

# Sara Lafia, Ph.D.

Research Fellow, ICPSR

University of Michigan, Ann Arbor, MI

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## Education

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**Ph.D. in Geography, UC Santa Barbara, CA**

2020

*Dissertation:* Designing for Serendipity: Research Data Curation in Topic Spaces

*Committee:* Werner Kuhn (Chair), James Frew, Kelly Caylor, and Daniel Montello

*Emphasis:* Information Technology and Society

*Certificate:* College and University Teaching (CCUT)

**B.S. in Urban Planning, Geography - GIS, Cal Poly Pomona, CA**

2014

Kellogg Honors College (*Valedictorian*)

## Appointments

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**Visiting Scholar**

2022 - present

Center for Spatial Data Science, University of Chicago, Chicago, IL

**Research Fellow**

2020 - present

ICPSR, University of Michigan, Ann Arbor, MI

**Engineering Intern**

2017

Esri Research & Development, Arlington, VA

**Informatics Intern**

2016

National Center for Ecological Analysis and Synthesis, Santa Barbara, CA

**Graduate Student Researcher**

2014 - 2020

Center for Spatial Studies, UC Santa Barbara, CA

## Publications

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### Peer Reviewed Articles

Lafia, S., Million, A. J., & Hemphill, L. (accepted). Direct, Orienting, and Scenic Paths: How Users Navigate Search in a Research Data Archive. *Proceedings of the ACM on Human Information Interaction and Retrieval*.

Lafia, S., Fan, L., & Hemphill, L. (2022). [A Natural Language Processing Pipeline for Detecting Informal Data References in Academic Literature](#). *Proceedings of the Association for Information Science and Technology (ASIS&T)*.

- Lafia, S.**, Fan, L., Thomer, A., & Hemphill, L. (2022). [Subdivisions and Crossroads: Identifying Hidden Community Structures in a Data Archive's Citation Network](#). *Quantitative Science Studies (QSS)*. doi: 10.1162/qss\_a\_00209
- Thomer, A., Akmon, D., York, J., Tyler, A.R.B., Polasek, F., **Lafia, S.**, Hemphill, L., & Yakei, E. (2022). [The craft and coordination of data curation: complicating “workflow” views of data science](#). *Proceedings of the ACM on Human Computer Interaction (PACM HCI)*. doi: 10.1145/3555139.
- Hemphill, L., Pienta, A., **Lafia, S.**, Akmon, D., & Bleckley, D. (2022). [How do properties of data, their curation, and their funding relate to reuse?](#). *Journal of the Association for Information Science and Technology (JASIST)*. doi: 110.1002/asi.24646
- Lafia, S.**, Thomer, A., Bleckley, D., Akmon, D., & Hemphill, L. (2021). [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). doi: 10.1109/eScience51609.2021.00025
- Lafia, S.**, Kuhn, W., Caylor, K., & Hemphill, L. (2021). [Mapping Research Topics at Multiple Levels of Detail](#). *Patterns*, 100210. doi: 10.1016/j.patter.2021.100210
- Lafia, S.**, Zhu, R., Regalia, B., & Kuhn, W. (2021). [Reimagining GIS Instruction through Concept-Based Learning](#). In *AGILE: GIScience Series (AGILE 2021)*, 2, 1-7. doi: 10.5194/agile-giss-2-6-2021
- 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. doi: 10.4230/LIPIcs.GIScience.2021.I.5
- 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. doi: 10.4230/LIPIcs.COSIT.2019.18
- 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. doi: 10.4230/LIPIcs.GISCIENCE.2018.9
- Lafia, S.**, & Kuhn, W. (2018). [Spatial Discovery of Linked Research Datasets and Documents at a Spatially Enabled Research Library](#). *Journal of Map & Geography Libraries (JMGL)*, 14(1), 21-39. doi: 10.1080/15420353.2018.1478923
- 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 (GIScience 2016)*, pp. 259-274. Springer, Cham. doi: 10.1007/978-3-319-45738-3\_17
- Lafia, S.**, Jablonski, J., Kuhn, W., Cooley, S., & Medrano, F. A. (2016). [Spatial Discovery and the Research Library](#). *Transactions in GIS (TGIS)*, 20(3), 399-412. doi: 10.1111/tgis.12235  
doi:10.1007/978-3-319-45738-3\_17

### **Conferences and Workshops**

- Fan, L., **Lafia, S.**, Bleckley, D., Moss, E., Thomer, A., Hemphill, L. (2022). [Librarian-in-the-Loop: A Natural Language Processing Paradigm for Detecting Informal Mentions of Research Data in Academic Literature](#). *Workshop on Investigating Data Work Across Domains: New Perspectives on the Work of Creating Data (CHI 2022)*.

- Lafia, S.**, Moss, E., Thomer, A. & Hemphill, L. (2021). [Detecting Informal Data Use in Literature](#). *The Future of Research Communications and e-Scholarship* (FORCE11). doi: 10.5281/zenodo.5748382
- Lafia, S.**, Thomer, A., Bleckley, D., Akmon, D., and Hemphill, L. (2021). [Analyzing Data Curation Work at a Social Science Archive with Machine Learning](#). *WebSci'21 Workshop on Research Infrastructure for Web Science* (RI4WebSci).
- Akmon, D., **Lafia, S.**, Thomer, A., Hemphill, L., Pienta, A., Yakel, E., Bleckley, D., and Tyler, A.R.B. (2020). [Measuring and improving the efficacy of curation activities in data archives](#). *Research Data Alliance* (RDA 2020).
- 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 *Workshop on Semantic Data on the Web* (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).
- 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.
- 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* (RIO), 4, e32449.
- Lafia, S.** & Kuhn, W. (2017). [Opening Access to University Scholarship through Spatial Discovery](#). *ArcUser* (ESRI).

## **Datasets and Code**

- Lafia, S.** (2022). [ICPSR Bibliography Citation Network](#). Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2022-07-05. doi: 10.3886/E174361V1
- Lafia, S.** (2022). [ICPSR Dataset References: v1.0.0 \(v1.0.0\)](#). Zenodo. doi: 10.5281/zenodo.6798661

## **Presentations**

### **Invited Talks**

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|--|------------------------------|------|
| "The Power and Perils of Spatial Metaphors: Storytelling and Decision-making with Maps." | UMD iSchool                  | 2022 |
| " <a href="#">Computational Perspectives on Curating Data for Discovery and Reuse</a> ." | University of Pittsburgh SCI | 2022 |

<a href="#">“Measuring the Impacts of Curatorial Actions on Research Data Reuse.”</a>	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**

<a href="#">“Surfacing Specimen Citations for Natural History Collections.”</a>	AGU Annual Meeting: Chicago, IL	2022
“What Difference Does Curation Make?”	UC Santa Barbara Research Data Community: Online	2022
<a href="#">“From Dataset Detection to Instructional Resources.”</a>	ICPSR Biennial Meeting: Online	2021
<a href="#">“Analyzing Data Curation Work at a Social Science Archive with Machine Learning.”</a>	RI4WebSci: Online	2021
<a href="#">“Designing for Serendipity: Research Data Curation in Topic Spaces.”</a>	Dissertation Public Defense: UCSB	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.”	Western Association of Map Librarians: Stanford, CA	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="#">“Detecting Specimen Citations in Scientific Literature.”</a>	ESIP Summer Meeting: Pittsburgh, PA.	2022
“Relating Data Reuse to Curation Decisions and Funding Models.”	RDAP Summit: Online.	2022
<a href="#">“Detecting Informal Data Use in Literature.”</a>	FORCE11: Online	2021
<a href="#">“Detecting Informal Indicators of Research Data Reuse in Scientific Publications.”</a>	Text as Data: Online	2021
“How Does Data Curation Impact Discovery?”	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 Symposium: Online	2020
“Mapping Research Topics at Multiple Levels of Detail.” AIDR Symposium: Online	2020
“Computing with Core Concepts of Spatial Information.” COSIT: Santa Fe, New Mexico	2015

## 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.	

## Awards and Competitions

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<a href="#">ESIP Community Fellow</a> : Earth Science Information Partners (ESIP), Discovery Cluster	2020 - present
<a href="#">Kaggle Competitions Contributor</a> : Top 45% in Coleridge Initiative - Show US the Data	2021
<a href="#">Best Paper of the Year Award</a> : Journal of Map & Geography Libraries, Volume 14	2020
<a href="#">Excellence in Teaching Award</a> : Department of Geography, UC Santa Barbara	2019
<a href="#">Mellichamp Ph.D. Research Fellowship</a> : 21st Century Global Dynamics, UC Santa Barbara	2019
<a href="#">Womxn/Hacks Hackathon Winner (Best Use of Google Cloud Platform)</a> : UC Santa Barbara	2019
<a href="#">SAP + Esri Spatial Hackathon Finalist (Geo-machine learning)</a> : Esri DevSummit	2018
<a href="#">Robert Raskin Scholarship</a> : Earth Science Information Partners (ESIP)	2018
<a href="#">Jack &amp; Laura Dangermond Graduate Fellowship</a> : Department of Geography, UC Santa Barbara	2017 - 2018
<a href="#">Greater Research Opportunities (GRO) Fellowship</a> : U.S. Environmental Protection Agency	2012 - 2014
<a href="#">Prete Environmental Education Fellowship</a> : Lyle Center for Regenerative Studies	2012 - 2013

## Teaching and Mentorship

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<b>Lecturer</b> : School of Information, University of Michigan	2022 - present
<ul style="list-style-type: none"> <li>Co-instructing two fully remote, intensive graduate-level <i>Information Visualization</i> courses with 100 students</li> </ul>	

**Graduate Research Mentor:** School of Information, University of Michigan 2021 - present

- Supervising two Information graduate students (a Master's study developing a Natural Language Processing model to detect data citations in articles and a PhD study analyzing a research data citation network)

**Undergraduate Research Mentor:** Center for Spatial Studies, UCSB 2015, 2017, 2019

- Supervised three Computer Science and Geography undergraduate students (a web map usability survey, a research publication visualization, and a spatial data ingest workflow with university 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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**Institute for Social Research CoderSpaces Co-host:** University of Michigan 2021 - present

- Providing weekly help desk consultations for university researchers with computational questions

**Earth Science Information Partnership (ESIP) Community Fellow:** University of Michigan 2020 - present

- Organizing teleconference sessions for data discovery and semantic technology community working groups

**Reviewer:** JASIST, 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

**Antiracism Working Group Member:** Postdoctoral Association, University of Michigan 2020 - 2021

- Facilitating virtual discussion events and developing educational web resources for postdocs

**Faculty Search Committee Representative:** Environmental Data Science & GIS, UCSB 2017, 2019

- Reviewed candidate materials, supported invited candidate visits, and facilitated graduate student voting

**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