

Sara Lafia, Ph.D.

Research Fellow, ICPSR

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Education

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

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

Peer Reviewed Articles

Lafia, S., Thomer, A., Moss, E., Bleckley, D., and Hemphill, L. (accepted). How and Why do Researchers Reference Data? A Study of Rhetorical Features and Functions of Data References in Academic Articles. *Data Science Journal*. arXiv:2302.08477

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.**, Million, A. J., & Hemphill, L. (2023). [Direct, Orienting, and Scenic Paths: How Users Navigate Search in a Research Data Archive](#). *Proceedings of the ACM on Human Information Interaction and Retrieval*. 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](#). *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](#). *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

Presentations

Invited Talks

"The Power and Perils of Spatial Metaphors: Storytelling and Decision-making with Maps."	UMD iSchool	2022
"Computational Perspectives on Curating Data for Discovery and Reuse."	University of Pittsburgh SCI	2022
"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

"A NLP Pipeline for Detecting Informal Data References in Academic Literature."	ASIS&T: Pittsburgh, PA	2022
"Digitizing and Structuring Historical Records with Deep Learning."	SIG AI at ASIS&T: Pittsburgh, PA	2022
"Surfacing Specimen Citations for Natural History Collections."	AGU Annual Meeting: Chicago, IL	2022
"Expanding the ICPSR Bibliography of Data-related Literature."	ICPSR Data Fair: Online	2022
"From Dataset Detection to Instructional Resources."	ICPSR Biennial Meeting: Online	2021
"Analyzing Data Curation Work at a Social Science Archive with Machine Learning."	RI4WebSci: Online	2021
"Designing for Serendipity: Research Data Curation in Topic Spaces."	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

" Detecting Specimen Citations in Scientific Literature ." ESIP Summer Meeting: Pittsburgh, PA.	2022
"Relating Data Reuse to Curation Decisions and Funding Models." RDAP Summit: Online.	2022
" Detecting Informal Data Use in Literature ." FORCE11: Online	2021
" Detecting Informal Indicators of Research Data Reuse in Scientific Publications ." Text as Data: Online	2021
" How Does Data Curation Impact Discovery? " ESIP Winter Meeting: Online	2021
" Measuring and Improving the Efficacy of Curation Activities in Data Archives ." RDA 16th Plenary: Online	2020
" Supporting Interdisciplinary Research Reviews with Multi-Level Topic Maps ." 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

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

Awards and Competitions

ESIP Community Fellow : Earth Science Information Partners (ESIP), Discovery Cluster	2020 - present
Kaggle Competitions Contributor : Top 45% in Coleridge Initiative - Show US the Data	2021
Best Paper of the Year Award : Journal of Map & Geography Libraries, Volume 14	2020
Excellence in Teaching Award : Department of Geography, UC Santa Barbara	2019
Mellichamp Ph.D. Research Fellowship : 21st Century Global Dynamics, UC Santa Barbara	2019
Womxn/Hacks Hackathon Winner (Best Use of Google Cloud Platform) : UC Santa Barbara	2019
SAP + Esri Spatial Hackathon Finalist (Geo-machine learning) : Esri DevSummit	2018
Robert Raskin Scholarship : Earth Science Information Partners (ESIP)	2018
Jack & Laura Dangermond Graduate Fellowship : 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

Teaching and Mentorship

Lecturer: School of Information, University of Michigan 2022 - present

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

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 Seltmann) 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

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