

# Caglar Koylu

Associate Professor

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President-Elect, The Cartography and Geographic Information Society, web: [www.cartogis.org](http://www.cartogis.org)

## EDUCATION

2014 **Ph.D., Geography**

University of South Carolina, Columbia, SC

Dissertation: Understanding Geo-Social Network Patterns: Computation, Visualization, and Usability (Advisor: Diansheng Guo)

2008 **M.S., Geodetic and Geographic Information Technologies (GGIT)**

Middle East Technical University (METU), Ankara, Turkey

2004 **B.S., City and Regional Planning**, METU, Ankara, Turkey

## EMPLOYMENT

2023 - present **Associate Professor**

Department of Geographical and Sustainability Sciences, University of Iowa

2015 - 2023 **Assistant Professor**

Department of Geographical and Sustainability Sciences, University of Iowa

2015 (Jan-June) **Post-Doctoral Research Associate**

Department of Geography, University of South Carolina

2008 – 2014 **Research Assistant, Instructor, Teaching Assistant**

Department of Geography, University of South Carolina

2005 – 2008 **Database Specialist / Development Team Leader**

INTA Spaceturk (Ground Station Owner of Satellite IKONOS), Ankara, Turkey

## TEACHING

2015 - present **University of Iowa, Iowa City, IA**

Foundations of Geographic Information Science, Geospatial Programming,  
Geographic Visualization, Geographic Databases, Spatial Analysis and Modeling

2012 – 2013 **University of South Carolina, Columbia, SC**

Introduction to Geographic Information Systems (GIS) (Instructor)

Advanced Geographic Information Systems (GIS) (Teaching Assistant)

## **JOURNAL PUBLICATIONS (student and/or advisee)**

- **Koylu, C., Torkashvand, M., & Kasakoff, A.** (In Preparation). Changing migration within the United States during the settlement process: the role of family size, *Family History*.
- **Torkashvand, M., Koylu, C., & Kasakoff, A. B.** (In Preparation) "Spatio-temporal Geocoding of Crowd-sourced Family Trees." Special Issue on Extracting and Analysing Geographic Information from Natural Language Texts, *International Journal of Geographical Information Science*.
- **Koylu, C., Torkashvand, M., & Kasakoff, A.** (In Review). US migration from 1850 to 1920: A comparison of family trees with linked census data, *Historical Methods*.
- **Kwon, H., Koylu, C.** (In Review). The unequal impact of COVID-19 on human mobility: The role of social vulnerability on human mobility patterns across geographies, *Annals of the American Association of Geographers*.
- McKernan, S.C., **Koylu, C.** & **Tian, G.** (In Review). Geospatial clustering of general dentists' use of sealants in children with elevated caries risk, *Journal of Public Health Dentistry*.
- 2024 **Koylu, C., & Kasakoff, A. B.** (Accepted). Ethical Challenges in Analyzing and Mapping Demographic Changes and Migration with Population-Scale Family Trees, *Cartographic Perspectives*.
- 2024 Nelson, T., Frazier, A.E., Kedron, P., Dodge, S., Zhao, B., Goodchild, M., Murray, A., Battersby, S., Bennett, L., Blanford, J.I., Cabrera-Arnau, C., Claramunt, C., Franklin, R., Holler, J., **Koylu, C.**, Lee, A., Manson, S., McKenzie, G., Miller, H., Oshan, T., Rey, S., Rowe, F., Şalap-Ayça, S., Shook, E., Spielman, S., Xu, W., Wilson, J. (2024), A Research Agenda for GIScience in a Time of Disruptions, *International Journal of Geographical Information Science*, DOI: <https://doi.org/10.1080/13658816.2024.2405191>
- 2024 Wo, J., **Rogers, E.**, Berg, M.T., & **Koylu, C.** (2024) Recreating human mobility patterns through the lens of social media: Using Twitter to model the social ecology of crime, *Crime and Delinquency*, 70(8), 1943-1970, DOI: <https://doi.org/10.1177/00111287221106946>
- 2023 Andris, C., **Koylu, C.**, & Porter, M. A. (2023). Human-Network Regions as Effective Geographic Units for Disease Mitigation, *EPJ Data Sci.* 12, 60, DOI: <https://doi.org/10.1140/epjds/s13688-023-00426-1>
- 2023 **Kwon, H., Koylu, C.** (2023). Revealing associations between spatial time series trends of COVID-19 incidence and human mobility: An analysis of bidirectionality and spatiotemporal heterogeneity, *International Journal of Health Geographics*, DOI: <https://doi.org/10.1186/s12942-023-00357-0>
- 2023 **Kwon, H., Koylu, C.** & Dietrich, B. (2023). Natural language processing meets spatial time series analysis and geovisualization: Identifying and visualizing spatio-topical sentiment trends on Twitter, *Cartography and Geographic Information Science*, DOI: <https://doi.org/10.1080/15230406.2023.2264751>

- 2023 Tang, Z., Carrel, M., **Koylu, C.** & Kitchen, A. (2023). How human ecology landscapes shape the circulation of H5N1 avian influenza: A case study in Indonesia, *One Health*, 100537. DOI: <https://doi.org/10.1016/j.onehlt.2023.100537>
- 2023 **Koylu, C.**, Tian, G. & Windsor, M. (2023) FlowMapper.org: A web-based framework for designing origin-destination flow maps. *Journal of Maps*. 19:1. DOI: <https://doi.org/10.1080/17445647.2021.1996479>
- 2022 **Koylu, C.** & Kasakoff, A. (2022). Measuring and mapping long-term changes in migration flows using population-scale family trees. *Cartography and Geographic Information Science*. 46(1), 57-71. DOI: <https://doi.org/10.1080/15230406.2021.2011419> (Featured on the cover)
- 2021 **Koylu, C.**, Guo, D., Huang, Y., Kasakoff, A. B., & Grieve, J. (2021) Connecting family trees to construct a population-scale and longitudinal geo-social network for the U.S., *International Journal of Geographical Information Science*. 35:12, 2380-2423, DOI: <https://doi.org/10.1080/13658816.2020.1821885>
- 2019 Zhu, X., Guo, D., **Koylu, C.** & Chen, C. (2019) Density-Based Multi-scale Flow Mapping and Generalization, *Computers, Environment and Urban Systems*, 77, 101359. DOI: <https://doi.org/10.1016/j.compenvurbsys.2019.101359>
- 2019 **Koylu, C.** (2019) Modeling and visualizing semantic and spatio-temporal evolution of topics in interpersonal communication on Twitter, *International Journal of Geographical Information Science*, 33:4, 805-832, DOI: <https://doi.org/10.1080/13658816.2018.1458987>
- 2019 Xu, H., Demir, I. **Koylu, C.** & Muste, M. (2019) A web-based geovisual analytics platform for identifying potential contributors to culvert sedimentation, *Science of the Total Environment*, 692, 806-817, DOI: <https://doi.org/10.1016/j.scitotenv.2019.07.157>
- 2019 **Koylu, C.**, Zhao, C. & Shao, W. (2019). Deep neural networks and kernel density estimation for detecting human activity patterns from geo-tagged images: A case study of birdwatching on Flickr, *ISPRS International Journal of Geo-Information*, 8(1), 45. DOI: <https://doi.org/10.3390/ijgi8010045>
- 2019 Sit, M., **Koylu, C.** & Demir I. (2019). Identifying disaster related tweets and their semantic, spatial and temporal context using deep learning, natural language processing and spatial analysis: A case study of Hurricane Irma, *International Journal of Digital Earth*. 12:11, 1205-1229. DOI: <https://doi.org/10.1080/17538947.2018.1563219>
- 2019 **Koylu, C.**, Larson, R., Dietrich, B. & Lee, K.P. (2019) CarSenToGram: Geovisual text analytics for exploring spatio-temporal variation in public discourse on Twitter, *Cartography and Geographic Information Science*, 46:1, 57-71, DOI: <https://doi.org/10.1080/15230406.2018.1510343> (Featured on the cover)
- 2018 **Koylu, C.**, Delil, S., Guo, D. & Celik, R.N. (2018) Analysis of Big Patient Mobility Data for Identifying Medical Regions, and Spatio-temporal Characteristics and Care Needs of Patients on the Move, *International Journal of Health Geographics*, 17(1), 32, DOI: <https://doi.org/10.1186/s12942-018-0152-x>

- 2017 **Koylu, C.** & Guo, D. (2017). Design and evaluation of line symbolizations for origin–destination flow maps. *Information Visualization*, 16(4), 309-331. DOI: <https://doi.org/10.1177/1473871616681375> **(Featured on the cover)**
- 2014 **Koylu, C.,** Guo, D., Kasakoff, A., & Adams, J. W. (2014). Mapping family connectedness across space and time. *Cartography and Geographic Information Science*, 41(1), 14-26 DOI: <https://doi.org/10.1080/15230406.2013.865303> **(Featured on the cover)**
- 2013 **Koylu, C.** & Guo, D. (2013). Smoothing locational measures in spatial interaction networks. *Computers, Environment and Urban Systems*, 41(0), 12-25. DOI: <https://dx.doi.org/10.1016/j.compenvurbsys.2013.03.001>

### **BOOK CHAPTERS (student and/or advisee)**

- 2024 Koylu, C., & Kasakoff, A. B. (2024). Population-Scale Kinship Networks. (eds D. Richardson, N. Castree, M.F. Goodchild, A. Kobayashi, W. Liu and R.A. Marston) *International Encyclopedia of Geography* (pp. 1-12). DOI: <https://doi.org/10.1002/9781118786352.wbieg2193>
- 2020 Sit, M., **Koylu, C.** & Demir I. (2020). Identifying disaster related tweets and their semantic, spatial and temporal context using deep learning, natural language processing and spatial analysis: A case study of Hurricane Irma, in *Social Sensing and Big Data Computing for Disaster Management*, eds. Li, Z., Huang, Q., & Emrich, C. T. Routledge Publishing. ISBN: 9780367617653
- 2018 **Koylu, C.** (2018). Uncovering geo-social semantics from the Twitter mention network: An integrated approach using spatial network smoothing and topic modeling in “*Human Dynamics Research in Smart and Connected Communities*”, eds. S. Shaw & D. Sui. Springer, Cham. DOI: [https://doi.org/10.1007/978-3-319-73247-3\\_9](https://doi.org/10.1007/978-3-319-73247-3_9)
- 2018 **Koylu, C.** (2018). Discovering Multi-Scale Community Structures from the Interpersonal Communication Network on Twitter in *Agent-Based Models and Complexity Science in the Age of Geospatial Big Data*, eds. L. Perez, E.-K. Kim, & R. Sengupta. Cham: Springer International Publishing, Switzerland, pp. 87-102. DOI: [https://doi.org/10.1007/978-3-319-65993-0\\_7](https://doi.org/10.1007/978-3-319-65993-0_7)

### **PEER REVIEWED CONFERENCE PUBLICATIONS (student and/or advisee)**

- 2024 Cai, J., **Koylu, C.,** Tate, E. Cwiertyny, D. (2024). Social Vulnerability and Health Exposure to Well Nitrate Contamination in Iowa: An Interpretable Machine Learning Approach, *CaGIS+UCGIS Symposium 2024*, Columbus, OH.
- 2024 Torkashvand, M., & **Koylu, C.** (2024). The unequal impact of COVID-19: An analysis of mobility behaviors of socially vulnerable populations, *CaGIS+UCGIS Symposium 2024*, Columbus, OH.

- 2023 **Koylu, C., Torkashvand, M.** (2023). The effect of disruptive events on spatial and social interactions: An assessment of structural change in pre-and post-COVID-19 pandemic networks, *Proceedings of GIScience 2023 Workshop on Disruptive Movement Analysis (DMA '23)*, September 12, 2023, Leeds, UK.
- 2022 **Koylu, C., Torkashvand, M., Kwon, H., & Kasakoff, A.** (2022). Mapping migration regions and their evolution from population-scale family trees: What can they tell us about cultural identities and regions today? *The 6th ACM SIGSPATIAL Workshop on Geospatial Humanities (GeoHumanities '22)*, November 1, 2022, Seattle, WA. DOI: <https://doi.org/10.1145/3557919.3565814>
- 2022 **Kwon, H. & **Koylu, C.**** (2022). The unequal impact of COVID-19: An analysis of mobility behaviors of socially vulnerable populations, *AutoCarto 2022 - The 24th International Research Symposium on Cartography and GIScience*, November 3, 2022, Redlands, CA.
- 2021 **Kwon, H., Hom, K., Rifkin, M., Tian B. & **Koylu, C.**** (2021). Exploring the spatiotemporal heterogeneity in the relationship between human mobility and COVID-19 prevalence using dynamic time warping. *Proceedings of GIScience 2021 Workshop on Advancing Movement Data Science (AMD' 2021)*, September 27, 2021, World Wide Web.
- 2020 **Koylu, C. & Kasakoff, A.** (2020). Mapping Temporal Trends of Parent-Child Migration from Population-Scale Family Trees, *AutoCarto 2020 - The 23rd International Research Symposium on Cartography and GIScience*, November 18, 2020, World Wide Web.
- 2020 **Zhang, B. & **Koylu, C.**** (2020). Identifying Vulnerabilities in Multilayer Spatial Networks: A Case Study of Food Flows in The United States, *AutoCarto 2020 - The 23rd International Research Symposium on Cartography and GIScience*, November 18, 2020, World Wide Web.
- 2019 Kasakoff, A. B., **Koylu, C.**, **Huang, Y.**, & Guo, D.(2019) "Changes in kin proximity in the 19th Century United States" *International Seminar on Kinship and Reproduction in Past Societies*, August 22, 2019, Minneapolis.
- 2018 **Koylu, C.**, Dietrich, B. & **Larson, R.** (2018). Geovisual text analytics for exploring public discourse on Twitter: A case study of immigration tweets before and after the January 27, 2017 Travel Ban, *AutoCarto/UCGIS International Research Symposium*, May 24, 2018 Madison, Wisconsin.
- 2016 **Koylu, C.** (2016). Extracting and Visualizing Geo-Social Semantics from the User Mention Network on Twitter. *Proceedings of GIScience 2016 Workshop on Rethinking the ABCs: Agent-Based Models and Complexity Science in the age of Big Data, CyberGIS, and Sensor Networks*, Montreal, Canada, September 27, 2016.
- 2015 Guo, D., Kasakoff, A. B., **Koylu, C.**, Huang, Y., & Grieve, J. (2015) "Historical Population Informatics: Comparing Big Data of Family Trees and the U.S. 1880 Census for Migration Analysis" *Population Informatics for Big Data (PopInfo'15) in conjunction with the 21st ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, August 10, 2015, Sydney.

- 2012 **Koylu, C.** Guo, D., and Kasakoff, A. “Mapping social relationships across space and time”, *AutoCarto International Research Symposium*, September 17, 2012 Columbus, Ohio.

### **EXTERNAL GRANTS AWARDED**

- 2022 Principal Investigator, *HNDS-R: Population-scale Kinship Networks and Migration*, National Science Foundation (NSF), with CO-PI Evan Roberts, \$477,734, 09/01/2022-08/31/2025.
- 2022 Co-Principal Investigator, *Development of Small Area Interactive Risk Maps for Cancer Control Efforts*, National Institutes of Health (NIH), with PI Jacob Oleson, Co-PIs Grant Brown, Mary Charlton, Sarah Nash, \$1,188,804, 06/15/2022-05/31/2025.
- 2019 Co-Principal Investigator, *Project Haystack*, GoDaddy Inc., with PI Caroline Tolbert, Political Science, University of Iowa, \$234,491, 8/1/18 – 8/1/20.

### **EXTERNAL GRANTS PENDING**

- 2023 Co-Investigator, *Impact of Passive and Active Social Media Engagement on Adolescent Mental Health*, National Institutes of Health (NIH), with PI Molly A. Nikolas, \$2,949,659, 01/01/24 – 12/31/29.

### **INTERNAL GRANTS AND FUNDING**

- 2024 Principal Investigator, *Impact of Environmental Contaminants on Cancer Rates: An Iowa Perspective*, CHEEC Seed Grant Program, The University of Iowa, \$25,000, 8/1/2024 – 6/30/2025.
- 2023 Co-Principal Investigator, *A digital twin framework for civic and environmental analysis of railways*, Community Engaged Scholars Awards, Seeding Excellence Initiative Pilot Research Grant from The Provost Office, The University of Iowa with Ibrahim Demir, Civil and Environmental Engineering, \$25,000, 8/1/2023 – 6/1/2024.
- 2023 Investigator, *Revisions for <https://flowmapper.org> software, a research and educational tool for analyzing geographic flow data*, Strategic Priorities Award, The Provost Office, The University of Iowa, \$5,000, 6/1/2023 – 8/1/2023.
- 2019 Investigator, *Distinguishing high-crime neighborhoods from low-crime neighborhoods: A socio-spatial examination integrating a diversity of social and ecological factors*, Public Policy Center, University of Iowa, with James Wo, Assistant Professor of Sociology and Mark Berg, Associate Professor of Sociology, \$3,000, 7/22/2019 – 8/19/2019.
- 2018 Investigator, *The People’s Weather Map and Social Media: Iowans Talking about Weather Hazards*, Summer Research Collaboration, Digital Bridges for Humanistic Inquiry: A Grinnell College/ University of Iowa Partnership, Andrew W. Mellon Foundation, with Barbara Eckstein, Professor of English at the University of Iowa and Casey Oberlin, Assistant Professor of Sociology at the Grinnell College, \$10,000, 5/1/2018 – 12/1/2018.

2018 Investigator, *Distinguishing high-crime neighborhoods from low-crime neighborhoods: A spatial examination integrating a diversity of social and ecological factors*, Interdisciplinary Research Grant with James Wo, Assistant Professor of Sociology at the University of Iowa, Obermann Center for Advanced Studies, \$12,000, 7/15/2018 – 8/15/2018.

## **AWARDS**

- 2024 Best student paper award, Maryam Torkashvand, CaGIS+UCGIS Symposium, June 3, 2024, Columbus, OH.
- 2017 Honorable mention with Chang Zhao in Best Paper Competition 2017 International Symposium on Spatiotemporal Computing at Harvard, August 7-9 2017.
- 2015 Finalist in the 2015 AAG GIS Specialty Group (GISSG) Honors Competition for Student Papers in Geographic Information Science.
- 2014 Toxic Release Inventory Program (TRI) 2014 University Challenge Academic Partner (Primary researcher: Diansheng Guo).
- 2013 Finalist in the 2013 AAG Cartography Specialty Group Honors Competition for Student Papers.
- 2012 The second place in the 2012 AAG GIS Specialty Group (GISSG) Honors Competition for Student Papers in Geographic Information Science.
- 2011 The Paul E. Lovingood Award: Outstanding Graduate Student Paper, University of South Carolina, Department of Geography.

## **INVITED PRESENTATIONS**

- 2024 “Analysis of U.S. internal migration using population-scale family tree data, 1789-1930” at *Geography Colloquium, University of Connecticut*, March 28, 2024.
- 2023 “Giant Family Trees in Human Geography: Preliminary Results from US 1789 to 1930”, at *University College London, September 15, 2023*.
- 2023 “What Would a Giant Family Tree with 40 Million Relatives Mean for Social Science and Public Policy?”, at the *Research Development Seminar Series, the University of Iowa, Public Policy Center (PPC), March 23, 2023*.
- 2023 “Connecting family trees to understand the past, present and future of our society”, *Keynote Address, Junior Science & Humanities Symposium, The University of Iowa, February 6, 2023*.
- 2018 “Understanding complex patterns from big spatial interaction (flow) data: A computation-visualization framework”, at the *University of Chicago, Center for Spatial Data Science, October 23, 2018*.
- 2017 “Analysis of big longitudinal patient mobility data for evaluating the efficiency of a health care system”, at the *University of Iowa, Department of Biostatistics, October 9, 2017*.

- 2017 “Discovering complex patterns from social media data: Space-time, semantics, and network structures”, *at the University of Iowa, Center for Global and Regional Environmental Research, September 18, 2017.*
- 2016 “Information visualization, utility and usability”, *at the University of Iowa, Iowa Flood Center, December 2, 2016.*
- 2016 “Uncovering geo-semantics of interpersonal communication on Twitter”, *at the University of Iowa, Department of Computer Science, November 11, 2016.*
- 2016 “Geographic Information Science and its applications in public health”, *at the University of Iowa, College of Nursing, September 13, 2016.*
- 2015 “Understanding complex patterns from massive geographic mobility data: a network smoothing approach”, *at the University of Iowa, Department of Management Sciences, October 23, 2015.*
- 2015 “Understanding geo-social network patterns: computation, visualization and usability”, *at the University of Kansas, February 12, 2015.*
- 2015 “Understanding complex patterns from massive geographic mobility data: a network smoothing approach”, *at the University of Iowa, February 3, 2015.*
- 2015 “Understanding geo-social network patterns: computation, visualization and usability”, *at West Virginia University, January 26, 2015.*
- 2015 “Understanding geo-social network patterns: computation, visualization and usability”, *at the University of Colorado, Boulder, January 22, 2015.*
- 2015 “Understanding locational patterns in large geo-social networks: A network smoothing approach”, *at the University of Wisconsin, La Crosse, January 8, 2015.*
- 2014 “Understanding geo-social network patterns: computation, visualization and usability”, *at Appalachian State University, North Carolina, December 8, 2014.*
- 2013 “Analyzing and understanding large and complex spatial interaction data using a graph-theoretic approach”, *at Oak Ridge National Laboratory (ORNL), April 23, 2013.*

#### **CONFERENCE AND WORKSHOP PRESENTATIONS, AND PANELS (advisee)**

- 2024 **Koylu, C.** “Spatial data science in an age of scientific disruption – A curriculum.” Panel Session at CaGIS+UCGIS Symposium, June 4, 2024, Columbus, OH.
- 2024 **Torkashvand, M., & Koylu, C.** “A Hierarchical Approach for Geocoding Birthplaces in Temporally Continuous Crowd-Sourced Family Tree Data.” CaGIS+UCGIS Symposium, June 3, 2024, Columbus, OH.
- 2024 **Koylu, C.** “Analysis of U.S. internal migration using population-scale family tree data, 1789-1930”, Population Association of America (PAA) Annual Meeting, New Approaches for Studying Internal Migration, April 18, 2024, Columbus, OH.



- 2023 **Koylu, C.**, Helgertz, J., Roberts, E., & Kasakoff, A. B. “Linking family trees with the 1880 U.S. Census Records”, *The Social Science History Association Annual Meeting*, New Linked Data Sources, November 17, 2023, Washington D.C.
- 2023 Torkashvand, M., **Koylu, C.**, & Kasakoff, A. B. “Evaluation of the child-ladder method for studying migration using family trees: A comparison with linked U.S. census data, 1850 to 1920”, *The Social Science History Association Annual Meeting*, Approaches to Studying Migration in Historical US and Japan, November 16, 2023, Washington D.C.
- 2023 **Koylu, C.** “FlowMapper.org: Flow Mapping Made Easy!”, Practical Cartography Day, *NACIS*, October 11, 2023, Pittsburgh, PA.
- 2023 **Koylu, C.**, & Torkashvand, M. “The effect of disruptive events on spatial and social interactions: An assessment of structural changes in pre-and post-COVID-19 pandemic networks”. *GIScience 2023 Workshop on Disruptive Movement Analysis (DMA’23)*, September 12, 2023, Leeds, UK.
- 2023 McKernan, S., **Koylu, C.**, & Tian, G. “Spatial Clustering of Dentists' Use of Sealants in Pediatric Patients with History of Tooth Decay”, *AcademyHealth Annual Research Meeting*, June, 2023, Seattle, WA.
- 2023 Torkashvand, M., **Koylu, C.**, Kwon, H. & Kasakoff, A.B. “Historical Migration Regions and Present Regional Identities”. *AAG Annual Meeting*, March 25, 2023, Denver, CO.
- 2022 **Koylu, C.**, Kasakoff, A. B. & Helgertz, J. “Migration and Family Size in the US: 1850 to 1920”, *The Social Science History Association Annual Meeting*, Historical Geography and GIS, November 18, 2022, Chicago, IL.
- 2022 Torkashvand, M., **Koylu, C.**, Kwon, H., & Kasakoff, A. “Mapping migration regions and their evolution from population-scale family trees: What can they tell us about cultural identities and regions today?” *The 6th ACM SIGSPATIAL Workshop on Geospatial Humanities (GeoHumanities’22)*, November 1, 2022, Seattle, WA.
- 2022 Kwon, H. & **Koylu, C.** “The unequal impact of COVID-19: An analysis of mobility behaviors of socially vulnerable populations”, *AutoCarto 2022 - The 24th International Research Symposium on Cartography and GIScience*, November 3, 2022, Redlands, CA.
- 2022 **Koylu, C.**, Tian, G. & Windsor, M. “FlowMapper.org: A Web-based Tool for Designing Origin-Destination Flow Maps”, *NACIS*, October 20, 2022, Minneapolis, MN.
- 2022 **Koylu, C.** “FlowMapper.org: A web-based computational and visual framework for flow mapping and analysis”, *AAG Annual Meeting, Harnessing Geospatial Big Data for Infectious Diseases*, February 26, 2022, WWW.
- 2022 Kwon, H. and **Koylu, C.** “Sensing and visualizing collective discourse and sentiments during natural disasters using Twitter: A space-time-semantics approach”, *AAG Annual Meeting, GI Science & Systems Student Honors Paper Competition*, February 28, 2022, WWW.

- 2021 **Koylu, C.**, & Kasakoff, A. B. “Using Family Trees to Identify Turning Points in U.S. Migration: 1789 to 1926”, *The Social Science History Association Annual Meeting*, New Perspectives on Migration and Mobility, November 11, 2021, Philadelphia, PA.
- 2021 Kwon, H., Hom, K., Rifkin, M., Tian B. & **Koylu, C.** “Exploring the spatiotemporal heterogeneity in the relationship between human mobility and COVID-19 prevalence using dynamic time warping.” *GIScience 2021 Workshop on Advancing Movement Data Science (AMD’ 2021)*, September 27, 2021, WWW.
- 2020 **Koylu, C.**, & Kasakoff, A. “Mapping Temporal Trends of Parent-Child Migration from Population-Scale Family Trees”, *AutoCarto 2020 - The 23rd International Research Symposium on Cartography and GIScience*, November 18, 2020, WWW.
- 2020 Zhang, B. & **Koylu, C.** “Identifying Vulnerabilities in Multilayer Spatial Networks: A Case Study of Food Flows in The United States”, *AutoCarto 2020 - The 23rd International Research Symposium on Cartography and GIScience*, November 18, 2020, World Wide Web.
- 2019 Kasakoff, A. B., **Koylu, C.**, Huang, Y., & Guo, D. “Using Crowd Sourced Family Trees to Understand Changes in Family Connectedness in the 19th Century United States”, *The Social Science History Association Annual Meeting*, Living Arrangements and Family Connections, November 23, 2019, Chicago, IL.
- 2019 Kasakoff, A. B., **Koylu, C.**, Huang, Y., & Guo, D. “Changes in kin proximity in the 19th Century United States” *International Seminar on Kinship and Reproduction in Past Societies*, August 22, 2019, Minneapolis, MN.
- 2019 Kwon, H. and **Koylu, C.** “Empirical evaluation of parameters and models for extracting topics from short text and geotagged social media data”, *AAG Annual Meeting, Social Media and Big Data II*, April 3, 2019, Washington D.C.
- 2019 Zhang, B., **Koylu, C.**, Oberlin, K., Eckstein, B. And Kwon, H.\* “Climate change or natural cycle? Not sure, but it gets 2 hot and 2 cold 4 sure”, *AAG Annual Meeting, Symposium on Frontiers in Geospatial Data Science: Synergizing Geospatial Data Science with Domain Applications I: Climate Science*, April 4, 2019, Washington D.C.
- 2019 Hodgson, M., Li, Z., Piovan, S. and **Koylu, C.** “Language and Twitter-based Social Media During Disaster Events”, *AAG Annual Meeting, GIScience and Hazards in the Era of Big Data*, April 3, 2019, Washington D.C.
- 2018 Wo, J., **Koylu, C.**, & Berg, M.T. “Understanding Neighborhood Crime: An examination of different predictors”, *the American Society of Criminology Annual Meeting*, November, 2018 Atlanta, GA.
- 2018 **Koylu, C.**, Dietrich, B. & Larson, R. “Geovisual text analytics for exploring public discourse on Twitter: A case study of immigration tweets before and after the January 27, 2017 Travel Ban”, *AutoCarto and UCGIS Symposium* May 24, 2018, Madison, WI.

- 2018 **Koylu, C.** “Analysis of Big Longitudinal Patient Mobility Data for Evaluating the Efficiency of a Health Care System”, *AAG Annual Meeting, Advances in Computational Approaches for Geospatial Health Applications*, April 11, 2018, New Orleans, LA.
- 2017 Zhao, C., **Koylu, C.**, Sander, H. “Watching the birdwatchers on Flickr: An adaptive kernel smoothing approach for visualizing spatiotemporal patterns of a cultural ecosystem service”, *2017 International Symposium on Spatiotemporal Computing at Harvard, August 7-9 2017*, Boston, MA.
- 2017 **Koylu, C.** “Integrating Topic Modeling and Network Smoothing to Uncover Space-Time Semantics of Interpersonal Communication: An Analysis Of Twitter User Mentions”, *International Symposium on Location-based Social Media and Tracking Data, A Pre-conference Symposium of ICC 2017*, July 2, 2017, Washington, D.C.
- 2017 **Koylu, C.** “Uncovering geosemantics of interpersonal communication on Twitter”, *AAG Annual Meeting, Spatial Data Mining and Big Data Analytics*, April 9, 2017, Boston, MA.
- 2016 **Koylu, C.** “Extracting and Visualizing Geo-Social Semantics from the User Mention Network on Twitter”, *GIScience 2016 Workshop on Rethinking the ABCs: Agent-Based Models and Complexity Science in the age of Big Data, CyberGIS, and Sensor Networks*, September 27, 2016, Montreal, Canada.
- 2016 **Koylu, C.** Guo, D. “Utility and Usability Evaluation of Bézier Curves for Flow Map Design”, *AAG Annual Meeting, Spatial Data Mining and Big Data Analytics*, March 29, 2016, San Francisco, CA.
- 2015 **Koylu, C.** “A Spatio-Temporal Approach to Extracting and Visualizing Topics from Twitter”, *AAG Annual Meeting, GIS Specialty Group Honors Student Paper Competition*, April 24, 2015, Chicago, IL.
- 2014 **Koylu, C.** “Spatial and temporal patterns of topics on Twitter during social movements”, *AAG Annual Meeting, Business Geography – Social Media*, April 11, 2014, Tampa, FL.
- 2014 **Koylu, C.**, Guo, D., Kasakoff A., and Bras, H. “Understanding geo-social network patterns from large ego-centric networks”, *Geographic and Social Space, The XXXIV Sunbelt Social Networks Conference, International Network for Social Network Analysis (INSNA)*. February 18-22, St. Pete Beach, FL.
- 2013 Bras, H. , **Koylu, C.**, Guo, D., and Kasakoff A. “Visualizing witness relations across space and time”, *The Social Science History Association Annual Meeting, “Seeing” Family Patterns in Time and Space*, November 23, 2013, Chicago, IL.
- 2013 **Koylu, C.**, Guo, D., and Kasakoff, A. “Mapping family connectedness across space and time”, *The Social Science History Association Annual Meeting, “Seeing” Family Patterns in Time and Space*, November 23, 2013, Chicago, IL.
- 2013 Bras, H., **C. Koylu**, A. Kasakoff, and D. Guo. “Visualizing historical kinship networks using data from marriage registers: The Netherlands, 1830-1950”, *The XXXIII Sunbelt Social*

- Networks Conference, International Network for Social Network Analysis (INSNA)*. May 21-26, Hamburg, Germany.
- 2013 **Koylu, C.** “Implementing and evaluating a web-based flow mapping application”, *AAG Annual Meeting, Cartography Specialty Group Student Honors Paper Competition*, April 10, 2013, Los Angeles, CA.
- 2012 **Koylu, C.** “Mapping social relationships across space and time”, *AutoCarto International Research Symposium*, September 17, 2012 Columbus, Ohio
- 2012 **Koylu, C.** “A visual analytics approach to animating dynamic spatial networks”, *GIScience 2012 Workshop: GeoVisual Analytics, Time to Focus on Time*, September 18, 2012 Columbus, OH.
- 2012 **Koylu, C.** “Smoothing locational measures in spatial interaction networks”, *AAG Annual Meeting, GIS Specialty Group Honors Student Paper Competition*, February 27, 2012, New York, NY.
- 2011 **Koylu, C.,** Emrich, C., and Cutter, S. “A spatial knowledge discovery approach to analyzing regional variability of security threats in the United States”, *AAG Annual Meeting, Quantitative Approaches to Hazards and Vulnerability*, April 12, 2011, Seattle, WA.
- 2010 **Koylu, C.** “Using Centrality Measures to Discover Structural Characteristics of Migration Data”, *AAG Annual Meeting, Spatial Data Mining and Exploratory Data Analysis (1)*, April 16, 2010, Washington, D.C.
- 2009 **Koylu, C.** “A Spatial Data Warehouse Model for Weather Pattern Searching”, *AAG Annual Meeting, Spatial Data Mining and Exploratory Data Analysis (2)*, March 22, 2009, Las Vegas, NV.

## **ADVISEES**

- 2028 (Expected) Jinyi Cai (Ph.D. in Geography)
- 2027 (Expected) Maryam Torkashvand (Ph.D. in Geography)
- 2025 (Expected) Loretta Nwajiaku (M.A. in Geography)
- 2023 Hoeyun Kwon (Ph.D. in Geography), Post-Doc at UC Boulder (2023-2024), Assistant Professor, Lehman College, The City University of New York (2024-)
- 2021 Geng Tian (M.A. in Geography)

## **THESIS/DISSERTATION COMMITTEE MEMBER**

- Miah Boyle (Ph.D. in Geography)
- Daniel Kreamer (Ph.D. in Geography, University of Connecticut)
- Mainul Islam (Ph.D. in Geography)
- Austin Tang (Ph.D. in Geography)
- Caitlyn Grubbs (Ph.D. in Geography)
- Falak Jalali (Ph.D. in Geography)

- 2024 Michalis Kantartjis (Ph.D. in Informatics)
- 2024 Han Bao (Ph.D. in Informatics)
- 2023 Yazeed Alabbad (Ph.D. in Civil and Environmental Engineering)
- 2023 Asif Rahman (Ph.D. in Geography)
- 2023 Neal MacDonald (Ph.D. in Geography)
- 2023 Muhammed Sit (Ph.D. in Informatics)
- 2022 Haoyi Xiong (Ph.D. in Geography)
- 2022 Federico Antolini (Ph.D. in Geoinformatics)
- 2022 Seungwon Kim (Ph.D. in Geography)
- 2022 Barbara Keino (Ph.D. in Geography)
- 2021 Oronde Drakes (Ph.D. in Geography)
- 2021 Austin Tang (M.A. in Geography)
- 2019 Zhijiang Liu (Ph.D. in Statistics)
- 2019 Amin Vahedian Khezerlou (Ph.D. in Business Administration)
- 2019 Cody Hodson (Ph.D. in Geography)
- 2019 Kangsan Lee (M.A. in Geography)
- 2019 Haowen Xu (Ph.D. in Civil and Environmental Engineering)
- 2018 Christine Bricker (Ph.D. in Political Science)
- 2018 Kevin Matthews (Ph.D. in Geography)
- 2018 Jeffrey Koss (M.A. in Geography)
- 2018 Zach Palmer (M.A. in Geography)
- 2018 Austin Rau (M.A. in Geography)
- 2017 Junchuan Fan (Ph.D. in Geography)
- 2017 Kain Kutz (M.A. in Geography)

## **SOCIETY MEMBERSHIP**

- 2024 – present Population Association of America
- 2022 – present North American Cartographic Information Society (NACIS)
- 2018 – present University Consortium for Geographic Information Science (UCGIS)
- 2016 – present The Center for Global and Regional Environmental Research (CGRER)
- 2014 – present Social Science History Association (SSHA)
- 2014 – present Cartography and Geographic Information Society (CaGIS)
- 2008 – present Association of American Geographers (AAG)

## **SERVICE**

### **Profession**

- 2024 – 2025 President-Elect, Cartography and Geographic Information Society (CaGIS)

2023 – 2024	Vice President, Cartography and Geographic Information Society (CaGIS)
2021 – present	Editorial Board Member for the Journal of Cartography and Geographic Information Science (CaGIS)
2018 – present	Delegate, The University Consortium of Geographic Information Science (UCGIS)
2018 – 2022	Secretary, Cartography and Geographic Information Society (CaGIS)

#### National Science Foundation (NSF) Panelist and Reviewer

Human Networks and Data Science (HNDS)	2022, 2024
Human-Environment and Geographical Sciences Program (HEGS)	2023
The Methodology, Measurement, and Statistics (MMS)	2024
Ad Hoc Review	2018, 2023, 2024

#### Organizer / Moderator / Program Committee for Conferences

2024	CaGIS+UCGIS Symposium, Climate Smart GIScience: Mapping a Sustainable Future (Conference Organizing Committee, Co-chair)
2022	AutoCarto 2022 - The 24th International Research Symposium on Cartography and GIScience (Program Committee / Reviewer)
2020	IEEE VIS 2020 - Information Visualization of Geospatial Networks, Flows and Movement (MoVis) Workshop, Salt Lake City, UT, October 25 – October 30, 2020 (Program Committee / Reviewer)
2017	International Symposium on Location-based social media data and tracking data – A pre-conference symposium of ICC 2017, Washington D.C., July 1-2, 2017 (Moderator)
2017	Spatial Data Mining and Big Data Analytics, 113th AAG Annual Meeting, Boston, MA, April 5 – April 9, 2016 (Organizer, Moderator)
2016	GeoSocial Networks and Graphs, 9th International Conference on Geographic Information Science, Montreal, Canada, September 28, 2016 (Moderator)
2016	Spatial Data Mining and Big Data Analytics, 112th AAG Annual Meeting, San Francisco, CA, March 29 – April 2, 2016 (Organizer, Moderator)

#### Reviewer for Journals (year[times])

Cartography and GIScience (CaGIS)	2024[2], 2023[3], 2022[5], 2021[3], 2020[2], 2019[2], 2017[4], 2014[2]
Int. J. of GIScience (IJGIS)	2024[3], 2022[2], 2021[2], 2020[2], 2019[5], 2016[1], 2015[2]
Transactions in GIS	2023[2], 2022[2], 2021[3], 2020[3], 2019[4], 2017[1]
Geoinformatica	2024[1], 2023[3], 2021[1], 2019[1], 2018[1]
Annals of the American Association of Geographers	2024[1], 2023[1], 2021[3], 2019[1]
ISPRS International Journal of Geo-Information	2023[1], 2019[1], 2018[2]

IEEE Transactions on Visualization and Computer Graphics (TVCG)	2020[1], 2016[1]
PLOS One	2021[2], 2018[1]
The Professional Geographer	2022[1], 2020[2]
Journal of Maps	2018[1], 2017[1]
International Journal of Digital Earth	2022[4]
Journal of Spatial Information Science (JOSIS)	2024[2]
International Journal of Applied Earth Observation and Geoinformation	2024[2]
GIScience and Remote Sensing	2024[1]
Geo-spatial Information Science	2023[1]
Geographical Analysis	2021[1]
Environment and Planning B: Urban Analytics and City Science	2021[1]
International Journal of Disaster Risk Reduction	2021[1]
International Journal of Health Geographics	2021[1]
BMJ Open	2018[1]

### **Department**

2024	Member, five-year post-tenure review for Heather Sander
2023 – present	Graduate Program Committee, GSS, Member
2015 – 2019	
2021 – present	Executive Committee, GSS, Member
2018 – present	Interdisciplinary Graduate Program in Applied Mathematical and Computational Sciences (AMCS), Faculty
2019 – 2023	Undergraduate Program Committee, GSS, Member
2015 – present	GSS, Geographic Information Systems Instructional Lab (GISIL), Director

### **College**

2024	CLAS, The Student Technology Fee Committee
2017 – 2018	CLAS, Faculty Assembly, Member

### **University**

2020 – present	Executive Committee Member and Geoinformatics Coordinator in the Interdisciplinary Graduate Program in Informatics (IGPI)
2019 – present	Research Fellow, University of Iowa, Public Policy Center
2018 – present	Center Affiliated Faculty for UI Center for Advancing Multimorbidity Science (CAMS), College of Nursing
2017 – 2019	Interdisciplinary Graduate Program in Informatics (IGPI) Strategic Planning Committee, Member
2016 – 2018	CGRER Seed Grant Proposal Review, Reviewer, Grant Proposals

2015 – 2020

Geoinformatics Coordinator in Informatics and Coordinating Committee Member  
in Geoinformatics Subprogram