New Mexico	2015

## **Research Experience**

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**Postdoctoral Research Fellow:** ICPSR, University of Michigan 2020 - present

- Developing methods for tracking and quantifying the impact of secondary research data discovery and reuse

**Graduate Student Researcher:** UCSB Center for Spatial Studies 2016 - 2020

- Leveraged Esri's Open Data platform for mapping and linking research datasets to publications

**Research Assistant:** WhatEvery1Says (WE1S), UCSB Department of English (with Dr. Alan Liu) 2019

- Analyzed topic model quality and fitness for use to study humanities discourse in the media

**Research Assistant:** *global-e*, UCSB Department of Film and Media Studies (with Dr. Michael Curtin) 2019

- Designed interactive visualizations and supported publication of essays for an open access electronic journal

**Engineering Intern:** Esri Research & Development, Arlington, VA 2017

- Improved search for open public datasets in ArcGIS Hub through extension and application of an ontology

**Research Assistant:** UCSB Department of Political Science (with Dr. Bridget Coggins) 2017

- Developed a spatially explicit agent-based model simulating flight-risk based on environmental factors

- Informatics Intern:** NCEAS, Santa Barbara, CA 2016
- Extended an ontology enabling semantic metadata annotation and provenance tracking of ecological datasets
- NASA DEVELOP Student Contractor:** Jet Propulsion Laboratory, Pasadena, CA 2013
- Expedited the validation of damage proxy maps of natural disasters derived from radar data via a web tool
- NSF-REU Summer Research Assistant:** University of Nevada, Reno, NV 2012
- Collected and managed ecological field data in a spatial database; performed statistical analysis with SPSS

## Teaching Experience

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- Research Mentor:** Center for Spatial Studies, UCSB 2015, 2017, 2019
- Supervised development of a survey to assess web map usability for UCSB's interactive campus map
  - Collaborated on design of a self-organizing map and network visualization of research publications
  - Co-authored a workflow for spatial research data ingest in collaboration with UCSB librarians
- Instructor of Record:** Department of Geography, UCSB 2017 - 2018
- Developed course materials and delivered lectures for *Introduction to Geographic Information Systems* (28 students) and *Geography of California* (60 students), receiving excellent student evaluations for both courses
- Workshop Co-Instructor:** iDigBio Georeferencing Workshop, NCEAS (with Dr. Katja Seltsmann) 2016
- Developed training materials and sample data for a QGIS training workshop supporting collections managers
- Discovery Seminar Co-Instructor:** Department of Computer Science UCSB (with Dr. Chandra Krintz) 2015
- Introduced computer science students to GIS, designed learning activities, and facilitated guest lectures
- Teaching Assistant:** Department of Geography, UCSB 2014 - 2018
- Led sections for *Introduction to Geographic Information Systems*; *People, Place, and Environment*; *Analytical and Computer Cartography*; and *Geography of Surfing*, receiving excellent student evaluations for all courses

## Academic Service

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- Earth Science Information Partnership (ESIP) Community Fellow:** University of Michigan 2020 - present
- Organizing monthly teleconferences and biannual meeting sessions for the data discovery cluster
- Reviewer:** Earth's Future, JGSA, JOSIS, IJDE, Semantic Web Journal, ASIS&T 2018 - present
- Reviewing manuscripts and conference submissions on data science and Semantic Web technology topics
- Faculty Search Committee Graduate Representative:** Environmental Data Science & GIS, UCSB 2017, 2019
- Reviewed candidate materials, supported invited candidate visits, and facilitated the graduate student vote
- Meeting Co-organizer:** Spatial Discovery Expert Meetings, Center for Spatial Studies 2015, 2017, 2019
- Co-organized agenda and session topics on spatial search at the intersection of libraries and GIS services

**Graduate Student Association Representative:** Associated Student Government, UCSB 2018 - 2019

- Served as an elected department representative and campus liaison for Geography graduate students

**Workshop Co-organizer:** Core Computations on Spatial Information at GIScience in Melbourne, Australia 2018

- Reviewed invited papers and talks, contributed to agenda, and moderated discussion of a half-day workshop

**Graduate Student Representative:** Associated Students Campus Bicycle Committee, UCSB 2017 - 2018

- Inventoried bicycle infrastructure and deployed an interactive web application for mapping campus projects

**GIS Help Desk Consultant:** Center for Spatial Studies, UCSB 2017

- Provided GIS research services and consultations for students, staff, and faculty from campus research units

## Skills

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### Certifications

Certificate in College and University Teaching (CCUT) 2020

Summer Teaching Institute for Associates (STIA) 2017

### Computing

High Performance Computing

Project and code management (Git, GitHub, Gitlab; Conda; Markdown)

Machine learning (Python - Pandas, Scikit-learn, spaCy, Gensim; R - Tidyverse; Java - MALLET)

Data visualization (Java - Processing; Python - Dash Plotly; Javascript; HTML/CSS)

Spatial analysis (ArcGIS, QGIS)

Knowledge graphs (Protégé, SPARQL)

### Languages

English (native language), Spanish (proficient - reading, writing)

## Affiliations

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Association of American Geographers (AAG)

Association for Information Science and Technology (ASIS&T)

Association for Computing Machinery (ACM)

Earth Science Information Partners (ESIP)

Research Data Alliance (RDA)