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EDUCATION

1991. Ph.D. (Geography), The Ohio State University, Columbus, Ohio.
 1987. M.A. (Geography), Kent State University, Kent, Ohio.
 1985. B.A., Honors (Geography), Kent State University, Kent, Ohio.

RESEARCH AND TEACHING INTERESTS

Empirical: Human mobility and accessibility; Sustainable transportation and community livability; Mobility and health.

Methodological: Geographic information science; Spatial analysis; Time geography; Moving objects analytics.

PROFESSIONAL ACTIVITIES**Main Academic Appointments**

2015 - present. Director, Center for Urban and Regional Analysis (CURA), The Ohio State University.
 2013 - present. Bob and Mary Reusche Chair in Geographic Information Science, The Ohio State University.
 2013 - present. Professor, Department of Geography, The Ohio State University.
 2004 - 2010. Department Chair, Department of Geography, University of Utah.
 2001 - 2013. Professor, Department of Geography, University of Utah.
 1996 - 2001. Associate Professor, Department of Geography, University of Utah
 1991 - 1996. Assistant Professor, Department of Geography, University of Utah.

Other Appointments and Affiliations

2019 – 2020. Co-leader (with Gulsah Akar), Smart and Resilient Communities research initiative, Sustainability Institute, The Ohio State University.
 2019 – present. Faculty Advisory Board, Sustainability Institute, The Ohio State University.
 2017 – present. Chair, Mapping Science Committee, National Research Council, US National Academies
 2016 – 2018. Leadership Team, Sustainable and Resilient Economy, Discovery Themes initiatives, The Ohio State University.
 2016 – present. Affiliate Faculty, Translational Data Analytics, Discovery Themes initiatives, The Ohio State University.
 2015 - 2018. Board of Directors, University Consortium for Geographic Information Science.
 2014 - 2016. Member, Mapping Science Committee, National Research Council, US National Academies.
 2014 - present. Affiliate Professor, Institute for Population Research, College of Arts and Sciences, The Ohio State University.
 2013 - present. Courtesy Professor, Department of City and Regional Planning, Knowlton School of Architecture, The Ohio State University.
 2013 - 2015. Affiliated faculty, Center for Urban and Regional Analysis, College of Arts and

- Science, The Ohio State University.
- 2013 - 2015. Chair, Subcommittee on Research, Data and Information Section (ABJ00), Transportation Research Board, National Research Council, U.S. National Academies
- 2012 - 2015. Co-chair, Subcommittee on Computational Transportation and Society (ABJ30(2)), Transportation Research Board, National Research Council, U.S. National Academies.
- 2012 - 2019. Member, Data and Information Section (ABJ00), Transportation Research Board, National Research Council, U.S. National Academies.
2012. Chair, Geographic Information Systems and Science specialty group, Association of American Geographers.
2011. Visiting faculty, Institute for Geoinformatics, University of Münster, Münster, Germany.
2011. Vice-chair, Geographic Information Systems and Science specialty group, Association of American Geographers.
2011. Visiting faculty, Department of Infrastructure Engineering, University of Melbourne, Melbourne, Australia.
2010. Visiting faculty, Department of Geography, Ghent University, Gent, Belgium.
2010. Visiting faculty, Department of Geography, University of Zurich.
- 2005 - 2013. Member, Committee on Visualization in Transportation (ABJ95), Transportation Research Board, National Research Council, U.S. National Academies.
- 2005 - 2011. Co-chair, Committee on Geographic Information Science and Applications (ABJ60), Transportation Research Board, U.S. National Academies.
- 2002 - 2004. Member, Task force on Visualization in Transportation (ABJ95T), Transportation Research Board, National Research Council, U.S. National Academies.
2003. Visiting faculty, Institute for Geoinformatics, University of Münster, Münster, Germany.
- 2003 – 2017. Member, Committee on Geographic Information Science and Applications (ABJ60), Transportation Research Board, National Research Council , U.S. National Academies
- 2000 - 2003. Board member, University Consortium for Geographic Information Science.
- 2000 - 2003. Councilor-at-large, North American Regional Science Association.
- 1998 - 2001. Director, Certificate Program in Geographic Information Science, Department of Geography and Department of Computer Science, University of Utah.
- 1998 - 2000. Chair, Spatial Analysis and Modeling Specialty Group, Association of American Geographers (formerly known as the Mathematical Modeling and Quantitative Methods specialty group).
- 1996 - 1998. Adjunct Associate Professor, Department of Civil and Environmental Engineering, Utah State University.
- 1996 - 1998. Vice-chair/Treasurer, Mathematical Modeling and Quantitative Methods Specialty Group, Association of American Geographers.
1995. Research Fellow, Bureau of Transportation Statistics, U.S. Department of Transportation, Washington, D.C.
1995. Interim Director, Digitally Integrated Geographic Information Technologies Laboratory, Department of Geography, University of Utah.
- 1994 - 1996. Board Member, Mathematical Modeling and Quantitative Methods Specialty Group, Association of American Geographers.

Journal Boards and Editorships

- 2018 – present. *Annals of the American Association of Geographers*
 2018 – present. *Applied Geography*
 2017 – present. *Environment and Planning B: Urban Analytics and City Science*
 2015 - present. *International Journal of Digital Earth.*
 2014 - present. Associate Editor, *Geographical Analysis.*
 2013 - present. *Journal of Location-based Services.*
 2009 - present. *Journal of Spatial Information Science.*
 2009 - 2015. *International Regional Science Review.*
 2008 - present. *Journal of Transport and Land Use*
 2000 - 2004. North American Editor, *International Journal of Geographical Information Science.*
 1999 - present. *Transportation.*
 1998 - present. *International Journal of Geographical Information Science.*
 1997 - 2011. *Journal of Regional Science.*
 1996 - 2014. *Geographical Analysis.*

Honors and Awards

2015. Research Award, University Consortium for Geographic Information Science.
 2009. Edward L. Ullman Award for Significant Contributions to Transportation Geography, Transportation Geography specialty group, Association of American Geographers.
 2004. Superior Research Award, College of Social and Behavioral Sciences, University of Utah.
 1997. Geoffrey J. D. Hewings Award for Outstanding Young Scholar, North American Regional Science Council.
 1996. Springer-Verlag Award for Best Paper Presented at the 35th Annual Meeting of the Western Regional Science Association, Napa, California.
 1996. ESRI Award for Best Scientific Paper in Geographic Information Systems, American Society for Photogrammetry and Remote Sensing (with J. Lowry and G. Hepner).
 1994. Superior Research Award, College of Social and Behavioral Sciences, University of Utah.
 1991. Huntington Memorial Award for Outstanding Graduate Student, Department of Geography, Ohio State University.
 1991. First place, GIS specialty group student paper competition, Association of American Geographers.

PUBLICATIONS

Books

2009. **Miller H.J.** and Han J. (eds.) *Geographic Data Mining and Knowledge Discovery*, second edition, London: CRC Press.

2008. Cova T.J., **Miller H.J.**, Beard K., Frank A.U. and Goodchild M.F., (eds.) *Geographic Information Science - 5th International Conference, GIScience 2008, Park City, Utah*. Lecture Notes in Computer Science (LNCS) 5266, Berlin: Springer.
2007. **Miller H.J.** (ed.) *Societies and Cities in the Age of Instant Access*, Berlin: Springer.
2006. Raubal M., **Miller H.J.**, Frank A.U. and Goodchild M.F., (eds.) *Geographic Information Science - Fourth International Conference, GIScience 2006, Münster, Germany, September 2006, Proceedings*. Lecture Notes in Computer Science 4197, Berlin: Springer
2004. Egenhofer M.J., Freska C. and **Miller H.J.** (eds.) *Geographic Information Science – Third International Conference, GIScience 2004, Adelphi, MD, USA, October 2004, Proceedings*, Lecture Notes in Computer Science 3234, Berlin: Springer.
2001. **Miller H.J.** and Shaw S.-L. *Geographic Information Systems for Transportation: Principles and Applications*, New York: Oxford University Press.
2001. **Miller, H.J.** and Han, J. (eds.) *Geographic Data Mining and Knowledge Discovery*, London: Taylor and Francis.

Peer-refereed Journal Articles

2020. Liu, L., **Miller, H.J.** and Scheff, J. “The impacts of COVID-19 pandemic on public transit demand in the United States,” *PLOS ONE* 15(11): e0242476. <https://doi.org/10.1371/journal.pone.0242476>
2020. Li, Y., Hyder, A., Southerland, L.T., Hammond, G., Porr, A. and **Miller, H.J.** “311 service requests as indicators of neighborhood distress and opioid use disorder,” *Scientific Reports*, 10, 19579.
2020. Franklin, R.S., Houlden V. Robinson, C., Arribas-Bel, D., Delmelle, E.C., Demšar, U., **Miller H.J.** and O’Sullivan, D. “Who counts? Gender, gatekeeping, and quantitative human geography,” *The Professional Geographer*; <https://doi.org/10.1080/00330124.2020.1828944>
2020. Liu, L. and **Miller, H.J.** “Does real-time transit information reduce waiting time? An empirical analysis,” *Transportation Research A*, 141, 167-179.
2020. Lee, J. and **Miller, H.J.** "Robust accessibility: Measuring accessibility based on travelers' heterogeneous strategies for managing travel time uncertainty," *Journal of Transport Geography*, 86, 102747.
2020. Lee, J., Irwin, N., Irwin, E. and **Miller, H.J.** "The role of distance-dependent vs. localized amenities in polarizing urban spatial structure: A spatio-temporal analysis of residential location value in Columbus, Ohio, 2000-2015," *Geographical Analysis*. <https://doi.org/10.1111/gean.12238>
2020. Liu, L. and **Miller, H.J.** "Measuring risk of missing transfers in public transit systems using high-resolution schedule and real-time bus location data," *Urban Studies*. <https://doi.org/10.1177/0042098020919323>
2020. Lee, J., Porr, A. and **Miller, H.J.** “Evidence of increased vehicle speeding in Ohio’s major cities during the COVID-19 pandemic,” *Transportation Findings*, June, <https://doi.org/10.32866/001c.12988>
2020. McHaney-Lindstrom, M., Hebert, C., **Miller, H.J.**, Moffatt-Bruce, S. and Root, E. “Network analysis of intra-hospital transfers and hospital-onset *Clostridium Difficile* infection,” *Health Information and Libraries Journal*, 37, 26-34.
2020. Jaegal, Y. and **Miller, H.J.** "Measuring the structural similarity of network time prisms using temporal signatures with graph indices," *Transactions in GIS*, 24, 3-26.
2020. **Miller, H.J.**, “GIScience, fast and slow: Why faster geographic information is not always smarter.” *Progress in Human Geography*, 44, 129-138.

2020. Park, Y., Mount, J., Liu, L., Xiao, N. and **Miller, H.J.** "Assessing public transit performance using real-time data: Spatio-temporal patterns of bus operation delays in Columbus, Ohio, USA," *International Journal of Geographical Information Science*, 34, 367-392.
2019. **Miller, H.J.**, Jaegal, Y. and Raubal, M., "Measuring the geometric and semantic similarity of space-time prisms using temporal signatures," *Annals of the American Association of Geographers*, 109, 730-753.
2019. **Miller, H.J.**, Dodge, S., Miller, J.A. and Bohrer, G. "Towards an integrated science of movement: Converging research on animal movement ecology and human mobility," *International Journal of Geographical Information Science*, 33, 855-876.
2019. Lee, J. and **Miller, H.J.** "Analyzing collective accessibility using average space-time prisms," *Transportation Research Part D: Transport and Environment*, 69, 250-264.
2019. Mahmoudi, M., Song, Y., **Miller, H.J.** and Zhou, X. "Accessibility with time and resource constraints: Computing hyper-prisms for sustainable transportation planning," *Computers, Environment and Urban Systems*, 73, 171-183.
2019. Proffitt, D., Bartholomew, K., Ewing, R. and **Miller, H.J.**, "Accessibility planning in American metropolitan areas: Are we there yet?" *Urban Studies*, 56, 167-192.
2018. Werner, C.M., Brown, B.B., Stump, T., Tribby, C.P., Jensen, W., **Miller, H.J.**, Strebel, A. and Messina, A. "Street use and design: Daily rhythms on four streets that differ in rated walkability," *Journal of Urban Design*, 23, 603-619.
2018. Lee, J. and **Miller, H.J.**, "Measuring the impacts of new public transit services on space-time accessibility: An analysis of transit system redesign and new bus rapid transit in Columbus, Ohio, USA," *Applied Geography*, 93, 47-63.
2018. **Miller, H.J.** "Mesogeography: Social physics, GIScience and the quest for geographic knowledge," *Progress in Human Geography*, 42, 600-609.
2017. Song, Y., **Miller, H.J.**, Stempihar, J. and Zhou, X., "Green accessibility: Estimating the environmental costs of network-time prisms for sustainable transportation planning," *Journal of Transport Geography*, 64, 109-119.
2017. Kuijpers, B., **Miller, H.J.** and Othman, W., "Kinetic prisms: incorporating acceleration limits into space-time prisms," *International Journal of Geographic Information Science*, 31, 2164-2194.
2017. **Miller H.J.**, "Geographic information observatories and opportunistic GIScience," *Progress in Human Geography*, 41, 489-500.
2017. Tribby C.P., **Miller H.J.**, Brown B.B., Smith K.R. and Werner C.M. "Geographic regions for assessing built environmental correlates with walking trips: A comparison using different metrics and model designs," *Health and Place*, 45, 1-9.
2017. Tribby C.P., **Miller H.J.**, Brown B.B., Werner C.M. and Smith K.R., "Analyzing walking route choice through built environments using random forests and discrete choice techniques," *Environment and Planning B: Planning and Design*, 44, 145-1167.
2016. Brown B.B., Smith K.R., Sharp D.S., Werner, C.M., Tribby, C.P., **Miller, H.J.** and Jensen, W., "A complete street intervention for walking to transit, non-transit walking, and bicycling: A quasi-experimental demonstration of increased use," *Journal of Physical Activity & Health*, 13, 1210-1219
2016. **Miller H.J.** and Tolle K., "Big data for healthy cities: Using location-aware technologies, open data and 3D urban models to design healthier built environments," *Built Environment*, 42, 441-456.

2016. Brown, B.B., Tharp, D., Tribby, C.P., Smith, K.R., **Miller, H.J.**, Werner, C.M. ‘Changes in bicycling over time associated with a new bike lane: Relations with kilocalories energy expenditure and body mass index,” *Journal of Transport and Health*, 3, 357-365.
2016. Brown B.B., Werner C.M., Smith K.R., Tribby C.P., **Miller H.J.**, Jensen W. and Tharp D.S. “Environmental, behavioral, and psychological predictors of transit ridership: Evidence from a community intervention. *Journal of Environmental Psychology*, 46,188-196.
2016. Tang J., Song Y., **Miller H.J.** and Zhou X. “Estimating the most likely space-time paths, dwell times and path uncertainties from vehicle trajectory data: A time geographic method,” *Transportation Research C*, 66, 176-194.
2016. Song Y., **Miller H.J.**, Zhou X. and Proffitt D. “Modeling visit probabilities within network time prisms using Markov techniques,” *Geographical Analysis*, 48, 18-42.
2016. Werner C.M., Brown B.B., Tribby C.P., Tharp D.S., Flick K., **Miller H.J.**, Smith K.R. and Jensen W., “Evaluating the attractiveness of a new light rail extension: Testing simple change and displacement change hypotheses,” *Transport Policy*, 45, 5–23.
2016. Tribby C.P., **Miller H.J.**, Brown B.B., Werner C.M. and Smith K.R., “Assessing built environment walkability using activity space summary measures,” *Journal of Transport and Land Use*, 9, 1–21.
2015. **Miller H.J.**, “Space-time data science for a speedy world,” *I/S: A Journal of Law and Policy for the Information Society*, 10, 705-720.
2015. Farber S., O’Kelly M.E., **Miller H.J.** and Neutens T. “Measuring segregation using patterns of daily travel behavior: a social interaction based model of exposure,” *Journal of Transport Geography*, 49, 26-38.
2015. Tong L., Zhou X. and **Miller H.J.** “Transportation network design for maximizing space-time accessibility,” *Transportation Research B*, 81, 555-576.
2015. **Miller H.J.**, Tribby C.P., Brown B.B., Smith K.R., Werner C.M., Wolf J., Wilson L. and Oliveira M.G.S., “Public transit generates new physical activity: Evidence from individual GPS and accelerometer data before and after light rail construction in a neighborhood of Salt Lake City, Utah, USA,” *Health and Place*, 36, 8-17
2015. Brown B.B., Werner C.M., Tribby C.P., **Miller H.J.** and Smith K.R., “Transit use, physical activity, and body mass index changes: Objective measures associated with Complete Street light rail construction,” *American Journal of Public Health*, 105, 1468-1474.
2015. **Miller H.J.** and Shaw, S.-L., “Geographic information systems for transportation in the 21st century,” *Geography Compass*, 9, 180-189.
2015. **Miller H.J.** and Goodchild, M.F., “Data-driven geography,” *GeoJournal*, 80, 449-461.
2014. Hu Y., **Miller H.J.** and Xiang Li, “Detecting and analyzing mobility hotspots using surface networks,” *Transactions in GIS*, 18, 911-935.
2014. Brown B.B., Werner C.M., Smith K.R., Tribby C.P. and **Miller H.J.**, “Physical activity mediates the relationship between perceived crime safety and obesity,” *Preventive Medicine*, 66, 140–144
2014. Brown B.B., Wilson L., Tribby C.P., Werner C.M., Wolf J., **Miller H.J.**, Smith K.R. “Adding maps (GPS) to accelerometry data to improve study participants’ recall of physical activity: A methodological advance in physical activity research,” *British Journal of Sports Medicine*, 48, 1054-1058.

2014. Ahas R., **Miller H.J.** and Witlox F. "Mobility, communication and urban space," *Journal of Urban Technology*, (guest editors' introduction to special issue), 21, 1-7.
2014. Song Y. and **Miller H.J.**, "Simulating visit probability distributions within planar space-time prisms," *International Journal of Geographical Information Science*, 28, 104-125.
2014. Jeong M.-H., Duckham M., Allison Kealy, **Miller H.J.** and Peisker P. "Decentralized and coordinate-free computation of critical points and surface networks in a discretized scalar field," *International Journal of Geographical Information Science*, 28, 1-21.
2013. **Miller H.J.**, "Beyond sharing: Cultivating cooperative transportation systems through geographic information science," *Journal of Transport Geography*, 31, 296-308.
2013. Tribby C.P., **Miller H.J.**, Song Y. and Smith K.R., "Do air quality alerts reduce traffic? An analysis of traffic data from the Salt Lake City metropolitan area, Utah, USA," *Transport Policy*, 30, 173-185.
2013. Farber S., Neutens T., **Miller H.J.** and Xiao Li, "The social interaction potential of metropolitan regions: A time-geographic measurement approach using joint accessibility," *Annals of the Association of American Geographers*, 103, 483-504.
2013. **Miller H.J.**, Witlox F. and Tribby C.P., "Developing context-sensitive livability indicators for transportation planning: A measurement framework," *Journal of Transport Geography*, 26, 51-64.
2012. Song Y. and **Miller H.J.**, "Exploring traffic flow databases using space-time plots and data cubes," *Transportation*, 39, 215-234.
2011. Kobayashi T., **Miller H.J.** and Othman W., "Analytical methods for error propagation in planar space-time prisms," *Journal of Geographical Systems*, 13, 327-354.
2010. Neutens T., Schwanen T. and **Miller H.J.**, "Dealing with timing and synchronization in opportunities for joint activity participation," *Geographical Analysis*, 42, 245-266.
2010. Kuijpers B., **Miller H.J.**, Neutens T. and Othman W. "Anchor uncertainty and space-time prisms on road networks," *International Journal of Geographical Information Science*, 24, 1223-1248.
2010. **Miller H.J.**, "The data avalanche is here. Shouldn't we be digging?" *Journal of Regional Science*, 50, 181-201.
2009. **Miller H.J.** and Bridwell S.A., "A field-based theory for time geography," *Annals of the Association of American Geographers*, 99, 49-75.
2007. **Miller H.J.**, "Place-based versus people-based geographic information science," *Geography Compass*, 1, 503-535.
2007. Ahmed N. and **Miller H.J.**, "Time-space transformations of geographic space for exploring, analyzing, and visualizing transportation systems," *Journal of Transport Geography*, 15, 2-17.
2006. Sobek A. and **Miller H.J.**, "U-Access: A web-based system for routing pedestrians of differing abilities," *Journal of Geographical Systems*, 8, 269-287.
2005. **Miller H.J.**, "Necessary space-time conditions for human interaction," *Environment and Planning B: Planning and Design*, 32, 381-401.
2005. **Miller H.J.**, "A measurement theory for time geography," *Geographical Analysis*, 37, 17-45.
2004. Raubal M., **Miller H.J.** and Bridwell S.A., "User-centered time geography for location-based services," *Geografiska Annaler-B*, 86, 245-265.

2004. **Miller H.J.** "Tobler's First Law and spatial analysis," *Annals of the Association of American Geographers*, 94(2), 284-289.
2003. **Miller H.J.** and Wentz E.A. "Representation and spatial analysis in geographic information systems," *Annals of the Association of American Geographers*, 93, 574-594.
2001. Wu Y.-H. and **Miller H.J.**, "Computational tools for measuring space-time accessibility within transportation networks with dynamic flow," *Journal of Transportation and Statistics* (special issue on methodological issues in accessibility), 4 (2/3), 1-14.
2001. Wu Y.-H., **Miller H.J.** and Ming-Chih Hung, "A GIS-based decision support system for dynamic network congestion analysis and routing," *Journal of Geographical Systems*, 3, 3-24.
2000. **Miller H.J.** and Wu Y.-H., "GIS software for measuring space-time accessibility in transportation planning and analysis," *GeoInformatica*, 4, 141-159.
2000. **Miller H.J.**, "Geographic representation in spatial analysis," *Journal of Geographical Systems*, 2, 55-60.
1999. **Miller H.J.**, "Potential contributions of spatial analysis to geographic information systems for transportation (GIS-T)," *Geographical Analysis*, 31, 373-399.
1999. **Miller H.J.**, "Measuring space-time accessibility benefits within transportation networks: Basic theory and computational methods," *Geographical Analysis*, 31, 187-212.
1998. **Miller H.J.**, "Emerging themes and research frontiers in GIS and activity-based travel demand forecasting," *Geographical Systems*, 5, 189-198.
1998. Cannon S.J., Kontuly T.M. and **Miller H.J.**, "GIS-based emergency response planning in a Mexico/U.S. border community," *Applied Geographical Studies*, 2, 111-130.
1996. Okabe A. and **Miller H.J.**, "Exact computational methods for calculating distances between objects in a cartographic database," *Cartography and Geographic Information Systems*, 23, 180-195.
1996. **Miller H.J.** and Storm J.D., "GIS design for network equilibrium-based travel demand models," *Transportation Research C*, 4C, 373-389.
1996. **Miller H.J.**, "Pricing policy reactions to agglomeration in a market with spatial search," *Journal of Regional Science*, 36, 393-415.
1996. **Miller H.J.**, "GIS and geometric representation in facility location problems," *International Journal of Geographical Information Science*, 10, 791-816.
1995. Lowry J.H., **Miller H.J.** and Hepner G.F., "A GIS-based sensitivity analysis of community vulnerability to hazardous contaminants on the Mexico/U.S. border," *Photogrammetric Engineering and Remote Sensing* (Special GIS Issue), 61, 1347-1359.
1995. **Miller H.J.** and Finco M.V., "Spatial search and spatial competition: A probability analysis of basic results from the spatially-restricted theory," *Annals of Regional Science*, 29, 67-89.
1994. **Miller H.J.**, "Probability-based models of spatial search," *Environment and Planning A*, 26, 383-405.

1994. O'Kelly M.E. and **Miller H.J.**, "The hub network design problem: A review and synthesis," *Journal of Transport Geography*, 2, 31-40.
1994. **Miller H.J.** "Market area delimitation within networks using geographic information systems," *Geographical Systems*, 1, 157-173.
1993. **Miller H.J.**, "Consumer search and retail analysis," *Journal of Retailing*, 69, 160-192.
1993. **Miller H.J.**, "Modeling strategies for the spatial search problem," *Papers in Regional Science*, 72, 63-85.
1992. **Miller H.J.**, "Human wayfinding, environment-behavior relationships, and artificial intelligence," *Journal of Planning Literature*, 7, 139-150.
1991. **Miller H.J.**, "Modeling accessibility using space-time prism concepts within geographical information systems," *International Journal of Geographical Information Systems*, 5, 287-301.
2011. Reprinted in the *IJGIS 25th Anniversary Virtual Issue*.
2007. Reprinted in P. Fisher (ed.) *Classics from IJGIS: Twenty Years of the International Journal of Geographical Information Science and Systems*, London: Taylor and Francis, 157-173.
1991. O'Kelly M.E. and **Miller H.J.**, "Solution strategies for the single facility minimax hub location problem," *Papers in Regional Science*, 70, 367-380.
1991. **Miller H.J.** and O'Kelly M.E., "Properties and estimation of a production constrained Alonso model," *Environment and Planning A*, 23, 127-138.
1990. **Miller H.J.** and O'Kelly M.E., "Incorporating situational effects into retail market area delimitation," *The Operational Geographer*, 8(2), 9-12.
1989. Jackson R.W., **Miller H.J.** and Hynes M., "A formal procedure for generating regional product accounts for U.S. regions," *Socio-Economic Planning Science*, 23, 271-281.
1989. O'Kelly M.E. and **Miller H.J.**, "A synthesis of some market area delimitation models," *Growth and Change*, 20(3), 14-33.

Peer-refereed Conference Proceedings

2016. **Miller H.J.**, Raubal M. and Jaegal Y. "Measuring space-time prism similarity through temporal profile curves," *Geospatial Data in a Changing World: Selected Papers of the 19th AGILE Conference on Geographic Information Science*, Springer: Lecture Notes on Geoinformation and Cartography, 51-66.
2013. **Miller H.J.**, "Location-based services in 2030: From sharing to collective action," in J. M. Krisp, (ed.), *Progress in Location-Based Services*, Lecture Notes in Geoinformation and Cartography, Springer, 29-35.
2011. **Miller H.J.**, "Collaborative mobility: Using geographic information science to cultivate cooperative transportation systems," *Procedia Social and Behavioral Sciences* (International Conference on Spatial Thinking and Geographic Information Sciences, Tokyo, Japan, 14-16 September 2011), 21, 24-28
2011. Kuijpers B., **Miller H.J.** and Othman W., "Kinetic space-time prisms," *GIS '11: Proceedings of the 19th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, New York: Association for Computing Machinery, 162-170.
2010. **Miller H.J.**, Kobayashi T. and Othman W., "Error propagation in space-time prisms," in N. J. Tate and P. F. Fisher (eds.) *Accuracy 2010: Proceedings of the Ninth International Symposium on Spatial Accuracy Assessment in the Natural*

Resources and Environmental Sciences, International Spatial Accuracy Research Association, 37-40.

Other Conference Proceedings

2008. Kuijpers B., **Miller H.J.**, Neutens T. and Othman W., “Anchor uncertainty and space-time prisms on road networks”, *Proceedings of the Dagstuhl seminar 08471 “Geographic Privacy-Aware Knowledge Discovery and Delivery.”*
2001. Hepner G.F., Cova T.J., Forster R.R. and **Miller H.J.**, “Use of remote sensing and geospatial analysis for transportation hazard assessment: An integrated university, government and private sector consortium,” *Proceedings, IEEE/ISPRS Joint Workshop on Remote Sensing and Data Fusion over Urban Areas*, IEEE-01EX482, Rome, Italy, pp.241-244.
1999. **Miller H.J.**, "GIS software for measuring space-time accessibility in transportation planning and analysis, " *Proceedings, International Workshop on geographic information systems for transportation and intelligent transportation systems*, Joint Laboratory for GeoInformation Science of the Chinese Academy of Sciences and the Chinese University of Hong Kong, China, and the National Center for Geographic Information and Analysis, USA.
1999. **Miller H.J.**, Wu Y.-H. and Hung M., "GIS-based dynamic traffic congestion modeling to support time-critical logistics," *Proceedings of the Hawaii International Conference on Systems Science*, Los Alamitos, CA: Institute of Electrical and Electronics Engineers Computer Society.
1997. **Miller H.J.** and Ray J., “GIS software for dynamic transportation congestion analysis in time-critical logistics,” *GIS/LIS’97 Proceedings*, 163-170.
1996. **Miller H.J.**, “Solving location and layout problems using GIS and simulated annealing,” *GIS/LIS’96 Proceedings*, 310-324.
1995. **Miller H.J.**, John D. Storm and Mace Bowen, "GIS design for multimodal network analysis," *GIS/LIS '95 Proceedings*, 750-759.
1994. Finco M.V., Hepner G.F. and **Miller H.J.**, "GIS modeling of contaminant pathways and human exposure in the Nogales region of the Mexico - U.S. border," *GIS/LIS '94 Proceedings*, 312-321.
1993. **Miller H.J.**, "GIS and the geometry of facility location problems," *GIS/LIS '93 Proceedings*, 530-539.

Book Chapters

- In press. Xiao, N. and **Miller, H.J.** “Cultivating big urban data,” in W. Shi, M. Goodchild, M. Batty and M.-P. Kwan (eds.) *Urban Informatics*, Springer.
2020. **Miller, H.J.** “Ohio State as a 21st century urban university,” in S. Gavazzi and D. Staley (eds.) *Fulfilling the 21st Century Land-Grant Mission: Essays in Honor of The Ohio State University’s Sesquicentennial Celebration*, Ohio State University Press.
2019. **Miller, H.J.** “Cities need mass transit,” in M. Graham, R. Kitchin, S. Mattern and J. Shaw (eds.) *How to Run a City Like Amazon, and Other Fables*, Meatspace Press, 1128-1143.
2019. **Miller, H.J.**, Song, Y. and Tribby, C.P. “Green, healthy time geography: Using time geographic concepts for sustainable mobility research,” in K. Ellegård (ed.) *Time Geography in Global Context: An Anthology*, Taylor and Francis, 75-95.
2018. **Miller, H.J.**, “Time geography,” in D. R. Montello (ed.), *Handbook of Behavioral and Cognitive Geography*, Cheltenham, UK: Edward Elgar, 74-94

2017. **Miller H.J.**, “Theories and models in urban transportation planning,” in S. Hanson and G. Giuliano (eds.) *The Geography of Urban Transportation*, 4th edition, Guilford, 113-138.
2017. **Miller H.J.**, “Time geography and space-time prism,” in D. Richardson, N. Castree, M. F. Goodchild, A. Kobayashi, W. Liu and R. A. Marston (eds.) *International Encyclopedia of Geography*, Wiley, DOI: 10.1002/9781118786352.wbieg0431.
2017. **Miller H.J.**, “Spatial data analytics,” in R. Kitchin, T. P. Lauriault and M. W. Wilson (eds.) *Understanding Spatial Media*, Sage, 149-157.
2015. **Miller H.J.**, “Spatio-temporal knowledge discovery,” in C. Brunsdon and A. Singleton (eds.) *Geocomputation: A Practical Primer*, Sage, 97-109.
2015. Song Y. and **Miller H.J.**, “Beyond the boundary: New insights from inside the space-time prism,” in M-P. Kwan, D. Wang, C. Zhou and D. Richardson (eds.) *Space-time Integration in Geography and GIScience: Research Frontiers in the US and China*, Springer, 189-209.
2014. **Miller H.J.**, “Activity-based analysis,” in M. Fischer and P. Nijkamp (eds.) *Handbook of Regional Science*, Springer, 705-724.
2014. Kobayashi T. and **Miller H.J.**, “Exploratory visualization of collective mobile objects data using temporal granularity and spatial similarity,” in G. Cervone, J. Lin and N. Waters (eds.) *Data Mining for Geoinformatics: Methods and Applications*, Springer, 127-154.
2009. Bridwell S.A. and **Miller H.J.**, “Location-based services,” in L. Liu and M. Tamer Özsu (eds.) *Encyclopedia of Database Systems*, Springer, 1639-1641.
2009. **Miller H.J.**, “Geocomputation,” in A. S. Fotheringham and P.A. Rogerson (eds.) *Handbook of Spatial Analysis*, Sage Publications, 397-418.
2009. **Miller H.J.** “Space-time measures of transportation vulnerability,” in M. Tahmisoglu and Ç.Özen (eds.) *Transportation Security Against Terrorism*, NATO Science for Peace and Security Series E: Human and Societal Dynamics, Vol. 54, IOS Press, 61-74.
2008. **Miller H.J.** “Time geography,” in S. Shekhar and H. Xiong (eds.) *Encyclopedia of GIS*, 1151-1156
2007. **Miller H.J.**, “Geographic data mining and knowledge discovery,” in J. P. Wilson and A. S. Fotheringham (eds.) *Handbook of Geographic Information Science*, Blackwell.
2007. **Miller H.J.** “Societies and cities in the age of instant access,” in H.J. Miller (ed.) *Societies and Cities in the Age of Instant Access*, Berlin: Springer, 3-37.
2007. **Miller H.J.** “Modeling accessibility using space-time prism concepts with geographical information systems: Fourteen years on,” in P. Fisher (ed.) *Classics from IJGIS: Twenty Years of the International Journal of Geographical Information Science and Systems*, London: Taylor and Francis, 175-179.
2007. **Miller H.J.**, “Social exclusion in space and time,” in K.W. Axhausen (ed.) *Moving through Nets: The Social and Physical Aspects of Travel*, Elsevier, 353-380.
2005. **Miller H.J.**, “Place-based versus people-based accessibility,” in D. Levinson and K. J. Krizek (eds.) *Access to Destinations*, Elsevier, 63-89
2005. **Miller H.J.**, “What about people in geographic information science?” in P. Fisher and D. Unwin (eds.) *Re-Presenting Geographic Information Systems*, John Wiley, 215-242.
2005. Getis A., Anselin L., Lea A., Ferguson M. and **Miller H.J.** “Spatial analysis and modeling in a GIS environment,” in R. B. McMaster and E. Lynn Usery (eds.) *A*

- Research Agenda for Geographic Information Science*, Boca Raton, FL: CRC Press, 157-196.
2005. Yuan M., Battenfield B.P., Gahegan M. and **Miller H.J.** "Geospatial data mining and knowledge discovery," in R. B. McMaster and E. Lynn Userly (eds.) *A Research Agenda for Geographic Information Science*, Boca Raton, FL: CRC Press, 365-388.
2004. **Miller H.J.**, "Activities in space and time," *Handbook of Transport 5: Transport Geography and Spatial Systems*, Elsevier Science, 647-660.
2003. **Miller H.J.**, "Transportation and communication lifeline disruption," in S. L. Cutter, D. B. Richardson and T. Wilbanks (eds.) *The Geographic Dimension of Terrorism*, New York: Routledge, 145-152.
2001. **Miller H.J.** and Jiawei Han, "Geographic data mining and knowledge discovery: An overview," in H. J. Miller and J. Han (eds.) *Geographic Data Mining and Knowledge Discovery*, London: Taylor and Francis, 3-32.
2000. Batty M. and **Miller H.J.**, "Representing and visualizing physical, virtual and hybrid information spaces" in D. Janelle and D. Hodge (eds.) *Information, Places, and Cyberspace: Issues in Accessibility*, Berlin: Springer-Verlag, 133-146.

Book Reviews

2014. J. Campoli *Made for Walking: Density and Neighborhood Form*. Cambridge, Massachusetts: Lincoln Institute of Land Policy; *Journal of Regional Science*, 53, 954-955.
2002. P. Atkinson and D. Martin (eds.) *GIS and Geocomputation*, Taylor and Francis, *Innovations in GIS 7; Geographical Analysis*, 34, 286-288.
2001. A. S. Fotheringham and M. Wegener (eds.) *Spatial Models and GIS: New Potential and New Models*, Taylor and Francis, *GISDATA 7; Environment and Planning B: Planning and Design*, 28, 623-636.
1999. S. Openshaw and C. Openshaw, *Artificial Intelligence in Geography*, New York: John Wiley; *Journal of Regional Science*, vol 39.

Other Publications

2018. **Miller, H.J.**, O'Kelly, M.E., Jaegal, Y., Bachman, W.H., Huntsinger, L., Macfarlane, G.S., "Estimating external travel using purchased third party data," *Final Report, State Job Number 134877, Ohio Department of Transportation, Office of Statewide Planning and Research*. <http://worldcat.org/oclc/1043833873/>
2009. **Miller H.J.**, "Transport 2.0: Meeting grand transportation challenges with geographic information science," *ArcNews* 30(4), 1-5.
2003. **Miller H.J.**, "What about people in geographic information science?" guest editorial, *Computers, Environment and Urban Systems*, 27, 447-453.
2000. **Miller H.J.** and Jiawei Han, "Discovering geographic knowledge in data rich environments: A report on a specialist meeting," *SIGKDD Explorations: Newsletter of the (Association for Computing Machinery) Special Interest Group on Knowledge Discovery and Data Mining*, 1(2), 105-108; available at <http://www.acm.org/sigs/sigkdd/explorations/>

1999. **Miller H.J.** and Jiawei Han, "Discovering geographic knowledge in data-rich environments," Specialist Meeting Report, National Center for Geographic Information and Analysis – Project Varenus.
1997. **Miller H.J.** "Towards consistent travel demand estimation in transportation planning: A guide to the theory and practice of equilibrium travel demand modeling," Research Report, Bureau of Transportation Statistics, U. S. Department of Transportation.
1993. Hepner G.F. and **Miller H.J.**, "Using GIS for environmental assessment," *ACSM Bulletin*, 146 (November/December), 42-46.

Grants and Contracts

Extramural

- 2019 – 2024. Flaherty J., Gregory M., Hebert, C., **Miller H.J.** Odei J., Rayo M. and Root E. (PI) "GeoHAI: A novel geographic tool for hospital acquired infection visualization and assessment," *Agency for Healthcare Research and Quality, National Institutes of Health* (1R01HS027200-01), \$2,470,297
- 2019 – 2020. Hyder, A. (PI), Kauffman E.B. and **Miller, H.J.** "Franklin Co overdose data to action project: Strategy 3: Innovative surveillance - Linking overdose data with risk / protective factor data," *Franklin County Public Health*, \$177,564.
- 2019 – 2020. Akar G., Clifton K., Gopalakrishnan S., **Miller H.J.** (PI), Tufte K. "Exploring a research network of urban sustainability observatories via data-enabled university-community partnerships," (BCS-1929927), National Science Foundation, \$49,884.
- 2016 – 2018. Bohrer G., **Miller H.J.** (PI) and Miller J.A., "Conferences: Advancing movement and mobility science by bridging research on human mobility and animal movement ecology," (BCS 1560727) *National Science Foundation*; \$69,999.
- 2015 – 2017. **Miller H.J.** (PI) and O'Kelly M.E., "Estimating external travel using purchased third party data" (PID 97397), *Ohio Department of Transportation*, \$631,662.
- 2013 - 2018. Cashden E.A. (PI), Creem-Regehr S., **Miller H.J.** and Stefanucci J., "Age changes and sex differences in spatial cognition: Testing the role of mobility in three non-industrial societies and the US" (SMA 1329091), *National Science Foundation*, \$999,871 (Ohio State subaward: \$19,853).
- 2013 - 2015. Farber S. (PI), **Miller H.J.** and O'Kelly M.E. "Collaborative Research: Interaction potential and the social and economic vibrancy of metropolitan regions" (BCS 1339574), *National Science Foundation*; \$160,230 (Ohio State award: \$41,015).
- 2012 - 2016. Bartholomew K., **Miller H.J.** (PI) and Zhou X., "Green accessibility: Measuring the environmental costs of space-time prisms in sustainable transportation planning" (BCS 1224102), *National Science Foundation*; \$416,738.
- 2011 - 2016. Brown B.B. (PI), **Miller H.J.**, Smith K.R. and Werner C.M., "Complete the streets 3 ways: Effects on Activity and BMI" (1R01CA157509-01), *National Cancer Institute, National Institutes of Health*; \$2,900,000 (Ohio State subaward: \$90,345).

- 2000 - 2004. Cova T.J., Forster R.R., Hepner G.F. (PI) and **Miller H.J.**, "National Consortia for Remote Sensing in Transportation: Disaster, Accidents, Safety and Hazards Consortium (NCRST-DASH)," *U.S. Department of Transportation*, in response to DTRS56-00-BAA-004. Consortium consisting of University of New Mexico, George Washington University, Oak Ridge National Laboratory and University of Utah; \$678,261
1997. **Miller H.J.**, "Dynamic congestion analysis module for the Strategic Flow Analysis System (STAFLO) GIS software package," *Military Traffic Management Command - Transportation Engineering Agency* through the Transportation Center at the University of Tennessee; \$40,714.
- 1994 - 1995. **Miller H.J.**, "Spatial search and spatial competition," *National Science Foundation* (SBR-9320126), \$43,882.
- 1991 - 1995. Hepner G.F. (PI), Kontuly T.M., McCoy R. and **Miller H.J.**, "GIS development for U.S./Mexico border environmental problems," *U.S. Environmental Protection Agency*; \$509,700.

Intramural and Seed Funding

- 2019 - 2021. Akar, G., Irwin, E. (co-PI), Chen, Z., Hertziger, A., McNair, A.W., **Miller, H.J.** (co-PI) and Reece, J. "Smart Columbus impacts assessment," *Smart@OhioState Initiative*, \$333,515
- 2019 - 2020. **Miller, H.J.** (PI) and Akar, G. "Regional sustainability dashboard for the Mid-Ohio Regional Planning Commission," *Office of Energy and Environment*, The Ohio State University, \$150,000.
2018. **Miller, H.J.** (PI), Hyder, A. and Southerland, L. "Franklin County Opioid Crisis Activity Levels (FOCAL) map," *Opioid Innovation Fund*, Office of Academic Affairs, The Ohio State University, \$96,762.
2017. Arora, A. and **Miller, H.J.** "Measuring and analyzing active transportation using low-cost wireless sensor networks," *Translational Data Analytics Institute seed grant program*, The Ohio State University, \$32,719.
2002. **Miller, H.J.** "DIGIT lab geographic visualization platform and supporting input/output hardware," *Research Instrumentation Fund*, Vice President for Research, University of Utah, \$20,825.
1999. **Miller, H.J.** "Server upgrades and graphic workstation for geographic visualization," *Research Instrumentation Fund*, Vice President for Research, University of Utah, \$45,800.
1998. **Miller, H.J.** "GIScience research data server," *Research Instrumentation Fund*, Vice President for Research, University of Utah, \$53,100.
1997. **Miller, H.J.** "DIGIT Lab workstations for spatial data processing," *Research Instrumentation Fund*, Vice President for Research, University of Utah, \$47,640.
1996. **Miller, H.J.** "DIGIT Lab high-end graphics workstations," *Research Instrumentation Fund*, Vice President for Research, University of Utah, \$32,016.
1995. **Miller, H.J.** "Department of Geography file server upgrade and cartographic output device," *Research Instrumentation Fund*, Vice President for Research, University of Utah, \$30,300

Keynote, Plenary and Endowed Lectures

2019. "Respect complexity: Data-enabled sustainable urban systems science," inaugural Earth Day workshop, *KDD2019: 25th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, Anchorage, Alaska, August 5.

2018. “Data-driven geography: Some big thoughts about GIScience in an era of plenty,” *Vince Ebert Distinguished Lecture*, Department of Geography, University at Buffalo (SUNY), October 5.
2018. “Can we build data-driven geographic knowledge?” *Workshop on Spatial Big Data and Machine Learning in GIScience*, GIScience 2018, Melbourne, Australia, August 28.
2018. “Data-driven geography: Some big thoughts about GIScience in an era of plenty,” *Spatial Analysis and Modeling/Geographical Analysis Plenary*, American Association of Geographers annual meeting, New Orleans, LA, April 12
2018. “Data-driven geography: Some big thoughts about GIScience in an era of plenty,” *Jack and Laura Dangermond Lecture*, Department of Geography, University of California, Santa Barbara, Santa Barbara, California, March 8.
2017. “The Columbus smart city project: Big opportunities, big challenges,” workshop on *The Social and Environmental Implications of Smart Cities: Towards a Global Comparative Research Agenda*, Calgary, Canada, August 16 (with Carla Bailo, Ohio State University)
2017. “Big Data for healthy places: Building healthier environments through opportunistic GIScience,” *16th Annual Malcolm Comeaux Lecture*, School of Geographical Sciences and Urban Planning, Arizona State University, March 14th.
2016. “Big Data for healthy places: Building healthier environments through opportunistic GIScience,” *GI-Forum*, Salzburg, Austria, July 5.
2015. “Data-driven geography for a speedy world,” *International Land Use Symposium 2015*, Dresden, Germany, November 12.
2015. “Data-driven geography for a speedy world,” *Second International Conference on Spatial Data Mining and Geographic Knowledge Services*, Fuzhou, China, July 9.
2015. “Geographic information science for a speedy world,” *Rethink Research: University of Saskatchewan Research Intensification Series*, Saskatoon, Canada, March 4.
2014. “The Moving Across Places Study (MAPS): Measuring the influence of built environmental interventions on physical activity,” *Howard A. Stafford Lecture*, Department of Geography, University of Cincinnati, Cincinnati, Ohio, November 14.
2014. “Green accessibility: Calculating the environmental costs of space-time prisms in sustainable transportation planning,” *Mobile Tartu 2014: Mobile Data, Geography, LBS*, Tartu, Estonia, July 1.
2014. “A journey inside the space-time prism: Modeling visit probabilities within space-time prisms,” *International Time Geography Days*, Linköping, Sweden, May 14th.
2013. “Big Time Geography: Time geography in the era of Big Data,” *GeoComputation 2013*, Wuhan, China, May 24.
2013. “Location and cooperation: Avoiding collective failures through geographic information science,” *GIS Research UK (GISRUK) symposium*, Liverpool, UK, April 5th.
2013. “Collaborative mobility: Using geographic information science to cultivate cooperative transportation systems,” *Richard Murphy Lecture*, Department of Geography and Environmental Studies, University of New Mexico, March 22.
2012. “Space-time GIS for a crowded, connected and dynamic world,” *Space-time GIScience and Analysis Forum*, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China, November 15.

2012. “Space-time GIS for a crowded, connected and dynamic world,” *Space-time GIScience and Analysis Forum*, Institute of Geographical Sciences and Natural Resource Research, Chinese Academy of Sciences, Beijing, China, November 13.
2012. “LBS in 2030: From sharing to collective action,” *LBS 2012: 9th Symposium on Location-based Services*, Munich, Germany, October 17.
2012. “Big time geography: Time geography in the era of sensed mobility,” *Time-Geographic Information Science: a Workshop on Time-Geography, GIScience 2012: Seventh International Conference on Geographic Information Science*, Columbus, Ohio, September 18.
2012. “Big time geography: Time geography in the era of sensed mobility,” *Mobile Tartu 2012: Mobile Phones, Geography and Location-based Services*, Tartu, Estonia, August 23.
2011. “Collaborative mobility: Using geographic information science to cultivate cooperative transportation systems,” *Frontiers in Transportation International Workshop*, Niagara-on-the-Lake, Ontario, Canada, October 20.
2011. “Collaborative mobility: Using geographic information science to cultivate cooperative transportation systems,” *STGIS 2011: International Conference on Spatial Thinking and Geographic Information Sciences*, Tokyo, Japan, September 16.
2011. “Transparent transportation and mirror worlds: From sensed to smart transportation,” *Geoinformatik 2011*, Münster, Germany, June 15.
2010. “Measuring livability: How do we measure progress and success?” *Transportation for Livable Communities: Charting a Research Agenda* conference, sponsored by the Research and Innovative Technology Administration, U.S. Department of Transportation, Washington, DC, October 18.
2010. “Mobility in geospaces: What can we say analytically (so far)?” *Movement Pattern Analysis (MPA’10)* workshop, Zurich, Switzerland, September 14.
2010. “Transparent transportation and mirror worlds,” *Fleming Lecture in Transportation Geography*, Association of American Geographers annual meeting, April 17.
2009. “Grand transportation challenges and geographic information science,” *2009 International Workshop on Geographic Information Systems for Transportation*, Wuhan, China, Dec 4-6.
2009. “What about people in geographic information science?” *Arthur H. Robinson Lecture*, Department of Geography, The Ohio State University, Columbus, Ohio, February 19.
2008. “Geographic theory and geospatial knowledge discovery,” keynote address, *8th International Conference on Data Mining*, Institute of Electrical and Electronics Engineers, Pisa, Italy, December 18.
2008. “Place-based versus people-based accessibility,” *Reta A. Hayes Lecture*, College of Geosciences, Texas A&M University, College Station, Texas, November 21.
2005. “Place-based versus people-based accessibility: The role of geospatial technologies,” keynote lecture, *GISPlanet: Second International Conference and Exposition on Geographic Information*, Estoril, Portugal, May 30 – June 2.
2004. “Place-based versus people-based accessibility,” plenary lecture, *Accessibility to Destinations: Re-thinking the Transportation Future of our Region*, Center for Transportation Studies, University of Minnesota, November 8-9.
2003. “Trends in geographic information systems and science,” keynote address, *Geographic Information Systems for Transportation (GIS-T) annual conference*

- and symposium, Colorado Springs, CO, March 17-19.
2002. “What about people in geographic information science?” plenary lecture, workshop on *Action-oriented Approaches in Geographic Information Science*, Holden, ME, November 2-4

Other Invited Lectures and Presentations

2020. “Movement analytics for sustainable mobility,” *Yi-Fu Tuan Lecture Series*, Department of Geography, University of Wisconsin- Madison, November 13.
2020. *Post-Pandemic City Futures*, panel discussion, Spatial Analysis and Data (SAD) 2020 webinar series, Newcastle University, University of Bristol and the Alan Turing Institute, October 6.
2020. “Smart Columbus performance measurement plan,” *Institute of Transportation Engineers webinar*, September 14 (co-presenters: Andrew Wolpert – City of Columbus; Diane Newton – HNTB; Christopher Toth – WSP and Rama Boyapati – Battelle).
2019. “Towards sustainable mobility: New measures and methods for 21st century transportation,” Department of Geography, McGill University, Montreal, Canada, October 18.
2019. “Geospatial data for healthy places: Building environments for active living through opportunistic GIScience,” *Methods: Mind the Gap Webinar Series* National Institutes of Health Office of Disease Prevention (ODP), September 19; <https://prevention.nih.gov/education-training/methods-mind-gap>
2019. "Using GIS to make urban mobility more sustainable," Department of Geography and Environmental Science, Hunter College, City University of New York, May 1.
2018. “Data quality standards when integrating geospatial data sets,” panel discussion, *Federal Committee on Statistical Methodology, Geospatial Interest Group (GIG) Workshop*, Washington DC, October 26.
2017. “The Columbus smart city project: Big opportunities, big challenges,” Warwick Institute for the Study of Cities, University of Warwick, Coventry, UK, November 9.
2017. “Data-driven geography: Some big thoughts for Geographic Information Science in an era of plenty,” Centre for Interdisciplinary Methodology, University of Warwick, Coventry, UK, November 8.
2017. “Data-driven geography: Some big thoughts for Geographic Information Science in an era of plenty,” Department of Geography, University of Leicester, Leicester, UK, November 7.
2017. “Big data for healthy places: Building healthier environments through opportunistic GIScience,” Centre for Advanced Spatial Analysis, University College London, London, UK, November 6.
2017. “Data-driven geography: Some big thoughts for Geographic Information Science in an era of plenty,” Center for Geographic Information Science, University of Maryland. November 1
2017. “The Moving Across Places Study (MAPS): Public transit, physical activity and walking route choice,” *From Observations to Predictions of Movement*, Dagstuhl seminar 17282, Schloss Dagstuhl, Wadern, Germany, July 10.

2017. “Big data for healthy places: Building healthier environments through opportunistic GIScience,” Institute for Cartography and Geoinformation, ETH-Zurich, Zurich, Switzerland, June 1.
2017. “Big data for healthy places: Building healthier environments through opportunistic GIScience,” Department of Geography and the Environment, University of Denver, May 17.
2017. Panel discussion on university partnerships for fostering smart cities, College of Engineering, University of Denver, May 16.
2017. “Big data for healthy places: Building healthier environments through opportunistic GIScience,” *Big Data in Cities: Barriers and Benefits Symposium*, Brantford, Ontario, Canada, May 8.
2017. “Using GIS to make urban mobility more sustainable,” webinar, Geographical Sciences Committee, National Academies of Sciences, Engineering and Medicine, March 1.
2016. “GIS for transportation in the 21st century,” special session on Spatial Perspectives on Transport Systems, *GI-Forum*, Salzburg, Austria, July 6.
2015. “Does public transit generate new physical activity?” Voices from the Community lecture series, College of Public Health, The Ohio State University, September 30.
2015. “Green accessibility: Estimating the environmental costs of space-time prisms in sustainable transportation planning,” Institute of Geographic Sciences and Natural Resource Research, Chinese Academy of Sciences, Beijing, China, July 14.
2015. “The Moving Across Places Study (MAPS): Measuring the influence of built environmental interventions on physical activity,” Urban Big Data Centre, University of Glasgow, Glasgow, UK, June 23.
2014. “The Moving Across Places Study (MAPS): Measuring the influence of built environmental interventions on physical activity,” John Glenn School of Public Affairs colloquium series, The Ohio State University, December 1.
2014. (Three lectures) “Green accessibility: Estimating the environmental costs of space-time prisms in transportation planning, “Location and cooperation: Avoiding collective failures through geographic information science” and “Big time geography: Time geography in the era of sensed mobility,” College of Transportation Science and Engineering,” Harbin Institute of Technology, Harbin, China, July 16-18.
2014. “Green accessibility: Estimating the environmental costs of space-time prisms in transportation planning,” Department of Geography, The Pennsylvania State University, April 18.
2014. “Space-time data science for a speedy world,” *Big Data Future* conference, Columbus, Ohio, March 20.
2013. “Beyond sharing: Cultivating cooperative transportation systems through geographic information science,” Institute for Population Research, The Ohio State University, October 1.
2013. “Beyond sharing: Cultivating cooperative transportation systems through geographic information science,” Department of Geography, Kent State University, Kent, Ohio, September 20.
2012. “Beyond sharing: Cultivating cooperative transportation systems through geographic information science,” Department of Transportation Science, Kungliga Tekniska Högskolan (Royal Institute of Technology), Stockholm, Sweden, August 14.

2012. “Collaborative mobility: Using geographic information science to cultivate cooperative transportation systems,” School of Geography and Earth Sciences, McMaster University, Hamilton, ON, Canada, March 27.
2011. “Mobility in geospaces: What can we say analytically (so far)?” Institute for Geoinformatics, University of Münster, Münster, Germany, June 21.
2011. “Transparent transportation and mirror worlds: From sensed to smart transportation,” Department of Infrastructure Engineering, University of Melbourne, Melbourne, Australia, March 30.
2011. “Transparent transportation and mirror worlds: From sensed to smart transportation,” National Information and Communication Technologies – Australia (NICTA), University of New South Wales, Sydney, Australia, March 21.
2010. “Mobility in geospaces: What can we say analytically (so far)?” International Institute for Geoinformation Science and Earth Observation, University of Twente, Enschede, The Netherlands, October 8.
2010. “Place-based versus people-based science with applications in health,” Clinical Research and Methods (CRAM) seminar series, Center of Excellence in Women’s Health, School of Medicine, University of Utah, February 12.
2009. “What about people in geographic information science?” The State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan, China, December 6.
2009. “What about people in geographic information science?” Regional Research Institute, West Virginia University, Morgantown, WV, October 8.
2009. “What about people in geographic information science?” Department of Theoretical Computer Science, Hasselt University, Hasselt, Belgium, May 19.
2008. “GIS tools for measuring accessibility in real and virtual spaces,” Department of Geography and Department of Civil Engineering, University of Connecticut, February 29.
2008. “GIS tools for measuring accessibility in real and virtual spaces,” Geographic Information Science and Technology Group, Computational Sciences and Engineering Division, Oak Ridge National Laboratory, January 25.
2008. “GIS tools for measuring accessibility in real and virtual spaces,” Department of Geography, University of Tennessee, January 24.
2007. “GIS tools for measuring accessibility in real and virtual spaces,” Department of Geography, Florida State University, Tallahassee, Florida. November 16.
2007. “GIS tools for measuring accessibility in real and virtual spaces,” National e-Science Centre, University of Edinburgh, Edinburgh, Scotland, U.K., September 6.
2006. “Measuring space-time accessibility in network and multi-dimensional spaces,” Institute of Remote Sensing Applications, Chinese Academy of Sciences, Beijing, China, May 16.
2006. “Necessary space-time conditions for human interaction,” Institute of Geographic Science and Natural Resource Research, Chinese Academy of Sciences, Beijing, China, May 16.
2006. “Place-based versus people-based accessibility,” Department of Space Information Science and Department of Geography, Peking University, May 18.
2006. “Place-based versus people-based science: The role of geo-spatial technologies,” School of Architecture, Tsinghua University, Beijing, China, May 19.
2006. “Measuring space-time accessibility in network and multidimensional spaces,” Department of Geography, East China Normal University, Shanghai, China, May 20.

2006. "Place-based versus people-based science: The role of geo-spatial technologies," International Institute for Earth System Science, Nanjing, China, May 24.
2006. "Geographic information systems and their role in health research," Cancer Control and Population Sciences research group, Huntsman Cancer Institute, Salt Lake City, UT, January 18.
2005. "Place-based versus people-based accessibility," Department of Geography, University of Iowa, March 4.
2004. "Geospatial and spatio-temporal knowledge discovery: Overview and agenda," National Geospatial-Intelligence Agency (Oct. 19), Central Intelligence Agency (Oct. 19) and National Security Agency (Oct. 20), Washington, DC (co-sponsored by the University Consortium for Geographic Information Science).
2004. "Place-based versus people-based science: The role of geospatial technologies," research roundtable, Department of Family and Preventive Medicine, University of Utah, September 17.
2004. "What are geographic information systems? And where are they going?" public health seminar, Department of Family and Preventive Medicine, University of Utah, September 9.
2004. "What are geographic information systems? And where are they going?" *Guy F. Atkinson Distinguished Lecture Series*, Department of Geology and Geophysics, University of Utah, January 22.
2003. "Geospatial and spatio-temporal knowledge discovery: Overview and agenda," plenary lecture *Geospatial Visualization and Knowledge Discovery Workshop*, Lansdowne, VA, November 17-20.
2003. "Mapping and measuring space-time accessibility in network and multidimensional spaces," Department of Geography, Arizona State University, November 7.
2003. "Mapping and measuring space-time accessibility in network and multidimensional spaces," seminar on "Accessibility: New perspectives and practices," sponsored by the Netherlands Graduate School of Housing and Urban Research (NETHUR), University of Utrecht, The Netherlands, October 30.
2003. "GIS tools for measuring space-time accessibility in transportation networks," Institute for Geoinformatics, University of Münster, Münster, Germany, May 23.
2002. "GIS tools for measuring space-time accessibility in transportation networks," Institute for Transportation Studies and Department of Urban and Regional Planning, University of California – Irvine, March 1.
2001. "GIS tools for measuring space-time accessibility in transportation networks," Institute for Infrastructure, Royal Institute of Technology, Stockholm, Sweden, December 4.
2001. "GIS tools for measuring space-time accessibility in transportation networks," Centre for Advanced Spatial Analysis (CASA), University College London (co-sponsored by CASA, Birkbeck College School of Geography and the U. K. Association for Geographic Information), September 3.
2001. "GIS tools for measuring space-time accessibility in transportation networks," University of Oregon (February 8) and Oregon State University (February 9), Association of American Geographers *Visiting Geographic Scientist Program*.
2000. "GIS tools for measuring space-time accessibility within transportation networks," *Geographic Information Science and the Disciplines Lecture Series*, Program for Spatial Analysis/GIS, University of Michigan, Ann Arbor, December 8.

2000. "Extending geographic representation in spatial analysis," Department of Geography, University of Hawaii, March 5.
1999. "Measuring space-time accessibility within transportation networks," Department of Geography, San Diego State University, October 15.
1999. "Measuring space-time accessibility within transportation networks," Center for Spatial Information Science, University of Tokyo, April 23.
1997. "Developing a GIS toolbox for solving complex location and layout problems," Department of Geography, Arizona State University, April 11.
1997. "GIS and logistics: How the new digital geography can change the way you do business," Council of Logistics Management, Salt Lake Roundtable, January 7.
1996. "GIS design for a simultaneous transportation equilibrium model," Annual Meeting of the Institute of Transportation Engineers, Utah Chapter, Salt Lake City, January 23.
1996. "GIS design for a simultaneous transportation equilibrium model," Department of Geography and Regional Development, University of Arizona, January 19.
1995. "A GIS-based simultaneous transportation equilibrium model," Department of Geography and Earth Resources, Utah State University, Logan, Utah, May 12.
1993. "Applications of geographic information systems in retail analysis," Department of Marketing, University of Utah, May 6.

Invited Participation at Workshops and Research Symposia

2020. *Roundtable on Geospatial Knowledge Infrastructure*, United States Geological Survey, United Nations Statistical Division and Geospatial Media and Communication, online, July 30.
2020. *Multimodal Mobility and Accessibility Measures for National-Level Performance Management, Scenario Analysis and Policy Studies*, Federal Highway Administration, U.S. Department of Transportation, March 3.
2017. *From Observations to Predictions of Movement*, Dagstuhl seminar 17282, Schloss Dagstuhl, Wadern, Germany, July 9-14.
2016. PhD workshop, GIScience Doctoral College, University of Salzburg, Salzburg, Austria, July 4.
2016. *The Japan-US Round Table for Innovation and Collaboration in Super Smart Society*, Embassy of Japan, Washington DC April 21.
2014. *Big Data and Urban Informatics*, Chicago, IL, August 11-12.
2014. *Pre-AAG Workshop on Open GIS*, Tampa, Florida, April 7.
2013. *Social Issues in Computational Transportation Science*, seminar 13512, Schloss Dagstuhl - Leibniz Center for Informatics, Wadern, Germany, December 16-19.
2013. "Big Data and the future of social science research," invited presentation, *Workshop on Big Data*, Institute for Population Research, The Ohio State University, May 9.
2012. *Social Issues in Computational Transportation Science*, seminar 022, National Institute of Informatics – Shonan Center, Japan, December 16-20.
2010. *Representing, Analyzing and Visualizing Mobile Objects*, seminar 10491, Schloss Dagstuhl - Leibniz Center for Informatics, Wadern, Germany, December 5-10.
2010. *Computational Transportation Science*, seminar 10121, Schloss Dagstuhl - Leibniz Center for Informatics, Wadern, Germany, March 21-26.
2009. *Regional Science: The Next Fifty Years. A Symposium on the Occasion of the 50th Anniversary of the Journal of Regional Science*, Federal Reserve Bank of New York, New York City, NY, April 23-24.

2008. "Space-time measures of transportation network vulnerability," invited paper, *Transportation Security Against Terrorism*, NATO Advanced Research Workshop, hosted by Center of Excellence – Defense Against Terrorism, Ankara, Turkey, 5-6 May.
2005. *Confidentiality Issues Arising from the Integration of Remotely Sensed and Self-Identifying Data*, Committee on the Human Dimensions of Global Change, National Research Council, U.S. National Academies, Washington DC, December 9-10.
2005. *GPS and Time-Geography Applications for Activity Modeling and Microsimulation*, Center for Spatially Integrated Social Sciences, University of California – Santa Barbara, Santa Barbara, CA 10-11 October.
2004. *Information and Communication Technologies, Innovation and the Transport System*, Sustainable Transport in Europe and Links and Liaisons with America (STELLA) network, Budapest, Hungary, April 22-23.
2003. "Travel chances and social exclusion," invited resource paper, *10th International Conference on Travel Behavior Research*, Lucerne, Switzerland, August 10-14.
2002. *Geographic Dimensions of Terrorism*, Association of American Geographers, Washington, DC, January 24-27.
2002. *Information and Communication Technologies, Innovation and the Transport System*, Sustainable Transport in Europe and Links and Liaisons with America (STELLA) and Sustainable Transportation Analysis and Research (STAR) research networks, Arlington, VA, January 15-17.
2001. *Representing Space and Time in Digital Geography*, Loughborough University, sponsored by Birkbeck College School of Geography and the (U.K.) Economic and Social Research Council.
1999. "GIS software for measuring space-time accessibility in transportation planning and analysis," invited paper, *Geographic Information Systems for Transportation (GIS-T) and Intelligent Transportation Systems (ITS)*, The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong, April 26-28.
1999. *Geography in the 21st Century*, Association of American Geographers, Washington, DC, December 11-12.
1999. *Applications of Remotely Sensed Data to Transportation*, Center for Mapping, The Ohio State University, Columbus, OH, August 12-13.
1999. *Geographic Information Science and Geospatial Activities at the NSF*, National Science Foundation, Arlington, VA, January 14-15.
1998. *Spatial Analysis: Status and Trends*, Project Varenus, National Center for Geographic Information and Analysis (NCGIA), Santa Barbara, CA, December 10-12.
1998. "Measuring space-time accessibility benefits within transportation networks," invited paper, *Symposium on Analytical Economic Geography and Regional Change*, Storrs, CT, March 23-24.
1995. *GIS and Disaggregate Individual and Behavioral Transportation Modeling*, National Center for Geographic Information Analysis (NCGIA) I-10 Workshop on Santa Barbara, CA, June 7-8.

Papers and Panels at Professional Conferences

Attached as an appendix.

U.S. National Academies Policy Committees

- 2001 – 2003. *Spatial Information Infrastructure for Multi-Modal Transportation Systems*, Transportation Research Board, National Research Council.
- 2000 – 2002. *Identifying Data Needs for Place-based Decision Making*, Commission on Geosciences, Environment and Resources, National Research Council.

Journal Special Issue Editorship

2014. Rein Ahas, **Miller H.J.**, and Frank Witlox, “Special issue: Mobility, communication and urban space,” *Journal of Urban Technology*, 21 (2).

Conference and Workshop Organization

Organizer/Program Director

2017. Program co-chair (with Kathleen Stewart), *University Consortium for Geographic Information Science Symposium*, May 23-25, Arlington, VA.
2014. Co-organizer (with Piyushimita (Vonu) Thakuriah), workshop on *Big Data and Open Data for Transportation Services and Public Engagement*, 93rd annual meeting of the Transportation Research Board, Washington, DC, January 12-16.
2013. Organizing committee (with Piyushimita (Vonu) Thakuriah (Chair), Nebiyou Tilahun (Co-Chair), Moira Zellner (Co-Chair) and Glenn Geers), workshop on *Big Data and Urban Informatics: e-Infrastructure for Social Science Research on Sustainable Urban Systems*, University of Illinois at Chicago, March 28-29.
2013. Co-organizer (with Piyushimita (Vonu) Thakuriah), workshop on *Big Data Informatics: Innovations in Mining Structured and Unstructured Information for Mobility Decision Making*, 92nd annual meeting of the Transportation Research Board, Washington, DC, January 13-17.
2011. Co-organizer (with Timothy Nyerges), *GIS for Livable and Sustainable Communities*, Keck Center, U.S. National Academies, May 5-6 (sponsored by the U.S. Federal Highway Administration and the Transportation Research Board.)
2010. Co-organizer (with Piyushimita (Vonu) Thakuriah), workshop on *Pervasive Data for Transportation: Innovations in Distributed and Mobile Information Discovery in Intelligent Transportation Systems and Location-Based Services*, 90th annual meeting of the Transportation Research Board, Washington, DC, January 23-27.
2008. General chair, *GIScience 2008: Fifth International Conference*, Park City, Utah, September 23-26.
2007. Organizer and chair, workshop on *Advanced Research in Geospatial Information Technologies for Transportation*, Keck Center, U.S. National Academies, Washington, DC, September 20-21; sponsored by the U.S. Federal Highway Administration and the Transportation Research Board.
2006. Program co-chair (with Andrew Frank and Michael Goodchild), *GIScience 2006: Fourth International Conference*, Münster, Germany, September 20-23.
2005. Organizer and Chair, *Societies and Cities in the Age of Instant Access*, research symposium, University of Utah, Salt Lake City, UT, November 10-12.
2004. Program co-chair (with Max Egenhofer and Christian Freska) *GIScience 2004: Third International Conference*, Adelphi, MD, October 20-23.

2003. Co-organizer (with Barbara Buttenfield and Lynn Usery), *Geospatial Visualization and Knowledge Discovery Workshop*, sponsored by the University Consortium for Geographic Information Science, United States Geological Survey and the Advanced Research and Development Activity center, Lansdowne, VA, November 17-20.
- 1998 – 1999. Co-leader (with Jiawei Han), *Discovering Geographic Knowledge in Data-rich Environments*, Research Initiative, Project Varenus, National Center for Geographic Information and Analysis (NCGIA).
1998. Conference co-director (with George Hepner), *University Consortium for Geographic Information Science (UCGIS) Summer Assembly*, Park City, UT, June 23-27.
1994. Program director, *Annual Meeting of the Great Plains/Rocky Mountains Division of the Association of American Geographers*, Salt Lake City, Utah, October 13-15.

Steering/Program/Scientific Committees

2020. *GIScience 2020*, Poznan, Poland, September 15-18.
2020. *Mobile Tartu 2020: Mobile Data, Geography, LBS*, Tartu, Estonia, June 29-July 1.
2018. *Mobile Tartu 2018: Mobile Data, Geography, LBS*, Tartu, Estonia, June 27-29.
2018. *14th International Conference on Location-Based Services*, Zurich, Switzerland, January 15-17.
2016. *Analysis of Movement Data (AMD2016)*, Montreal, Canada, 27 September.
2016. *Workshop on Visually-supported Computational Movement Analysis*, Helsinki, Finland, June 14.
2016. *GIScience 2016: 9th International Conference on Geographic Information Science*, Montreal, Canada, September 27-30.
2016. *Mobile Tartu 2016: Mobile Data, Geography, LBS*, Tartu, Estonia, June 29 - July 1.
2015. *International Workshop on Computational Transportation Science (IWCT) 2015*, Seattle, Washington, November 3.
2015. *LBS 2015: 12th Symposium on Location-based Services*, September 16-18, Augsburg (Germany).
2015. *AAG 2015 Symposium on CyberGIS for Fostering New Frontiers of Geographic Research and Education*, April 21-25, Chicago, IL.
2015. *International Workshop on Spatiotemporal Computing*, July 13-15, George Mason University (GMU), Fairfax, Virginia, USA
2015. *International Conference on Location-based Social Media*, Athens, Georgia, March 5-7.
2015. *Second International Conference on Spatial Data Mining and Geographical Knowledge Services (ICS DM) 2015*, July 8-10, Fuzhou, China.
2014. *7th ACM SIGSPATIAL International Workshop on Computational Transportation Science*, Dallas, Texas, November 4 .
2014. *GIScience 2014: 8th International Conference on Geographic Information Science*, Vienna, Austria, September 23-26.
2014. *Mobile Tartu: Mobile Data, Geography, LBS*, Tartu, Estonia, 1-3 July.
2013. *6th ACM SIGSPATIAL International Workshop on Computational Transportation Science*, Orlando, Florida, November 5.

2013. *GIS Ostrava 2013: Geoinformatics for City Transformations*, Ostrava, Czech Republic, January 21-23.
2013. *Mobile Ghent 2013*, Ghent, Belgium, October 24-25.
2013. *Conference on Spatial Information Theory 2013 (COSIT)*, Scarborough, UK, September 3-5.
2012. *Fifth International Workshop on Computational Transportation Science (IWCTS 2012)*, Redondo Beach, CA, November 6.
2012. *LBS 2012: 9th Symposium on Location-based Services*, Munich, Germany, October 16-18.
2012. *GIScience 2012: 7th International Conference on Geographic Information Science*, Columbus, Ohio, September 18-21.
2012. *Time-Geographic Information Science: A workshop on Time-Geography*, in conjunction with *GIScience 2012*, Columbus, Ohio, September 18.
2012. *Mobile Tartu 2012: Mobile Phones, Geography and Location-based Services*, Tartu, Estonia, August 22-25.
2011. *4th ICA Workshop on Geospatial Analysis and Modeling*, Vancouver, B.C., Canada, August 10-12.
2011. *Geoinformatics 2011: 19th International Conference on Geoinformatics* Shanghai, China. June 24-26.
2011. *International Conference on Spatial Data Mining and Geographical Knowledge Services (ICS DM)*, Fuzhou city, China, June 29 – July 1.
2011. *STGIS 2011: International Conference on Spatial Thinking and GIS*, Tokyo, Japan, September 14-16.
2011. *Worldwide Symposium on Transport and Land Use Research (WSTLUR)*. Whistler, BC, July 28-30.
2010. *1st ACM SIGSPATIAL International Workshop on Data Mining for Geoinformatics (DMGI)*, San Jose, California, November 2.
2009. *International Workshop on Geographic Information Systems for Transportation (GIS-T)*, Wuhan, China, December 4-6.
2009. *Second International Workshop on Computational Transportation Science*, Seattle, Washington, November 3.
2009. *Conference on Spatial Information Theory*, Aber Wrac'h, France, September 21-25.
2008. *First International Workshop on Computational Transportation Science*, Trinity College, Dublin, Ireland, July 21.
2008. *GI Days Münster*, Germany, June 16-17.
2008. *16th International Conference on Geoinformatics and Joint Conference on GIS and Built Environment*, Guangzhou, China, June 28-30.
2007. *GI Days: Young Researcher Forum*, Münster, Germany, September 9-12.
2007. *Conference on Spatial Information Theory*, Mt Eliza, Melbourne, Australia, September 20-23 .
2002. *Workshop on Action-oriented Approaches in Geographic Information Science*, Bar Harbor, ME, November 2-4.
2002. *GIScience2002*, Boulder, Colorado, September 26-28.
2002. *Workshop on Multimodal Transportation Requirements for Spatial Information Infrastructure*, Transportation Research Board, National Research Council.
2001. *Specialist Meeting on Location-Based Services*, co-sponsored by the Center for Spatially Integrated Social Science and the University Consortium for Geographic Information Science, Santa Barbara, CA, December 14-15.

2001. *Conference on Spatial Information Theory (COSIT 2001)*, September 19-23, Morro Bay, California, USA.
2000. *GIScience2000*, Savannah, Georgia, October 28-31.
2000. *International Workshop on Temporal, Spatial and Spatio-Temporal Data Mining - TSDM2000*, Lyon, France, September 12-16.
2000. *Spatial Data Handling 2000*, Beijing, China
- 1997 – 1998. *Measuring and Representing Accessibility in the Information Age*, Research Initiative, Project Varenius, National Center for Geographic Information and Analysis (NCGIA).
- 1993 - 1999. *Western Regional Science Association*, annual meetings.

OUTREACH AND MEDIA

Outreach

2020. *Impacts of COVID-19 on Mobility*, panel discussion, College of Arts and Sciences, College of Engineering, and OSU Alumni Association, The Ohio State University, July 29.
2020. *Transit Columbus Happy Hour from Home: Vol. 5 - Special Guest Harvey Miller*; April 29; <https://www.facebook.com/events/945964109152850/>
2020. Judge, Network of Schools of Public Policy, Affairs, and Administration (NASPAA) - Batten Student Simulation Competition, John Glenn College of Public Affairs, The Ohio State University, March 7.
2020. “Mobility matters: Why sustainable transportation is essential to our future,” lecture, *Experience Arts and Sciences Day*, The Ohio State University, February 8.
2020. Panel discussion organizer and moderator, *Mobility and Inclusive Communities*, Think Beyond Summit: Urban Universities + Thriving Communities, Ohio Union, January 28.
2019. *Behind the Scenes: The Tenure Process*, panel discussion, The STEAM Factory, Ohio State University, December 11.
2019. *Smart Cities, Smart Data*, panel discussion, Translational Data Analytics Institute (TDAI) and Office of Corporate Engagement, Ohio State University, September 13.
2019. “Transportation for our future: Why sustainable mobility is essential for our civilization and planet,” *Columbus Science Pub*, Shadowbox Theater, September 5.
2019. *Cities of Tomorrow: Infrastructure, Policy and Disruptive Technology*, panel discussion, Smart Campus Student Organization, Ohio State University, April 8
2019. “Mapping the opioid crisis in central Ohio,” *Opiate Epidemic: Impacts and Innovations* forum, Ohio State University, March 5.
2019. “Mobility matters: Why sustainable transportation is essential to our future,” *Science Sundays*, College of Arts and Science, Ohio State University, February 17th.
2018. “Smart transportation networks: Analytics and innovations to enhance mobility,” *New Member Orientation, Ohio Legislative Service Commission*, November 28 (co-presented with Jiaqi Ma, University of Cincinnati).

2018. Team mentor, *Thrive Columbus Transportation Innovation Lab*, organized by Columbus City Council president Shannon Hardin and The Purple Aisle, November 16-18.
2018. *Walkable, Bikeable Campus*, panel discussion, Smart Campus Student Organization, October 18.
2018. “Big Data’s Future is in Ohio: Solving Big Problems,” invited speaker at luncheon with Provost Discovery Themes lecturer D.J. Patil, Columbus Collaboratory, September 19.
2018. “The Franklin County Opioid Activity Level (FOCAL) Map: Web-based data collection and mapping for understanding the opioid crisis,” presentation to Franklin County addiction treatment community, organized by Amy O’Grady, Chief of Addiction Policy, Office of Columbus City Attorney Zach Klein; Wheatstone Recreation Center, August 24.
2018. *Data for All* - panel discussion about the Smart Columbus Operating System and social equity, hosted by Transit Columbus and moderated by Columbus City Council President Shannon Hardin, May 30.
2018. *Columbus Smart City Hackathon* – event coach, May 18.
2018. “Climate change and public infrastructure” panel discussion, *Building Resilient Communities in a Changing Climate* community forum, The Ohio State Fawcett Center, May 18.
2017. *Hack OHI/O* hackathon – “hype event” speaker (October 16) and smart mobility track judge (October 22).
2017. *Autonomous Vehicles*, panel discussion, The STEAM Factory, Franklinton Fridays, May 12.
2014. *Sustainable Transportation: Columbus and Beyond*, panel discussion, Geography Graduate Organization, Faculty Club, The Ohio State University, March 27.
2010. “The future of transportation,” invited presentation, *Leonardo After Hours*, The Leonardo Science Center, Salt Lake City, Utah, June 8.
2010. A VerySpatial Podcast, Episode 250: Interview on time geography and temporal GIS, posted May 2, 2010. veryspatial.com

Media

2020. “Non-drug 311 calls can indicate opioid hotspots: study,” *Smart Cities Dive*, November 13.
2020. “City 311 data could predict opioid hotspots,” *Cities Today*, November 13.
2020. “Study: 311 calls may predict opioid overdose hotspots,” *UPI Health*, November 11.
2020. “How SUVs conquered the world – at the expense of its climate,” *The Guardian (UK)*, September 1.
 Republished as: “C U, SUV: The hulking car has become the world’s most dominant form of transportation—and one of its biggest climate threats,” *Slate* September 8.
2020. “Coronavirus: Reduced driving hasn’t cut Ohio traffic deaths,” *Cincinnati Enquirer/USA Today Network*, July 27.
2020. “Car crashes deadlier as drivers speed during lockdowns,” *Reuters UK*, June 26.
2020. “Traffic and speeding during the pandemic,” *WCPN National Public Radio*, (Cleveland, Ohio), May 18.
2020. “After coronavirus cleared highways, study finds remaining drivers put hammer down,” *ABC6 News*, Columbus, Ohio, May 11.

2020. "Study finds 'extreme speeding' up during pandemic," *WEWS TV News*, Cleveland, May 6.
2020. "Speeding increases on Ohio highways during Coronavirus pandemic," *WOSU News*, May 4.
2020. "Emptier roads = more speeding by Columbus drivers," *Columbus Underground*, May 4.
2020. "Columbus signs on to Vision Zero initiative," *Columbus Underground*, March 12.
2020. "Lots of people are still riding scooters in Columbus," *Columbus Underground*, January 24.
2019. "Experts: Hyperloop not ready to zip across the Great Lakes yet," *WCPN National Public Radio*, December 16.
2019. "Lyft scooters leaving Columbus by Saturday," *WOSU News*, November 20; <https://radio.wosu.org/post/lyft-scooters-leaving-columbus-saturday>
2019. "COTA and free public transportation," *All Sides with Ann Fisher*, WOSU public radio, March 4.
2019. "Harvey Miller uses new mobility data to understand cities and transportation," *Voices of Excellence from Arts and Sciences* podcast, February 13.
2018. "Future of mass transit," *In Focus with Mike Kallmeyer*, Spectrum News, September 14.
2018. "How green are the e-scooters?" *Columbus Underground*, August 20th.
2018. "Hyperloop: All hype or the real deal?" *Columbus Underground*, March 9.
2017. "Downtown development boom continues to accelerate," *Columbus Underground*, August 10.
2017. "Proposal for Hyperloop between Chicago and Columbus receives a boost from startup," *Columbus Underground*, January 10.
2016. "Experts weigh in on Hamilton Quarter development," *Columbus Underground*, March 7.
2015. "Commuters have doubled in Columbus in the past 25 years," *Columbus Underground*, August 31.
2015. "NEXT: The most sophisticated map ever," *Columbus Underground*, December 7.
2014. "Protected bike lanes are not part of new plan for bike lanes downtown," *Columbus Underground*, September 16.
2014. "Suburban streets in Columbus more accident-prone than urban streets," *Columbus Underground*, September 15.
2013. "Utah's air quality alerts may have inadvertently put more cars on the road," *Atlantic Cities*, September 11.
2013. "Utah air alerts seem to spur — not curb — driving," *Salt Lake Tribune*, September 10.

SERVICE

Professional Service

2019. Comprehensive Program Review External Evaluation Committee, Department of Geography, University at Buffalo.
- 2017 - 2018. Methodology, Measurement and Statistics proposal evaluation panel, National Science Foundation.

- 2016. Social Sciences and Humanities proposal evaluation panel, European Research Council.
- 2014 – 2015. Geography and Spatial Sciences proposal evaluation panel, National Science Foundation.
- 2009. Committee of Visitors, Behavioral and Cognitive Sciences Directorate, National Science Foundation.
- 2000 – 2003. Long Range Planning Committee, Association of American Geographers
- 1998 – 2000. Geographic Information Science Model Curriculum Committee, University Consortium for Geographic Information Science.
- 1998. Working Group on Technical GIS Education, Environmental Systems Research Institute (ESRI).
- 1996 – 1998. Education Committee, University Consortium for Geographic Information Science.

Community Service

- 2020 – present. Safe People working group, Vision Zero Columbus.
- 2020. Smart Columbus Operating System Sustainment stakeholder group.
- 2019 – 2020. Advisory board, Empowerbus; <https://www.empowerbus.com/>
- 2017 - 2018. Data Technical Working Group, Smart Columbus.
- 2003. UrbanSim Scenario Review Committee, Governor’s Office of Planning and Budget, State of Utah.
- 2001 – 2002. Review committee, Utah Process Economic and Demographic (UPED) model review, Governor's Office of Planning and Budget, State of Utah.
- 1994. Expert Panel, Salt Lake County Council of Governments Public Hearing on Transit Technology Alternatives, Salt Lake City, Utah, September 20-22.

University Service

The Ohio State University

- 2020 – present. Ohio State University Alumni Association speaker list.
- 2020 – present. Smart Campus Digital Twin steering committee.
- 2020. JobsOhio "Big Ideas pitch" team, Office of Research.
- 2020 – present. Steering committee, Lextant Smart Mobility Living Lab, Office of Corporate Engagement.
- 2019 – present. Co-convener (with Elizabeth Newton, Glenn College of Public Affairs), campus geospatial initiatives discussion, Office of Research.
- 2019 – present. Sesquicentennial Summit 2: Urban-Serving University program committee, Office of Academic Affairs.
- 2019. Working group on Research and Creative Expression Priorities, Office of Research.
- 2018. Alliance for the American Dream faculty advisory committee, Office of Academic Affairs.
- 2018 – present. Smart@OhioState Committee.
- 2015 – present. Urban Mission Committee, Office of Academic Affairs.

University of Utah

- 2012 – 2015. Academic Senate, University of Utah.
- 2010. Innovations Scholars steering committee, Vice President Tech Venture Development, University of Utah.

- 2000 – 2001. Information Technology task force, Office of Undergraduate Studies, University of Utah.
- 1996 – 1999. University Research Committee, Office of the Vice-president for Academic Affairs, University of Utah.
- 1998. Chair, Graduate Research Fellowship Committee, Graduate School, University of Utah.
- 1997 – 2000. Faculty Advisory Board, Center for High Performance Computing, University of Utah.
- 1997 – 1998. Graduate Research Fellowship Committee, Graduate School, University of Utah.
- 1996 – 1998. Task Force on Large Data/Statistical High Performance Computing, High Performance Computing Center, University of Utah.
- 1994 – 1995. Ad Hoc Committee on High Performance Computing, University of Utah.
- 1992 – 1995. Academic Senate, University of Utah.
- 1992 – 1993. University Environmental Affairs Committee, University of Utah

College Service

The Ohio State University

- 2017. Distinguished College Professor Committee, College of Arts and Sciences.

University of Utah

- 2000 – 2004. Chair, College Computing Advisory Committee, College of Social and Behavioral Science.
- 1995 - 1996. Research Committee, College of Social and Behavioral Science.
- 1994 - 1995. Superior Teaching Award Committee, College of Social and Behavioral Science.
- 1991 - 1993. Superior Research Award Committee, College of Social and Behavioral Science.

Departmental Service

The Ohio State University

- 2018 – 2019. Chair, Faculty Search Committee.
- 2017 – 2018. Chair, Faculty Search Committee.
- 2016 – 2017. Member, Faculty Search Committee.
- 2016 – 2018. Graduate Studies Committee.
- 2015 – 2016. Executive Committee.
- 2014 - 2016. Personnel Committee.
- 2014 – 2015. Chair, Faculty Search Committee
- 2014 - 2015. Chair, Graduate Studies Committee.

University of Utah

- 2001 - 2004. Graduate Director.
- 1999 - 2001. Director, Certificate in Geographic Information Science program.
- 1992 - 2001. Chair, Geographic Information Science Committee.

TEACHING

Chaired Ph.D. committees

The Ohio State University

- In progress. Armita Kar.
- In progress. Luyu Liu.
- In progress. Yuchen Li.

- In progress. Young Jaegal, "Measuring spatial, topological and semantic similarity in network time prisms and field-time prisms."
2020. Jinyung Lee, "Building ladders of opportunity: Understanding the impacts of new mobility services on space-time accessibility"
2016. Calvin P. Tribby, "Activity spaces, trajectories, and agents: Assessing the built environment effects on walking routes."
2015. Ying Song, "A greener time geography: Estimating the environmental costs of space-time prisms for sustainable transportation planning"

University of Utah

2011. Tetsuo Kobayashi, "An interactive visualization toolkit for mobile objects."
2010. Christopher Upchurch, "Dynamic accessibility analysis using space-time paths for public and private transportation"
2008. Adam Sobek, "Generating synthetic space-time paths using a cloning algorithm on activity behavior data."
2007. Phoebe McNeally, "Holistic geographical visualization of spatial data with applications in avalanche forecasting"
2005. Nobbir Ahmed, "Time-space transformations of geographic space to explore, analyze and communicate transportation systems"
2003. Yi-Hwa Wu, "Dynamic models of space-time accessibility."

Membership on Ph.D. Committees

The Ohio State University

- In progress. Brooke Hammock, Geography.
- In progress. Jialin Li, Geography.
- In progress. Emelie Bailey, Geography.
2019. Xin Zhang, City and Regional Planning.
2017. Yongha Park, Geography.
2016. Bo Zhao, Geography.

University of Utah

2011. Tao Xing, Civil and Environmental Engineering.
2010. Mingxi Li, Civil and Environmental Engineering.
2009. Bradley Dearden, Geography.
2009. Margarita Bratkova, Computer science.
2009. Richard Medina, Geography
2005. Genevieve Atwood, Geography.
2001. William Scott White, Geography.
2000. Xiotian He, Geography.
1998. Joseph Perrin, Civil Engineering.
1998. Mark Finco, Geography.
1997. Siriphan Jitprasithsiri, Civil Engineering.
1993. Don Card, Geography.

Other universities (external member)

2017. Monireh Mahmoudi, School of Sustainable Engineering and the Built Environment, Arizona State University.

Chaired Master's Committees

The Ohio State University

2020. Blake Acton. "The effect of bus rapid transit (BRT) on property values: A broad comparison of multiple systems in the United States."
2019. Luyu Liu. "Measuring public transit transfer risk using high-resolution schedule and real-time bus location data."
2019. Jared Schenkel. "Assessing the impact of public transit system redesign on social equity using space-time accessibility measures."

University of Utah

2011. Joshua Groeneveld, "Agent-based modeling of bicycle-light rain interactions in Salt Lake City."
2009. Ying Song, "Space-time visualization of dynamic traffic data."
2007. Tina Gillman, "Evaluating transportation alternatives using a time geographic accessibility measure."
2004. Scott A. Bridwell, "Space-time masking techniques for privacy protection in location-based services"
2004. Adam Sobek, "Access-U: A web-based navigation tool for disabled students at the University of Utah."
2001. Phoebe McNeally, "Avalanche slide path stability modeling."
2001. Bertrand Granberg, "Automated routing and truck permitting system for Utah Department of Transportation".
2000. Mathew Sheehan, "Networked multimedia GIS: A framework for creation of an interactive internet application".
1999. James Hofmann, "A GIS data browser for economic development and location decisions".
1999. Jeni Siebeneck, "Spatial interaction-based trade area delimitation using GIS."
1998. George J. LaBonty, "Improving accessibility of public health care facilities."
1995. John Lowry, "GIS modeling of hazardous material vulnerability at the U.S.-Mexico border."

Membership on Master's Committees

The Ohio State University

- In progress. Claire Jones, Geography.
- In progress Chengbi Liu, Geography.
2020. Zhihao Wang, Geography.
2020. Yuxiao Zhao, Geography.
2019. Nikhil Shandilya, Computer Science and Engineering.
2018. Meghan McHaney, Geography.
2018. Nellkumar Bhuvu, Computer Science and Engineering.
2015. Peixuan Jiang, Geography.

University of Utah

2010. James Somerville, Masters of Science and Technology
2010. Marquessa Van Drimmelen, Geography.
2009. Jennifer Christiansen, Geography.
2007. Edward Pultar, Geography.
2007. Justin Johnson, Geography.
2006. Aaron McDaniel, Geography

- 2005. Atsushi Nara, Geography.
- 2004. We-Lun Chang, Geography.
- 2000. Tamara Wambeam, Geography.
- 1997. Eric Swartling, Geography.
- 1996. Sean Cannon, Geography.
- 1995. Natalie Andersen, Geography.
- 1994. Joseph Borgione, Geography.
- 1995. Patrick Barickman, Geography.
- 1994. Kathleen McMullen, Geography.

Post-doctoral Supervision

The Ohio State University

- 2019 – 2020. Jonathan Stiles. Projects: 1) Sustainable Columbus Observatory; 2) Columbus pedestrian and cyclist crash data visualization.
- 2017 - 2018. Yongha Park. Projects: 1) Columbus Urban and Regional Information Observatory (CURIO) data dashboard; 2) analysis of real-time bus data; 3) SNAP-Ed multilevel marketing map.

Other Student Supervision

University of Utah

- 2012 - 2013. Kyle Borens, Innovation Scholars Program. Topic – autonomous, networked vehicles and the future of transportation.

External Thesis Examinations

- 2020. Dissertation examiner, Dominik Bucher, Department of Civil, Environmental and Geomatic Engineering, ETH-Zurich, Zurich, Switzerland.
- 2018. Dissertation examiner, Bartosz Hawelka, Faculty of Natural Sciences, University of Salzburg, Salzburg, Austria.
- 2017. Dissertation examiner, Michael van Eggermond, Institute for Transport Planning and Systems, ETH-Zurich, Zurich, Switzerland.
- 2014. Dissertation examiner, Arie Schlote, Hamilton Institute, National University Ireland – Maynooth.
- 2011. Dissertation examiner, Somayeh Dodge, Department of Geography, University of Zurich, Switzerland.
- 2011. Dissertation examiner, Rebecca Ong, Department of Information, University of Pisa, Italy.
- 2010. Dissertation examiner, Dominik Papinski, School of Geography and Geology, McMaster University, Canada.
- 2010. PhD reading committee and jury, Tijs Neutens, Department of Geography, Ghent University, Ghent, Belgium.
- 2009. PhD jury, Walied Othman, Department of Theoretical Computer Science, Hasselt University, Belgium.
- 2004. Dissertation examiner, Ronald Buliung, School of Geography and Geology, McMaster University, Canada.
- 2003. Habilitation thesis examiner, Hardy Pundt, Faculty of Geosciences, University of Münster, Germany.
- 2002. Dissertation examiner, Ickjai Lee, School of Electrical Engineering and Computer Science, The University of Newcastle, Callaghan, Australia.

2001. Dissertation opponent, Svante Berglund Department of Infrastructure and Planning, Royal Institute of Technology, Stockholm, Sweden.

Teaching (The Ohio State University)

<u>Term</u>	<u>Course number and title</u>	<u>Enrollment</u>
Autumn 2019	(teaching release)	N/A
Spring 2019	GEOG 5301 Sustainable Transportation	21
Autumn 2018	GEOG 5226 Spatial Simulation and Modeling in GIS	49
Spring 2018	GEOG 5212 Geospatial Databases for GIS	48
Autumn 2017	GEOG 5226 Spatial Simulation and Modeling in GIS	50
Spring 2017	GEOG 5212 Geospatial Databases for GIS	49
Autumn 2016	GEOG 5226 Spatial Simulation and Modeling in GIS	50
Spring 2016	GEOG 5212 Geospatial Databases for GIS	49
Autumn 2015	GEOG 5226 Spatial Simulation and Modeling in GIS	50
Spring 2015	GEOG 5223 GIS Design and Implementation	48
Autumn 2014	GEOG 5221 GIS Simulation and Modeling	40
Spring 2014	GEOG 3597.03 Environmental Citizenship	12
	GEOG 5223 GIS Design and Implementation	26
Autumn 2013	GEOG 5224 Emerging Topics in GIS	16

Guest Instruction

2011. *Erasmus Mundus Master in Geospatial Technologies*, Institute for Geoinformatics, University of Münster, Münster, Germany, June 20-26.

2010. *Graduate seminar on mobility and time geography*, Department of Geography, University of Zurich, Switzerland, December 13-15.

2010. *Mobility, Data Mining and Privacy (MODAP) summer school*, Rhodos, Greece, August 27 – September 1.

2008. *NordGIScience workshop*, University of Gävle, Sweden, August 17-21.

2005. *GIScience Fall School*, Institute for Geoinformatics, University of Münster, Münster, Germany, September.

APPENDIX: Presentations at Professional Conferences

Papers

2019. **Miller, H.J.**, Hyder, A., Dundon, A., Hammond, G., Lee, J., Porr, A., Southerland, L. "Recovery deserts: Identifying neighborhoods underserved by opioid treatment and recovery services," *American Association of Geographers*, Washington DC, April 3-7.
2019. Liu, L. and **Miller, H.J.** "Measuring and analyzing public transit transfer risk using high resolution schedule and real-time data," *American Association of Geographers*, Washington DC, April 3-7 (presented by first author).
2019. Lee, J. and **Miller, H.J.** "Analyzing collective accessibility using average space-time prisms," *American Association of Geographers*, Washington DC, April 3-7 (presented by first author).
2019. Jaegal, Y. and **Miller, H.J.** "Measuring the semantic similarity of network-time prisms using temporal signatures," *American Association of Geographers*, Washington DC, April 3-7 (presented by first author).
2019. Akar, G., Irwin, E., **Miller, H.J.**, Ozblin, B., Porr, A. and Xiao, N. "The Sustainable Columbus Observatory (SCO): Measuring community progress towards sustainability and resilience," *Ohio State University Community Engagement Conference: Partnering for a Resilient and Sustainable Future*, Columbus, Ohio, January 23-24 (hour-long session with joint presentations by first, third and fourth authors).
2019. **Miller, H.J.** "Mobility matters: New data and tools to support sustainable transportation planning," *Ohio State University Community Engagement Conference: Partnering for a Resilient and Sustainable Future*, Columbus, Ohio, January 23-24.
2019. Lee, J. and **Miller, H.J.** "Measuring accessibility equity using average space-time prisms," *Transportation Research Board*, Washington DC. January 13-17 (presented by second author).
2018. Lee, J. and **Miller, H.J.** "Measuring and comparing individual and collective accessibility using average space-time prisms," *GIScience 2018*, Melbourne, Australia, August 29-31 (presented by second author).
2018. Lee, J. and **Miller, H.J.** "Measuring and comparing individual and collective accessibility using average space-time prisms," *Mobile Tartu*, Tartu, Estonia, June 27-29 (presented by second author).
2018. Lee, J., **Miller, H.J.**, Irwin, N. and Irwin, E. "Measuring spatial polarization and inequality in cities using housing transaction big data," *American Association of Geographers*, New Orleans, LA, April 10-14 (presented by first author).
2018. Jaegal, Y. and **Miller, H.J.** "Similarity measures for network time prisms based on graph-theoretic measures: An experimental analysis," *American Association of Geographers*, New Orleans, LA, April 10-14 (presented by first author).
2018. Park, Y. and **Miller, H.J.** "Empirical assessment of public transit performance using General Transit Feed Specification (GTFS) static and real-time feeds: A case study of bus operations in Columbus, Ohio," *American Association of Geographers*, New Orleans, LA, April 10-14 (presented by first author).
2018. Lee, J. and **Miller, H.J.**, "Measuring the impacts of new public transit services on space-time accessibility," *Transportation Research Board*, Washington DC, January 7-11 (presented by first author).
2017. Lee, J. and **Miller, H.J.**, "Measuring changes in space-time accessibility before and after transportation innovations," *American Association of Geographers*,

- Boston, MA, April 4-9 (presented by first author).
2017. Jaegal, Y. and **Miller, H.J.**, “Similarity measures for network time prisms,” *American Association of Geographers*, Boston, MA, April 4-9 (presented by first author).
2017. **Miller, H.J.**, Song, Y., Zhou, X. and Stempihar, J. “Green accessibility: Estimating the environmental costs of network-time prisms for sustainable transportation planning,” *Transportation Research Board*, Washington DC, January 8-12 (poster).
2017. Tribby, C.P., **Miller, H.J.**, Brown, B.B., Smith, K.R. and Werner, C.M. “Comparing the appropriate geographic region for assessing built environmental correlates with walking trips using longitudinal data,” *Transportation Research Board*, Washington DC, January 8-12 (presented by first author).
2017. Proffitt, D., Bartholomew, K., Ewing, R. and Miller, H.J., “Accessibility planning and vehicle miles traveled: Preliminary analysis,” *Transportation Research Board*, Washington DC, January 8-12 (poster).
2016. Song Y., **Miller H. J.**, Zhou, X., and Stempihar, J. “Visual exploration of movement patterns and physics under prism constraints,” *North American Meetings of the Regional Science Association International*, Minneapolis, MN, Nov. 9-12 (presented by first author).
2016. Jaegal Y. and **Miller H.J.**, “Similarity measures for network time prisms,” *GIScience 2016*, Montreal, Canada, September 27 – 30 (presented by first author).
2016. **Miller H.J.**, Raubal M. and Jaegal Y., “Measuring space-time prism similarity through temporal profile curves,” *AGILE International Conference on Geographic Information Science*, Helsinki, Finland, June 14-17.
2016. **Miller H.J.**, Raubal M. and Jaegal Y., “Measuring space-time prism similarity via temporal profile curves,” *Association of American Geographers*, San Francisco, CA, March 29 – April 2.
2016. Song Y., **Miller H.J.**, Zhou X., Stempihar J. and Reinau K.H., “Visual exploration of movement patterns under prism constraints,” *Association of American Geographers*, San Francisco, CA, March 29 – April 2 (presented by first author).
2016. Fontanella S. and **Miller H.J.**, “A beginners’s toolbox for automated spatial data collection,” *Association of American Geographers*, San Francisco, CA, March 29 – April 2 (presented by first author).
2016. Tribby C.P., **Miller H.J.**, Brown B.B., Smith K.R. and Werner C.M., “Changes in neighborhood walking: Comparison between self-defined neighborhoods and activity spaces,” *Association of American Geographers*, San Francisco, CA, March 29 – April 2 (presented by first author).
2016. Farber S., O’Kelly M.E., **Miller H.J.** and Neutens T., “Measuring segregation using patterns of daily travel behavior: Social interaction-based model of exposure,” *Transportation Research Board*, Washington DC, January 10-14 (poster).
2015. Song Y., **Miller H.J.**, Zhou X., “Estimating the speed-related costs of network-time prisms with applications in emissions modeling and air quality,” *Association of American Geographers*, Chicago, IL, April 21-25 (presented by first author).
2015. **Miller H.J.**, Tribby C.P., Brown B.B., Smith K.R., Carol Werner, Wolf J., Wilson L. and Oliveira M.G.S., “Does public transit generate new physical activity? Evidence from individual GPS and accelerometer data before and after light rail construction in a neighborhood of Salt Lake City, Utah, USA,” *Association of American Geographers*, Chicago, IL, April 21-25.

2015. Tribby C.P., **Miller H.J.**, Brown B.B., Smith K.R. and Werner C.M., “Analyzing built environment influences on walking route choice through machine learning and discrete choice techniques,” *Association of American Geographers*, Chicago, IL, April 21-25 (presented by first author).
2015. Farber S., **Miller H.J.**, O’Kelly M.E. and Neutens T., “Measuring segregation using patterns of daily travel behavior: a social interaction based model of exposure,” *Association of American Geographers*, Chicago, IL, April 21-25 (presented by first author).
2015. **Miller H.J.**, Tribby C.P., Brown B.B., Smith K.R., Werner C.M., Wolf J., Wilson L. and Oliveira M.G.S. “Does Public Transit Generate New Physical Activity? Evidence from Individual GPS and Accelerometer Data Before and After Light Rail Construction in a Neighborhood of Salt Lake City, Utah, USA,” *Moving Active Transportation to Higher Ground: Opportunities for Accelerating the Assessment of Health Impacts*, Washington, DC, April 13-14.
2015. Song Y., **Miller H.J.** and Zhou X. “Modeling visit probabilities within network time prisms using continuous-time semi-Markov techniques,” *Transportation Research Board*, Washington, DC, January 11-15 (poster).
2015. Proffitt D.G., Bartholomew K., Ewing R, and **Miller H.J.** “Accessibility planning in American metropolitan areas: Are we there yet?” *Transportation Research Board*, Washington, DC, January 11-15 (poster).
2015. Tong L., Zhou X. and **Miller H.J.**, “Improving accessibility for individual travelers through network design models,” *Transportation Research Board*, Washington, DC, January 11-15 (poster).
2014. Song Y., **Miller H.J.** and Zhou X. “Modeling visit probabilities within network time prisms using Markov techniques,” *GIScience 2014*, Vienna, Austria, September 23-26 (presented by second author).
2014. Tribby C.P., **Miller H.J.**, Brown B.B. and Werner C.M., “Assessing built environment walkability within activity spaces,” *World Symposium on Land-use Transportation Research (WSTLUR)*, Delft, The Netherlands, June 24-27 (presented by first author).
2014. Song Y., **Miller H.J.** and Zhou X., “Simulating visit probabilities within network time prisms using Markov chains and truncated Brownian bridges,” *Association of American Geographers*, Tampa, Florida, April 8-12 (presented by first author).
2014. Tribby C.P. and **Miller H.J.**, “Assessing built environment walkability within individual activity spaces,” *Association of American Geographers*, Tampa, Florida, April 8-12 (presented by first author).
2013. Song Y. and **Miller H.J.** “Simulating and validating visit probabilities within network-based space-time prisms,” *Mobile Ghent 2013*, Ghent, Belgium, October 23-25 (presented by first author).
2013. Tribby C.P. and **Miller H.J.**, “Assessment of trip-specific walkability: A Comparison of activity space metrics,” *Association of American Geographers*, Los Angeles, California, April 9-13 (presented by second author).
2013. Brown B.B., **Miller H.J.**, Smith K.R., Tribby C.P. and Werner C.M., “The Moving Across Places Study (MAPS): Analyzing the time, place and context for active transportation behavior using geospatial science and technologies,” *Association of American Geographers*, Los Angeles, California, April 9-13 (presented by second author).
2013. Song Y. and **Miller H.J.**, “Modeling visit probabilities within network-based space-time prisms,” *Association of American Geographers*,

- Los Angeles, California, April 9-13 (presented by first author).
2012. Song Y. and **Miller H.J.**, “Modeling visit probabilities within space-time prisms using directed random walk and truncated Brownian Bridges,” *GIScience 2012*, Columbus, Ohio, 18-21 September.
2012. Skupin A. and **Miller H.J.**, “Nokia MDC Atlas: An exploration of mobile phone users, land cover, time, and space,” *Mobile Data Challenge workshop*, in conjunction with *Pervasive 2012*” *Tenth International Conference on Pervasive Computing*, Newcastle, UK, 18-19 June (presented by second author).
2011. Kuijpers B., **Miller H.J.** and Othman W., “Kinetic space-time prisms,” *Association of American Geographers*, New York City, NY, 24-28 February (presented by second author).
2011. Tribby C.P. and **Miller H.J.** “Objective measures of walkability: Scaling-up block-level measures to routes and activity spaces,” *Association of American Geographers*, New York City, NY, 24-28 February (presented by first author).
2011. Kobayashi T. and **Miller H.J.**, “Similarity measures of space-time prisms,” *Association of American Geographers*, New York City, NY, 24-28 February (presented by first author).
2011. Song Y. and **Miller H.J.**, “Visit probabilities in space-time prisms,” *Association of American Geographers*, New York City, NY, 24-28 February (presented by first author).
2011. Kuijpers B., **Miller H.J.** and Othman W., “Kinetic space-time prisms,” *ACM SIGSPATIAL GIS '11*, November 1-4. Chicago, IL, USA (presented by third author).
2011. **Miller H.J.**, Witlox F. and Tribby C.P., “Context-aware indicators for measuring transportation-related livability and sustainability,” *Association of American Geographers*, Seattle, Washington, April 12-16.
2011. Song Y. and **Miller H.J.**, “The expected cost of space-time prisms,” *Association of American Geographers*, Seattle, Washington, April 12-16 (presented by first author).
2011. Kobayashi T., Ostanin A. and **Miller H.J.**, “ Exploratory visual pattern detection of mobile object data in attribute-time space,” *Association of American Geographers*, Seattle, Washington, April 12-16 (presented by first author).
2010. **Miller H.J.**, Kobayashi T. and Othman W., “Error propagation in space-time prisms,” *Accuracy 2010: Ninth International Symposium on Spatial Accuracy Assessment in the Natural Resources and Environmental Sciences*, Leicester, U.K., July 20-23.
2010. Song Y. and **Miller H.J.**, “Exploratory space-time visualization of transportation flows using traffic cubes,” *Association of American Geographers*, Washington, DC, April 13-18 (presented by first author).
2010. Kobayashi T. and **Miller H.J.**, “Exploratory visualization of mobile object data in attribute-time space,” *Association of American Geographers*, Washington, DC, April 13-18 (presented by first author).
2010. Upchurch C. and **Miller H.J.**, “Optimizing facility location and operating hours using space-time prisms,” *Association of American Geographers*, Washington, DC, April 13-18 (presented by first author).
2010. Kobayashi T., **Miller H.J.**, and Othman W., “Analytical methods for error propagation in planar space-time prisms, *Western Regional Science Association*, Sedona, AZ, February 21-14 (presented by second author).
2009. **Miller H.J.**, “Measuring accessibility in complex travel environments using time

- geographic fields, *Utah Geographic Information Council*, Midway, Utah, April 13-17.
2009. **Miller H.J.**, Kobayashi T. and Othman W., "Error in space-time prisms and their intersections," *Association of American Geographers*, Las Vegas, Nevada, March 22-27.
2009. Kobayashi T. and **Miller H.J.**, "An interactive visualization tool for mobile objects," *Association of American Geographers*, Las Vegas, Nevada, March 22-27 (presented by first author).
2008. **Miller H.J.**, "Error and uncertainty in time geographic queries," *Association of American Geographers*, Boston, MA, April 15-19.
2008. Upchurch C. and **Miller H.J.**, "Dynamic accessibility using space-time paths for public and private transit," *Association of American Geographers*, Boston, MA, April 15-19 (presented by first author).
2008. Kobayashi T. and **Miller H.J.**, "An interactive visualization tool for mobile objects," *Association of American Geographers*, Boston, MA, April 15-19 (presented by first author).
2008. Neutens T., Schwanen T. and **Miller H.J.**, "Measuring meeting possibilities," *Association of American Geographers*, Boston, MA, April 15-19 (presented by first author).
2007. **Miller H.J.** and Bridwell S.A., "Time geographic fields: A general velocity theory for time geography," *GeoComputation 07*, Maynooth, Ireland, 3-5 September.
2007. **Miller H.J.** "Time geographic fields: A continuous velocity theory for time geography," *Association of American Geographers*, San Francisco, CA, April 17-21.
2007. Bridwell S.A. and **Miller H.J.** (presented by first author) "Disclosure limitation methods for activity-travel data," *Association of American Geographers*, San Francisco, CA, April 17-21
2007. Sobek A. and **Miller H.J.** (presented by first author) "Methods for comparing space-time paths," *Association of American Geographers*, San Francisco, CA, April 17-21.
2007. Upchurch C. and **Miller H.J.** (presented by first author) "Optimum Facility Location and Scheduling Using Space-Time Prisms," *Association of American Geographers*, San Francisco, CA, April 17-21.
2006. McNeally P.B. and **Miller H.J.** (presented by first author), "Holistic geographic visualization of spatial data with applications in avalanche stability monitoring," *Association of American Geographers*, Chicago, IL March 7-11.
2006. Bridwell S.A. and **Miller H.J.** (presented by first author), "Representation and analysis of activities with varying discretion," *Association of American Geographers*, Chicago, IL March 7-11.
2005. Sobek A. and **Miller H.J.** (presented by first author), "A solution to exclusion: A web-based spatial decision support system for routing pedestrians of differing abilities in built environments," *Association of American Geographers*, Denver CO, April 5-9.
2005. Bridwell S.A. and **Miller H.J.** (presented by first author), "Locational privacy metrics for mobile objects," *Association of American Geographers*, Denver CO, April 5-9.
2004. **Miller H.J.**, "Necessary space-time conditions for social interaction," *Association of American Geographers*, Philadelphia, PA, March 14-19.
2004. **Miller H.J.**, "A measurement theory for time geography," *Western Regional*

- Science Association*, Maui, Hawai'i, February 25-28.
2003. **Miller H.J.**, Wu Y.-H. and Ming-Chih Hung, "A GIS toolkit for assessing vulnerability transportation network disruption," *Association of American Geographers*, New Orleans, LA, March 5-8.
2002. **Miller H.J.**, "Accessibility and uncertainty: Space-time paths and prisms under perfect and imperfect information," *GIScience 2002*, Boulder, CO, September 25-29.
2002. **Miller H.J.**, "Accessibility and uncertainty: Space time paths and prisms under imperfect information," *Association of American Geographers*, Los Angeles, CA, March 19-23.
- 2001 Wu Y.-H. and **Miller H.J.** (presented by second author), "Computational tools for measuring space-time accessibility in networks with dynamic flow," *North American meetings of the Regional Science Association International*, Charleston, SC, November 15-17.
- 2001 Cova T.J. and **Miller H.J.**, "A spatial framework for modeling hazards to transportation systems," *Association of American Geographers*, New York, New York, February 27 – March 3.
2000. Wu Y.-H. and **Miller H.J.** (presented by second author) "GIS tools for measuring space-time accessibility in networks with dynamic flow," *GIScience 2000*, Savannah, Georgia, October 28 - 31.
2000. **Miller H.J.** and Wu Y.-H., "Assessing the impacts of transportation congestion using dynamic space-time accessibility measures," *Institute for Management Science and Operations Research (INFORMS 2000)*, Salt Lake City, UT, May 7-10.
2000. **Miller H.J.**, "Extending geographic representation in spatial analysis," *Western Regional Science Association*, Poipu, Kaua'i, February 26 – March 1.
1999. **Miller H.J.**, "Extending geographic representation in spatial analysis," *European Colloquium on Quantitative and Theoretical Geography*, Durham Castle, England, September 3-7.
1999. **Miller H.J.** and Wu Y.-H., "Measuring space-time accessibility in the presence of dynamic network congestion," *European Congress of the European Regional Science Association*, Dublin, Ireland, August 23-27.
1999. **Miller H.J.**, Wu Y.-H. and Hung M., "GIS-based dynamic traffic congestion modeling to support time-critical logistics," *Association of American Geographers*, Honolulu, Hawai'i, March 23-27.
1999. Solomon V. and **Miller H.J.**, "Non-uniform spatial propagation in facility location techniques using GIS," *Association of American Geographers*, Honolulu, Hawai'i, March 23-27 (presented by first author).
1999. **Miller H.J.**, Wu Y.-H. and Ming Hung, "GIS-based dynamic traffic congestion modeling to support time-critical logistics," *Hawai'i International Conference on System Science (HICSS)*, Maui, Hawai'i, January 5-8.
1998. **Miller H.J.**, Wu Y.-H. and Ming Hung, "GIS-based dynamic traffic congestion modeling," *North American Meetings of the Regional Science Association International*, Santa Fe, New Mexico, November 11-14.

1998. **Miller H.J.**, "Measuring space-time accessibility benefits within transportation networks: Basic theory and computational methods," *European Regional Science Association Congress*, Vienna, Austria, August 28 - September 1.
1998. **Miller H.J.** and Wu Y.-H., "Beyond throughput: Using GIS to model and map accessibility in transportation planning and analysis," *GISPlaNNet '98*, Lisbon, Portugal, September 9 - 12.
1998. **Miller H.J.**, Wu Y.-H. and Hung M., "GIS-based dynamic traffic congestion modeling," *Geographic Information Systems for Transportation (GIS-T)*, Snowbird, UT, April 20-24.
1998. **Miller H.J.**, "Measuring space-time accessibility benefits within transportation networks," *Association of American Geographers*, Boston, MA, March 25-29.
1998. **Miller H.J.**, "Measuring space-time accessibility benefits within transportation networks: Basic theory and computational procedures," *Western Regional Science Association*, Monterey, CA, February 28-22.
1997. **Miller H.J.** and Ray J., "GIS software for dynamic congestion analysis in time-critical logistics," *GIS/LIS'97*, Cincinnati, Ohio, October 28-30.
1997. Solomon V. and **Miller H.J.**, "Using GIS to locate emergency warning sirens in rugged terrain," *GIS/LIS'97*, Cincinnati, Ohio, October 28-30 (presented by first author).
1997. Okabe A. and **Miller H.J.**, "Exact computational methods for calculating distances between objects in a cartographic database," *Western Regional Science Association*, Big Island of Hawai'i, February 23-27 (presented by second author).
1996. **Miller H.J.**, "Solving location and layout problems using GIS and simulated annealing," *GIS/LIS'96*, Denver Colorado, November 19-21.
1996. **Miller H.J.**, "Solving facility location problems using adaptive simulated annealing," *Association of American Geographers*, Charlotte, North Carolina, April 9-13.
1996. **Miller H.J.** and Storm J.D., "GIS design for a simultaneous transportation equilibrium model," *Geographic Information Systems for Transportation (GIS-T) '96*, Kansas City, Missouri, March 31-April 4.
1996. **Miller H.J.**, "Solving complex facility location problems using adaptive simulated annealing," *Western Regional Science Association*, Napa, California, February 25-29.
1996. **Miller H.J.** and Storm J.D., "A GIS-based simultaneous transportation equilibrium model," *Transportation Research Board*, Washington, D.C., January 7-11.
1995. **Miller H.J.**, Storm J.D. and Bowen M., "GIS design for multimodal network analysis," *GIS/LIS'95*, Nashville, Tennessee, November 14-16.
1995. LaBonty G.J. and **Miller H.J.**, "Modeling the accessibility of public health facilities using GIS," *GIS/LIS'95*, Nashville, Tennessee, November 14-16 (presented by first author)
1995. **Miller H.J.**, Storm J.D. and Bowen M., "GIS design for multimodal transportation network analysis," joint meeting of the *Applied Geography Conference and the Mid-Atlantic Division of the Association of American Geographers*, Washington, D.C., November 8-11th.
1995. **Miller H.J.**, Storm J.D. and Haslam B.L., "A GIS-based simultaneous transportation equilibrium model," *Association of American Geographers*, Chicago, Illinois, March 14-18th.

1995. **Miller H.J.**, Storm J.D. and Haslam B.L., "A GIS-based simultaneous transportation equilibrium model and its application in an urban-scale travel demand analysis," *Western Regional Science Association*, San Diego, California, February 22-26th.
1994. Finco M.V., Hepner G.F. and **Miller H.J.**, "GIS modeling of contaminant pathways and human exposure in the Nogales region of the Mexico - U.S. border," *GIS/LIS '94*, Phoenix, Arizona, October 25-27 (presented by first author).
- 1994 **Miller H.J.**, "Towards fuller geometric representation in facility location problems using GIS," *Association of American Geographers*, San Francisco, California, March 29 - April 2.
1994. Lowry J.H. and **Miller H.J.**, "GIS modeling of hazardous material vulnerability at the U.S.-Mexico border," *Association of American Geographers*, San Francisco, California, March 29 - April 2 (presented by first author).
1994. **Miller H.J.** and Finco M.V., "Spatial search and spatial competition: A probability analysis of basic results from the spatially-restricted theory," *Western Regional Science Association*, Tucson, Arizona, February 23-27.
1993. **Miller H.J.**, "GIS and the geometry of facility location problems," *GIS/LIS '93*, Minneapolis, Minnesota, November 2-4.
1993. **Miller H.J.**, "Market area delimitation within network structures using geographic information systems," *Association of American Geographers*, Atlanta, Georgia, April 6-10.
1993. Hepner G.F., Kontuly T.M., McCoy R. and **Miller H.J.**, "Geographic information systems development - U.S./Mexico border project," *Southwest Center for Environmental Research and Policy Technical Conference*, Chandler, Arizona, March 24-26 (presented by first author).
1993. **Miller H.J.**, "Probability-based models of spatial search," *Western Regional Science Association*, Wailea, Maui, Hawaii, February 21-25.
1992. **Miller H.J.**, "Consumer spatial search behavior: A general modeling framework and operational models," *Association of American Geographers*, San Diego, California, April 18-22.
1992. **Miller H.J.**, "Dynamic programming and stochastic network approaches to modeling spatial search," *Western Regional Science Association*, February 23-27, South Lake Tahoe, Nevada.
1991. **Miller H.J.**, "Modeling accessibility using space-time prism concepts within GIS," *Association of American Geographers*, Miami, Florida, April 13-17.
1990. **Miller H.J.**, "Path selection in spatial search behavior," *Association of American Geographers*, Toronto, Ontario, April 19-22.
1990. O'Kelly M.E. and **Miller H.J.**, "Routing problems in hub networks," *Association of American Geographers*, Toronto, Ontario, April 19-22 (presented by first author).
1989. **Miller H.J.** and O'Kelly M.E., "An investigation into the use and properties of the Alonso spatial interaction framework as a market area delimitation tool," *Association of American Geographers*, Baltimore, Maryland, March 19-22.
1989. Jackson R.W., **Miller H.J.** and Martin Hynes, "Regional accounts for the Columbus metropolitan area," *Association of American Geographers*, Baltimore, Maryland, March 19-22 (presented by first author).
1988. **Miller H.J.**, "An application of the Alonso spatial interaction framework to market area delimitation," *Applied Geography Conference*, St. Paul, Minnesota.

Panel discussions

2019. "Strategies for using mobile big data for official statistics," *American Association of Geographers*, Washington DC, April 3-7.
2018. "Emerging trends in movement analytics, from observation to prediction of movement," *American Association of Geographers*, New Orleans, LA, April 10-14.
2018. "A globe-shaped crystal ball: The next fifty years of Geographical Analysis III," *American Association of Geographers*, New Orleans, LA, April 10-14.
2017. "Is GIScience up to the challenges of a smart and connected world?" *University Consortium for Geographic Information Science Symposium*, Arlington, VA, May 23-25 (panel organizer and moderator).
2017. "Current state of human dynamics in smart and connected communities," *American Association of Geographers*, Boston, MA, April 4-9.
2016. "GI-Science and Data Science: Can they profit from each other?" *GI-Forum*, Salzburg, Austria, July 5.
2016. "The future of maps," *AGILE International Conference on Geographic Information Science*, Helsinki, Finland, June 14-17.
2016. "Symposium on human dynamics research: Theoretical perspectives on human dynamics research," *Association of American Geographers*, San Francisco, CA, March 29– April 2.
2016. "Symposium on human dynamics research: Prospects and challenges of human dynamics research," *Association of American Geographers*, San Francisco, CA, March 29– April 2.
2015. "Research priorities in GIScience," *University Consortium for Geographic Information Science*, Alexandria, VA, May 28-30.
2015. "Unlocking low carbon mobility," *Association of American Geographers*, Chicago, IL, April 21-25.
2015. "CyberGIS symposium: Frontiers of Big Data and urban informatics," *Association of American Geographers*, Chicago, IL, April 21-25.
2014. "Spatial data in 2030," *GIScience 2014*, Vienna, Austria, September 23-26
2014. "Roles of cyberGIS and geography for turning big data into rich data and knowledge," *Association of American Geographers*, Tampa, Florida, April 8-12.
2014. "Open GIS: Problems and prospects," *Association of American Geographers*, Tampa, Florida, April 8-12.
2011. "Progress and prospects of time geography and space-time analysis," *Association of American Geographers*, New York City, NY, February 24-28.
2010. "Social networks and information and communication technologies: Implications for activities in real and virtual spaces," *Transportation Research Board*, Washington, DC, January 10-14.
2007. "Honoring Atsuyuki Okabe: Applications, developments, and future research on spatial analysis and GIScience I," *Association of American Geographers*, San Francisco, CA, April 17-21.
2006. "Transport geography: Identifying emerging research trends and new directions in the subdiscipline," *Association of American Geographers*, Chicago, IL March 7-11.
2003. "On Tobler's first law," *Association of American Geographers*, New Orleans, LA, March 5-8.

2003. "Rethinking geospatial research," *Transportation Research Board*, Washington, DC, January 11-16.
2002. "GIS in higher education," *Utah Geographic Information Council*, Bryce Canyon, Utah, September 18-20.
2002. "Who am I? The changing GIS professional," *Utah Geographic Information Council*, Bryce Canyon, Utah, September 18-20.
2002. "GIS for transportation education needs," *Association of American Geographers*, Los Angeles, CA, March 19-23.
2000. "GIScience Editors' Panel," *GIScience 2000*, Savannah, Georgia, October 28 - 31.
2000. "Education in Geographic Information Systems for Transportation: Needs, Challenges and Solutions," *Transportation Research Board*, Washington, DC, January 9-13.
1998. "GIS and Spatial Analysis," *University Consortium for Geographic Information Science (UCGIS)*, Park City, UT, June 24-27.
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