

Caglar Koylu

Assistant Professor

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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

- 2015 - present **Assistant Professor**
Department of Geographical and Sustainability Sciences, University of Iowa
Informatics Cluster Initiative, Faculty Member
- 2015 **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 GIS
Introduction to Geographic Visualization
Introduction to Geographic Databases
Graduate Seminar in 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

- **Koylu, C.**, Dietrich, B. & Larson, R. (In Preparation). 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 Special Issue in Cartography and Geographic Information Science*.
- Sit, M., **Koylu, C.** & Demir I. (In Preparation). A Multi-Sourced Social Sensing Framework for Identifying Areas of Impact and Vulnerability Characteristics for Disasters: Case Study for Hurricanes Harvey and Irma, *Social Sensing for Disasters Special Issue in International Journal of Digital Earth*.
- Zhao, C., **Koylu, C.** & Sander, H. (In Review) Extracting and visualizing spatiotemporal patterns of birdwatching from social media data: A multi-constraint smoothing approach, *International Journal of Geographical Information Science*.
- **Koylu, C.**, Delil, S., Guo, D. & Celik, R.N. (In Review) 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*.
- **Koylu, C.** (In Press) Modeling and visualizing semantic and spatio-temporal evolution of topics in interpersonal communication on Twitter, *International Journal of Geographical Information Science*.
- 2017 **Koylu, C.**, & Guo, D. (2017). Design and evaluation of line symbolizations for origin–destination flow maps. *Information Visualization*, 16(4), 309-331. doi: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 (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: <http://dx.doi.org/10.1016/j.compenvurbsys.2013.03.001>

BOOK CHAPTERS

- 2018 **Koylu, C.** Uncovering geo-social semantics from the Twitter mention network: An integrated approach using spatial network smoothing and topic modeling, “*Human Dynamics Research in Smart and Connected Communities*”, Human

Dynamics Research in Smart and Connected Communities. Human Dynamics in Smart Cities. Springer, Cham

- 2018 **Koylu, C.** Discovering Multi-Scale Community Structures from the Interpersonal Communication Network on Twitter. In L. Perez, E.-K. Kim, & R. Sengupta (Eds.), *Agent-Based Models and Complexity Science in the Age of Geospatial Big Data: Selected Papers from a workshop on Agent-Based Models and Complexity Science (GIScience 2016)* (pp. 87-102). Cham: Springer International Publishing.

PEER REVIEWED CONFERENCE PUBLICATIONS

- 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

GRANTS AND FUNDING

- 2018 Investigator, *Distinguishing high-crime neighborhoods from low-crime neighborhoods: A spatial examination integrating a diversity of social and ecological factors*, Interdisciplinary Research Grant, Obermann Center for Advanced Studies, \$6000, 7/15/2018 – 8/15/2018.

AWARDS

- 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

CONFERENCE AND WORKSHOP PRESENTATIONS

- 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” *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*, 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, Illinois
- 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, Florida
- 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). St. Pete Beach, FL, USA. Feb 18-22.
- 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, Illinois
- 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, Illinois
- 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). Hamburg, Germany. May 21-26.
- 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, California
- 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 Workshop: GeoVisual Analytics, Time to Focus on Time, September 18, 2012 Columbus, Ohio
- 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, New York
- 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, Washington
- 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.

THESIS/DISSERTATION COMMITTEE MEMBER

- Haoyi Xiong (Ph.D. in Geography)
- Oronde Drakes (Ph.D. in Geography)
- Federico Antolini (Ph.D. in Geinformatics)
- Cody Hodson (Ph.D. in Geography)
- Zhijiang Liu (Ph.D. in Statistics)
- Haowen Xu (Ph.D. in Civil and Environmental Engineering)
- Christine Bricker (Ph.D. in Political Science)
- Kevin Matthews (Ph.D. in Geography)
- Jeffrey Koss (M.S. in Geography)

- Zach Palmer (M.S. in Geography)
- Austin Rau (M.S. in Geography)
- 2017 Junchuan Fan (Ph.D. in Geography)

SOCIETY MEMBERSHIP

- 2009 - Association of American Geographers (AAG)
- 2014 - Cartography and Geographic Information Society (CaGIS)
- 2016 - The Center for Global and Regional Environmental Research (CGRER)

CONFERENCE SPECIAL SESSION ORGANIZER / MODERATOR

- 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)

PROFESSIONAL SERVICE

Reviewer for Journals (year[times])

Cartography and Geographic Information Science (CaGIS)	2017[4], 2014[2]
Int. J. of Geographical Information Science (IJGIS)	2016[1], 2015[2]
IEEE Transactions on Visualization and Computer Graphics (TVCG)	2016[1]
Journal of Maps	2018[1], 2017[1]
Transactions in GIS	2017[1]
ISPRS International Journal of Geo-Information	2018[2]
Journal of Urban, Planning and Transport Research	2014[1]
BMJ Open	2018[1]

DEPARTMENT / COLLEGE / UNIVERSITY SERVICE

- 2017 – present Interdisciplinary Graduate Program in Informatics (IGPI) Strategic Plan Meeting Committee, Member
- 2017 – present Faculty Assembly, Geographical and Sustainability Sciences (GSS) Member
- 2016 – present CGRER Seed Grant Proposal Review, Reviewer, Grant Proposals
- 2015 – present Graduate Program Committee, GSS, Member
- 2015 – present GSS, Geographic Information Systems Instructional Lab (GISIL), Director
- 2015 – present Geoinformatics Coordinator in Informatics and Coordinating Committee Member in Geoinformatics Subprogram