

Sara Lafia, Ph.D.

Research Fellow, ICPSR

University of Michigan, Ann Arbor, MI

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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

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., Krantz, 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 |
| "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

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| "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

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| “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

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| 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

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| 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 |

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