

# Sara Lafia, Ph.D.

Research Methodologist

NORC at the University of Chicago, Chicago, IL

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## Education

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

9/2014 - 7/2020

*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

9/2009 - 6/2014

Kellogg Honors College (Valedictorian)

## Appointments

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### Research Methodologist III

8/2023 - present

NORC at the University of Chicago, Chicago, IL

### Postdoctoral Research Fellow

8/2020 - 7/2023

ICPSR, University of Michigan, Ann Arbor, MI

### Engineering Intern

6/2017 - 8/2017

Esri Research & Development, Arlington, VA

### Informatics Intern

6/2016 - 9/2016

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

### Graduate Student Researcher

9/2014 - 7/2020

Center for Spatial Studies, UC Santa Barbara, CA

## Publications

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### Peer Reviewed Articles

Fan, L., **Lafia, S.**, Li, L., Fangyuan, Y., & Hemphill, L. (accepted). DataChat: Prototyping a Conversational Agent for Dataset Search and Visualization. In *Proceedings of the Association for Information Science and Technology (ASIS&T)*.

Fan, L., **Lafia, S.**, Wofford, M., Thomer, A., Yakel, E., & Hemphill, L. (accepted). Mining Semantic Relations in Data References to Understand the Roles of Research Data in Academic Literature. In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL)*.

- Lafia, S.**, Bleckley, D.A., & Alexander, J.T. (2023). [Digitizing and parsing semi-structured historical administrative documents from the GI Bill mortgage guarantee program](#). *Journal of Documentation*. doi: 10.1108/JD-03-2023-0055
- Lafia, S.**, Thomer, A., Moss, E., Bleckley, D., and Hemphill, L. (2023). [How and Why do Researchers Reference Data? A Study of Rhetorical Features and Functions of Data References in Academic Articles](#). *Data Science Journal* (DSJ). doi: 10.5334/dsj-2023-010
- Lafia, S.**, Million, A. J., & Hemphill, L. (2023). [Direct, Orienting, and Scenic Paths: How Users Navigate Search in a Research Data Archive](#). In *Proceedings of the ACM on Human Information Interaction and Retrieval* (CHIIR). doi: 10.1145/3576840.3578275
- 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
- Lafia, S.**, Fan, L., & Hemphill, L. (2022). [A Natural Language Processing Pipeline for Detecting Informal Data References in Academic Literature](#). In *Proceedings of the Association for Information Science and Technology* (ASIS&T). doi: 10.1002/pr2.614
- Thomer, A., Akmon, D., York, J., Tyler, A.R.B., Polasek, F., **Lafia, S.**, Hemphill, L., & Yakel, E. (2022). [The craft and coordination of data curation: complicating “workflow” views of data science](#). In *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), 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). 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). 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). 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)*, 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)*.

**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)*.

**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)*. 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](#). *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., Fan, L., Bleckley, D., Moss, E., Thomer, A., and Hemphill, L. (2023). [Measuring the Impact of Curation Actions: ICPSR Administrative Data, Global, 1984-2021 \(ICPSR 38845\)](#). doi: 10.3886/ICPSR38845

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**

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### **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**

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|---|-----------------------------------|------|
| " <a href="#">A NLP Pipeline for Detecting Informal Data References in Academic Literature</a> ."   | ASIS&T: Pittsburgh, PA            | 2022 |
| " <a href="#">Digitizing and Structuring Historical Records with Deep Learning</a> ."               | SIG AI at ASIS&T: Pittsburgh, PA  | 2022 |
| " <a href="#">Surfacing Specimen Citations for Natural History Collections</a> ."                   | AGU Annual Meeting: Chicago, IL   | 2022 |
| " <a href="#">Expanding the ICPSR Bibliography of Data-related Literature</a> ."                    | ICPSR Data Fair: 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
" <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 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 - 2022
<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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**Lecturer**: School of Information, University of Michigan 2022 - 2023

- Co-instructed two remote, graduate-level data science courses in *Information Visualization* with 70+ students

**Graduate Research Mentor**: School of Information, University of Michigan 2021 - 2023

- 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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**EarthArXiv Advisory Council and Moderation Crew**: Online 2023 - present

- Monthly team review of earth science submissions for compliance with preprint server's moderation policy

- 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
- Institute for Social Research CoderSpaces Co-host:** University of Michigan 2021 - 2022
- Providing weekly help desk consultations for university researchers with computational questions
- Earth Science Information Partnership (ESIP) Community Fellow:** University of Michigan 2020 - 2022
- Organizing teleconference sessions for data discovery and semantic technology community working groups
- 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