

# Curriculum Vitae

**Alan T. Murray**

## Contact Details

Department of Geography  
University of California at Santa Barbara  
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## Education

Ph.D. 1995, University of California at Santa Barbara (Geography), USA  
M.A. 1992, University of California at Santa Barbara (Statistics and Applied Probability), USA  
B.S. 1990, University of California at Santa Barbara (Mathematics), USA

## Academic Appointments

University of California at Santa Barbara, 9/90-12/95, 10/15-present

- Yardi Chair in Geography, 12/24-present
- Professor, Department of Geography, 10/15-present
- Affiliate, Earth Research Institute, 1/17-present
- Research Associate, Broom Center for Demography, 1/16-present
- Postdoctoral Fellow, Department of Geography, 7/95-12/95
- Research Associate and Teaching Assistant, Department of Geography, 1/91-6/95
- Tutor, Tutorial Center, 9/90-6/95

University of the West Indies, St. Augustine, Trinidad & Tobago, 7/22-12/23

- External Examiner, Department of Geomatics Engineering and Land Management, 7/22-12/23

San Diego State University, 1/15-present

- Adjunct Professor, Department of Geography, 1/15-present

Drexel University, 7/14-12/15

- Professor, College of Computing and Informatics, 7/14-12/15
- Professor, School of Public Health, 7/14-12/15

Arizona State University, 7/08-6/14, 7/15-5/16

- Professor, School of Geographical Sciences and Urban Planning, 7/08-6/14
- Adjunct Professor, School of Geographical Sciences and Urban Planning, 7/15-5/16
- Industrial Engineering Graduate Faculty, School of Computing, Informatics, and Decision Systems Engineering, 1/10-6/14

- Senior Sustainability Scientist, School of Sustainability, 1/10-6/14

University of Arizona, 1/12-6/14

- Affiliated Research Professor, Regional Economics and Spatial Modeling Laboratory, 1/12-6/14

The Chinese Academy of Sciences, 7/08-6/10

- Guest Professor, Laboratory for Earth and Space Information Technologies, 7/08-6/10

The Ohio State University, 7/99-6/08

- Professor, Department of Geography, 7/05-6/08
- Associate Professor, Department of Geography, 7/02-6/05
- Assistant Professor, Department of Geography, 7/99-6/02

University of Queensland, 7/97-6/99

- Research Fellow and Lecturer, Australian Housing and Urban Research Institute, Department of Geographical Sciences and Planning, 07/97-06/99

Queensland University of Technology, 1/96-6/97

- Postdoctoral Research Fellow, Australian Housing and Urban Research Institute, Faculty of Built Environment and Engineering, 1/96-6/97

## **Administrative Appointments**

University of California at Santa Barbara

- Director, Wildfire Resilience Initiative, 12/24-present (PI 1/22 – present)
- Vice Chair for Academic Personnel, Department of Geography, 7/24 – present
- Associate Director, Center for Spatial Studies, 4/23-9/24
- UCSB-SDSU Joint Doctoral Program Graduate Advisor, Department of Geography, 7/21-6/22, 7/23-6/25
- Graduate Advisor, Department of Geography, 7/17-6/21
- Vice Chair, Department of Geography, 7/17-6/21

Drexel University

- Director, Center for Spatial Analytics and Geocomputation, 7/14-12/15

The Ohio State University

- Director, Center for Urban and Regional Analysis, 7/05-6/08

## **Editorial Appointments**

2022-present Editorial Board, *Urban Informatics*

2018-present Editorial Board, *International Journal of Geographical Information Science*

2017-2025 Editorial Board, *Transactions in GIS*

2016-present Associate Editor, *Papers in Regional Science*

- 2015-present Editorial Board, *Computers, Environment and Urban Systems*
- 2014-present Editorial Board, *Geographical Analysis*
- 2014-2018 Editorial Board, *Annals of the Association of American Geographers*
- 2010-2025 Associate Editor, *Socio-Economic Planning Sciences*
- 2009-2027 Co-Editor, *International Regional Science Review*
- 2009-2010 Executive Editorial Board, *International Journal of Mathematical and Computational Forestry & Natural-Resource Science*
- 2002-2008 Editor, *Geographical Analysis*
- 2001-2004 Associate Editor, *Forest Science*
- 2001-2002 Associate Editor, *Geographical Analysis*

### *Themed Issues*

- 2024 Guest Editor, *Journal of Geographical Systems*, volume 26 – Arthur Getis: A LEGEND in Geographical Systems (with L. Anselin and S. Rey)
- 2020 Guest Editor, *Geographical Analysis*, volume 51 – Tribute to Professor Waldo Tobler (with K. Clarke)
- 2016 Guest Editor, *International Regional Science Review*, volume 39 – 40 Years of Maximal Coverage (with R. Church)
- 2014 Guest Editor, *International Regional Science Review*, volume 37 – Location Analysis and Modeling: ISOLDE XI (with A. Suzuki)
- 2012 Guest Editor, *Socio-Economic Planning Sciences*, volume 46 – Modeling Public Sector Facility Location Problems (with M. Daskin)
- 2011 Guest Editor, *International Regional Science Review*, volume 34 – Location Analysis and Modeling: ISOLDE X (with R. Church)
- 2009 Guest Editor, *Socio-Economic Planning Sciences*, volume 43 – The Contributions of Charles S. ReVelle (with T. Matisziw and J. Osleeb)
- 2001 Guest Editor, *Journal of Geographical Systems*, volume 3 – Spatial Modeling and GIScience
- 2001 Guest Editor, *Studies in Regional and Urban Planning*, volume 9
- 2000 Guest Editor, *Forest Science*, volume 46 – Modeling in Natural Resource Management and Planning (with S. Snyder)

### **Honors and Awards**

- 2024 Roger R. Stough Outstanding Mentor Award, North American Regional Science Council.
- 2024 Gerard Rushton Fellowship for Academic Excellence, Department of Geographical and Sustainability Sciences, University of Iowa.
- 2023 Carolyn Merry Mentoring Award, University Consortium for Geographic Information Science

- 2022 Best Paper Award (Location Intelligence) - Murray, A.T, R.L. Church, B.A. Pludow and P. Stine. "Location analytics for transitioning to fire resilient landscapes." 2022 Proceedings of the 55th Hawaii International Conference on System Sciences (<http://hdl.handle.net/10125/80037>).
- 2019 Elected Fellow, American Association for the Advancement of Science.
- 2019 William Alonso Memorial Prize for Innovative Work in Regional Science (Awarded by North American Regional Science Council) - Church, R.L. and A. Murray (2018), *Location Covering Models: History, Applications, and Advancements* (Berlin: Springer).
- 2019 Education Excellence Award, International Association of Chinese Professionals in Geographic Information Sciences.
- 2018 Elected Fellow, Regional Science Association International.
- 2017 Distinguished Scholar Award, Regional Development and Planning Specialty Group, American Association of Geographers.
- 2015 Walter Isard Award for Scholarly Achievement, North American Regional Science Council.
- 2014 Getis Lecture in Spatial Analysis, Department of Geography, San Diego State University, USA
- 2014 Outstanding Service Award, Spatial Analysis and Modeling Specialty Group, American Association of Geographers.
- 2007 Best Publication Award in Forestry (Awarded by Energy, Natural Resources, and the Environment section of Institute for Operations Research and the Management Science [INFORMS]) - Goycoolea, M., A.T. Murray, F. Barahona, R. Epstein and A. Weintraub (2005), "Harvest scheduling subject to maximum area restrictions: exploring exact approaches", *Operations Research* **53**, 490-500.
- 2004 Geoffrey J.D. Hewings Award for Outstanding Young Scholar, North American Regional Science Council.

## Teaching and Research Interests

Geographic information science; sustainability; hazards; emergency response; health disparities; districting and service area design; crime and violence; urban, regional, and natural resource planning and development; public policy; infrastructure and transportation systems; spatial optimization; location modeling; spatial representation; spatial statistics; and, techniques to support interactive planning and decision making.

## Publications

### *Citation Impact*

2025 [Google Scholar](#) – Total citations: 20,410; h-index: 79; i-10 index: 199

*Books and Edited Volumes (3 total)*

- 2018 R.L. Church and A.T. Murray. *Location Covering Models: History, Applications, and Advancements* (Berlin: Springer).
- 2009 R.L. Church and A.T. Murray. *Business Site Selection, Location Analysis and GIS* (New York: Wiley).
- 2007 A.T. Murray and T.H. Grubestic (editors). *Critical Infrastructure: Reliability and Vulnerability* (Berlin: Springer).

*Refereed Articles, Book Chapters and Proceedings (319 total)*

- 2025 E. Zhou, A.T. Murray, J. Baik and J. Xu. "Locating and orienting facilities with anisotropic coverage." *Computers, Environment and Urban Systems* (DOI: ).
- 2025 S. Cho, A.T. Murray, S. Dodge and R.L. Church. "Locational decision making and representational impacts." *Professional Geographer* (DOI: ).
- 2025 T. Nelson, A.E. Frazier, P. Kedron, S. Dodge, B. Zhao, M. Goodchild, A. Murray, S. Battersby, L. Bennett, J. Blanford, C. Cabrera-Arnau, C. Claramunt, R. Franklin, J. Holler, C. Koylu, A. Lee, S. Manson, G. McKenzie, H. Miller, T. Oshan, S. Rey, F. Rowe, S. Şalap-Ayça, E. Shook, S. Spielman, W. Xu and J. Wilson. "A research agenda for GIScience in a time of disruptions." *International Journal of Geographical Information Science* (DOI: <https://doi.org/10.1080/13658816.2024.2405191>).
- 2025 E. Zhou and A.T. Murray. "Facility layout and spatial configuration efficiency assessment." *Networks and Spatial Economics* (DOI: <https://doi.org/10.1007/s11067-024-09637-z>).
- 2025 A.T. Murray. "Geographical compactness in shape assessment." *Geographical Analysis* (DOI: 10.1111/gean.12407).
- 2024 V.E. Figueroa, A.T. Murray and T. Funk. "Supporting fire response: advanced spatial data analytics for hydrant access assessment." *Transactions in GIS* **28**, 2559-2573 (DOI: <https://doi.org/10.1111/tgis.13255>).
- 2024 J. Baik, A.T. Murray, J. Xu and E. Zhou. "Geospatial analytics to support district efficiency, fairness and equity." *Proceedings of the 31<sup>st</sup> International Conference on Geoinformatics* (Proceedings 2024, 110(1), 25, DOI: <https://doi.org/10.3390/proceedings2024110025>).
- 2024 J. Baik and A.T. Murray. "Emergency response planning: a framework to assess hydrant-structure access." *Transactions in GIS* **28**, 2412-2424 (DOI: <https://doi.org/10.1111/tgis.13243>).
- 2024 E. Zhou, A.T. Murray, J. Baik and J. Xu. "Spatial optimization for facilities with anisotropic coverage." *Proceedings of the 31<sup>st</sup> International Conference on Geoinformatics* (Proceedings 2024, 110(1), 18, DOI: <https://doi.org/10.3390/proceedings2024110018>).
- 2024 R. Mortaheb, P. Jankowski, A. Murray and M. Bastian. "Form-based code revisited: leveraging geographic information systems (GIS) and spatial optimization to chart commuting efficiency landscapes under alternative city planning frameworks." *Land* **13**, 1190 (DOI: <https://doi.org/10.3390/land13081190>).

- 2024 A.T. Murray. “A location analytics perspective of regional science at a crossroad.” *Papers in Regional Science* **103**, 100034 (DOI: <https://doi.org/10.1016/j.pirs.2024.100034>).
- 2024 A.T. Murray, K. Shammout, R. Farwell, K. Huetten and T. Cox. “Service area delineation to support on-demand mobility for the transport disadvantaged.” *Socio-Economic Planning Sciences* **95**, 101967 (DOI: [10.1016/j.seps.2024.101967](https://doi.org/10.1016/j.seps.2024.101967)).
- 2024 A.T. Murray, L. Anselin and S.J. Rey. “Arthur Getis: A LEGEND in Geographical Systems.” *Journal of Geographical Systems* **26**, 181-190 (DOI: [10.1007/s10109-024-00443-2](https://doi.org/10.1007/s10109-024-00443-2)).
- 2024 E. Zhou, A.T. Murray and J. Baik. “Mapping 3-D classroom seats based on partial object point cloud completion.” *Cartography and Geographic Information Science* **51**, 404-420. (DOI: [10.1080/15230406.2024.2320150](https://doi.org/10.1080/15230406.2024.2320150)).
- 2024 J. Xu, A.T. Murray, R.L. Church, R. Wei, H. Yu, J. Baik and E. Zhou. “Balancing workloads through co-location in covering problems.” *Geographical Analysis* **56**, 624-647 (DOI: [10.1111/gean.12389](https://doi.org/10.1111/gean.12389)).
- 2024 J. Baik and A.T. Murray. “Location analytics to support wildfire response prepositioning.” *2024 Proceedings of the 57<sup>th</sup> Hawaii International Conference on System Sciences* (<https://hdl.handle.net/10125/107069>).
- 2023 A.T. Murray, J. Baik, V. Echeverri, D. Rini, M.A. Moritz, D.A. Roberts, S.H. Sweeney, L.M.V. Carvalho and C. Jones. “Developing effective wildfire risk mitigation plans for the wildland urban interface.” *International Journal of Applied Earth Observation and Geoinformation* **124**, 103531 (DOI: [10.1016/j.jag.2023.103531](https://doi.org/10.1016/j.jag.2023.103531)).
- 2023 A.T. Murray, J. Baik and H. Malak. “Assessing the influence of indoor mapping sources for indoor spatial analysis of physical distancing.” *Journal of Spatial Information Science* **27**, 125-141 (DOI: [10.5311/JOSIS.2023.27.296](https://doi.org/10.5311/JOSIS.2023.27.296)).
- 2023 B.A. Pludow, A.T. Murray, V. Echeverri and R.L. Church. “Evaluation of forest treatment planning considering multiple objectives.” *Journal of Environmental Management* **346**, 118997 (DOI: [10.1016/j.jenvman.2023.118997](https://doi.org/10.1016/j.jenvman.2023.118997)).
- 2023 S.C. Reid, V. Wang, R.D. Assaf, S. Kaloper, A.T. Murray, S. Shoptaw, P. Gorbach and S. Cassels. “Novel location-based survey to assess geographic networks and hotspots of sex and drug use: implementation and validation using cognitive interviews.” *JMIR Formative Research* **7**, e45188 (DOI: [10.2196/45188](https://doi.org/10.2196/45188)).
- 2023 M. Hildemann, A.T. Murray and J.A. Versteegen. “Evolving fields with genetic programming for efficient land use allocation optimization.” In *12<sup>th</sup> International Conference on Geographic Information Science (GIScience 2023)*. Schloss Dagstuhl-Leibniz-Zentrum für Informatik (DOI: [10.4230/LIPIcs.GIScience.2023.4](https://doi.org/10.4230/LIPIcs.GIScience.2023.4)).
- 2023 A.T. Murray. “The Art of Geographical Analysis.” *Geographical Analysis* **55**, 759-768 (DOI: [10.1111/gean.12359](https://doi.org/10.1111/gean.12359)).
- 2023 A.T. Murray and S. Burtner. “Physical distancing as an integral component of pandemic response.” *Letters in Spatial and Resource Sciences* **16**, 8 (DOI: [10.1007/s12076-023-00331-1](https://doi.org/10.1007/s12076-023-00331-1)).
- 2023 A.T. Murray and J. Baik. “Open-source spatial optimization in GIScience for strategic positioning.” *Transactions in GIS* **27**, 646-662 (DOI: [10.1111/TGIS.13033](https://doi.org/10.1111/TGIS.13033)).

- 2023 A.T. Murray and R.L. Church. "Spatial optimization of multiple area land acquisition." *Computers & Operations Research* **153**, 106160 (DOI: 10.1016/j.cor.2023.106160).
- 2023 B.A. Pludow and A.T. Murray. "Accounting for spatial spillover benefits in neighborhood wildfire risk mitigation." *Landscape and Urban Planning* **233**, 104684 (DOI: 10.1016/j.landurbplan.2023.104684).
- 2023 S. Cho, A.T. Murray, S. Dodge and J. Baik. "Improving locational decision making: a heuristic that optimizes access and coverage." *International Journal of Geographical Information Science* **37**, 1365-1387 (DOI: 10.1080/13658816.2023.2169923).
- 2023 J. Xu, A.T. Murray, R.L. Church and R. Wei. "Service allocation equity in location coverage analytics." *European Journal of Operational Research* **305**, 21-31 (DOI: 10.1016/j.ejor.2022.05.032).
- 2023 A.T. Murray. "Sources of uncertainty in location analysis." In *Uncertainty in Facility Location Models: Incorporating Location Science and Randomness*, edited by H.A. Eiselt and V. Marianov, 3-24 (Springer) (DOI: 10.1007/978-3-031-32338-6\_1).
- 2022 A.T. Murray and J. Baik. "Urban informatics and spatial optimization." *Urban Informatics* **1**, 7 (DOI: 10.1007/s44212-022-00007-z).
- 2022 A.T. Murray, R.L. Church and B.A. Pludow. "Multiple patch land allocation." *Computers, Environment and Urban Systems* **97**, 101871 (DOI: 10.1016/j.compenvurbsys.2022.101871).
- 2022 J. Baik and A.T. Murray. "Locating a facility to simultaneously address access and coverage goals". *Papers in Regional Science* **101**, 1199-1217 (DOI: 10.1111/pirs.12693).
- 2022 B.A. Pludow, A.T. Murray and R.L. Church. "Service quality modeling to support optimizing facility location in a microscale environment." *Socio-Economic Planning Sciences* **82**, 101273 (DOI: 10.1016/j.seps.2022.101273).
- 2022 A.T. Murray, R.L. Church, B.A. Pludow and P. Stine. "Advancing contiguous environmental land allocation analysis, planning and modeling." *Journal of Land Use Science* **17**, 572-590 (DOI: 10.1080/1747423X.2022.2041120).
- 2022 J. Xu, A.T. Murray, R.L. Church and R. Wei. "A heuristic algorithm for balancing workloads in coverage modeling." *Computers, Environment and Urban Systems* **92**, 101746 (DOI: 10.1016/j.compenvurbsys.2021.101746).
- 2022 E. Noi and A.T. Murray. "Interpolation biases in assessing spatial heterogeneity of outdoor air quality in Moscow, Russia." *Land Use Policy* **112**, 105783 (DOI: 10.1016/j.landusepol.2021.105783).
- 2022 A.T. Murray, A. Ortiz and S. Cho. "Enhancing strategic defensive positioning and performance in the outfield." *Journal of Geographical Systems* **24**, 223-240 (DOI: 10.1007/s10109-021-00367-1).
- 2022 S. Burtner and A.T. Murray. "COVID-19 and minimizing micro-spatial interactions." *ACM Transactions on Spatial Algorithms and Systems* **8**, 1-17 (DOI: 10.1145/3486970).
- 2022 A.T. Murray, R.L. Church, B.A. Pludow and P. Stine. "Location analytics for transitioning to fire resilient landscapes." *2022 Proceedings of the 55<sup>th</sup> Hawaii International Conference on System Sciences* (<http://hdl.handle.net/10125/80037>).

- 2022 A.T. Murray. "Spatial optimization." In *Handbook of Spatial Analysis in the Social Sciences*, edited by S. Rey and R. Franklin, 223-244 (Edward Elgar Publishing) (DOI: <https://doi.org/10.4337/9781789903942.00021>).
- 2022 H. Yu, A.T. Murray, Z. Fang, J. Liu, G. Peng, M. Solgi and W. Zhang. "Ship path optimization that accounts for geographical traffic characteristics to increase maritime port safety." *IEEE Transactions on Intelligent Transportation Systems* **23**, 5765-5776 (DOI: 10.1109/TITS.2021.3057907).
- 2021 X. Feng, A.T. Murray and R.L. Church. "Drone service response: spatiotemporal heterogeneity implications." *Journal of Transport Geography* **93**, 103074 (DOI: 10.1016/j.jtrangeo.2021.103074).
- 2021 C. Jin and A.T. Murray. "Exploring public open data: micro-scale spatiotemporal dynamics of restaurant entrepreneurship in Seoul, Korea." *International Journal of Geospatial and Environmental Research* **8**(3), 5.
- 2021 H. Chen and A.T. Murray. "Open-source geospatial software for location cover models." In *Proceedings of the 29<sup>th</sup> GISRUK conference* (<http://gisruk.org/proceedings.html>).
- 2021 A.T. Murray. "Resilience in complex networks." In *Handbook on Entropy, Complexity and Spatial Dynamics: A Rebirth of Theory?* edited by A. Reggiani, L.A. Schintler, D. Czamanski and R. Patuelli, 418-431 (Edward Elgar Publishing) (DOI: <https://doi.org/10.4337/9781839100598>).
- 2021 H. Chen, A.T. Murray and R. Jiang. "Open-source approaches for location cover models: capabilities and efficiency." *Journal of Geographical Systems* **23**, 361-380 (DOI: 10.1007/s10109-021-00350-w).
- 2021 A.T. Murray. "Significance assessment in the application of spatial analytics." *Annals of the American Association of Geographers* **111**, 1740-1755 (DOI: 10.1080/24694452.2020.1856639).
- 2021 A.T. Murray. "Spatial analysis and modeling: advances and evolution." *Geographical Analysis* **53**, 647-664 (DOI: 10.1111/gean.12263).
- 2021 A.T. Murray. "Replicability challenges in location analytics." In *Proceedings of the 54<sup>th</sup> Hawaii International Conference on System Sciences* (<http://hdl.handle.net/10125/71272>).
- 2021 A.T. Murray. "Contemporary optimization application through geographic information systems." *Omega* **99**, 102176 (DOI: 10.1016/j.omega.2019.102176).
- 2021 A.T. Murray. "Anticipating the next half-century of Geographical Analysis." *Geographical Analysis* **53**, 13-18 (DOI: 10.1111/gean.12200).
- 2021 H. Chen and A.T. Murray. "Open-source approaches for location coverage modelling." In *Open Source Geospatial Science for Urban Studies*, edited by A. Mobasher, 117-129 (Springer) (DOI: 10.1007/978-3-030-58232-6\_7).
- 2021 A.T. Murray, L. Carvalho, R.L. Church, C. Jones, D. Roberts, J. Xu, K. Zigner and D. Nash. "Coastal vulnerability under extreme weather." *Applied Spatial Analysis and Policy* **14**, 497-523 (DOI: 10.1007/s12061-020-09357-0).
- 2021 X. Feng, S. Wang, A.T. Murray, Y. Cao and S. Gao. "Multi-objective trajectory optimization in planning for sequential activities across space and through time." *Environment and Planning B: Urban Analytics and City Science* **48**, 945-963 (DOI: 10.1177/2399808320913300).



- 2021 A.T. Murray. “New geography location analytics.” In *Handbook of Regional Science*, 2<sup>nd</sup> edition, edited by M.M. Fischer and P. Nijkamp, 1341-1360 (Springer) (DOI: 10.1007/978-3-642-36203-3\_144-1).
- 2021 H. Yu, Z. Fang, A.T. Murray and G. Peng. “A direction-constrained space-time prism-based approach for quantifying possible multi-ship collision risk.” *IEEE Transactions on Intelligent Transportation Systems* **22**, 131-141 (DOI: 10.1109/TITS.2019.2955048).
- 2021 A.T. Murray, R.L. Church, J. Xu, L. Carvalho, C. Jones and D. Roberts. “Fire and flood vulnerability, and implications for evacuation.” In *Geospatial Technology and Smart Cities*, edited by Poonam Sharma, 299-314 (Springer) (DOI: 10.1007/978-3-030-71945-6).
- 2021 S. Burtner and A.T. Murray. “Urban mobility and segregation examined through networked travel activity.” In *Handbook of Cities and Networks*, edited by Z. Neal and C. Rozenblat, 331-349 (Edward Elgar Publishers) (DOI: <https://doi.org/10.4337/9781788114714.00024>).
- 2020 H. Goto and A.T. Murray. “Exact and flexible solution approach to a critical chain project management problem.” *Constraints* **25**, 280-297 (DOI: 10.1007/s10601-020-09314-1).
- 2020 A.T. Murray. “Planning for classroom physical distancing to minimize the threat of COVID-19 disease spread.” *PLoS ONE* **15**, e0243345 (DOI: 10.1371/journal.pone.0243345).
- 2020 K.C. Clarke and A.T. Murray. “Introduction to the special issue commemorating Professor Waldo Tobler.” *Geographical Analysis* **52**, 477-479 (DOI: 10.1111/gean.12261).
- 2020 X. Feng and A.T. Murray. “Spatiotemporal heterogeneous allocation to support service area response.” *Computers, Environment and Urban Systems* **82**, 101503 (DOI: 10.1016/j.compenvurbsys.2020.101503).
- 2020 A.T. Murray, J. Xu, J. Baik, S. Burtner, S. Cho, E. Noi, B.A. Pludow and E. Zhou. “Overview of contributions in *Geographical Analysis: Waldo Tobler*.” *Geographical Analysis* **52**, 480-493 (DOI:10.1111/gean.12257).
- 2020 A.T. Murray, R.L. Church and X. Feng. “Single facility siting involving allocation decisions.” *European Journal of Operational Research* **284**, 834-846 (DOI: 10.1016/j.ejor.2020.01.047).
- 2020 H.S. Cha and A.T. Murray. “Enhancing equity in public transportation using geographic information systems and spatial optimization.” *International Journal of Geospatial and Environmental Research* **7**(1), 2.
- 2020 H. Goto and A.T. Murray. “Acoustical properties in emergency warning siren coverage planning.” *Computers, Environment and Urban Systems* **81**, 101477 (DOI: 10.1016/j.compenvurbsys.2020.101477).
- 2020 J. Xu, A.T. Murray, Z. Wang and R.L. Church. “Challenges in applying capacitated covering models.” *Transactions in GIS* **24**, 268-290 (DOI: 10.1111/tgis.12608).
- 2020 A.T. Murray. “Detection and analysis of spatial clustering.” In *International Encyclopedia of Human Geography*, 2<sup>nd</sup> edition, edited by A. Kobayashi, vol. 8, 367-373 (Oxford: Elsevier) (DOI: 10.1016/B978-0-08-102295-5.10424-X).

- 2020 A.T. Murray. "Sustainability and resilience through micro-scale decisions for change." In *Development Studies in Regional Science: In Honor of Kingsley E Haynes*, edited by Z. Chen, W. Bowen and D. Whittington, 43-57 (Berlin: Springer) (DOI: 10.1007/978-981-15-1435-7\_4).
- 2020 K. Grace, A.T. Murray and R. Wei. "Improving urban and peri-urban health outcomes through early detection and aid planning." In *Geospatial Technologies for Urban Health*, edited by Y. Lu and E. Delmelle, 231-250 (Cham: Springer) (DOI: 10.1007/978-3-030-19573-1\_12).
- 2020 A.T. Murray. "Location theory." In *International Encyclopedia of Human Geography*, 2<sup>nd</sup> edition, edited by A. Kobayashi, vol. 8, 237-243 (Oxford: Elsevier) (DOI: 10.1016/B978-0-08-102295-5.10104-0).
- 2020 I. Hong and A.T. Murray. "Obstacle-limited service coverage: a new geospatial approach." *Transactions in GIS* **24**, 213-229 (DOI: 10.1111/tgis.12593).
- 2020 J. Yao and A.T. Murray. "A spatial optimization approach for solving a multi-facility location problem with continuously distributed demand." In *Innovations in Urban and Regional Systems: Contributions from GIS&T, Spatial Analysis and Location Modeling*, edited by J.-C. Thill, 113-135 (Cham: Springer) (DOI: 10.1007/978-3-030-43694-0\_6).
- 2019 H. Yu, Z. Fang, F. Lu, A.T. Murray, Z. Zhao, Y. Xu and X. Yang. "Massive automatic identification system sensor trajectory data-based multi-layer linkage network dynamics of maritime transport along 21st-Century Maritime Silk Road." *Sensors* **19**(19), 4197 (DOI: 10.3390/s19194197).
- 2019 A.T. Murray. "Geocomputation and spatial analytics." In *GeoComputation 2019* (Queenstown, New Zealand).
- 2019 A.T. Murray. "Micro-scale decisions for sustainability and resilience." In *Proceeding Book, 16th Pacific Regional Science Conference Organization*, edited by S. Anantsuksomsri and N. Tontsirin, 21-24 (Pacific Regional Science Conference Organization Summer Institute: Bangkok, Thailand).
- 2019 H. Goto and A.T. Murray. "Small-m method for detecting all longest paths." *OPSEARCH* **56**, 824-839 (DOI: 10.1007/s12597-019-00385-0).
- 2019 N. Xiao and A.T. Murray. "Spatial optimization for land acquisition problems: a review of models, solution methods and GIS support." *Transactions in GIS* **23**, 645-671 (DOI: 10.1111/tgis.12545).
- 2019 A.T. Murray, R. Wei, R.L. Church and M.R. Niblett. "Addressing risks and uncertainty in forest land use modeling." *Journal of Geographical Systems* **21**, 319-338 (DOI: 10.1007/s10109-019-00302-5).
- 2019 J. Yao, A.T. Murray, J. Wang and X. Zhang. "Evaluation and development of sustainable urban land use plans through spatial optimization." *Transactions in GIS* **23**, 705-725 (DOI: 10.1111/tgis.12531).
- 2019 A.T. Murray, J. Xu, Z. Wang and R.L. Church. "Commercial GIS location analytics: capabilities and performance." *International Journal of Geographical Information Science* **33**, 1106-1130 (DOI: 10.1080/13658816.2019.1572898).
- 2019 J. Xu and A.T. Murray. "Spatial variability in retail gasoline markets." *Asia-Pacific Journal of Regional Science* **3**, 581-603 (DOI: 10.1007/s41685-019-00104-z).

- 2019 H. Yu, Z. Fang, F. Lu, A.T. Murray, H. Zhang, P. Peng, Q. Mei and J. Chen. “Impact of oil price fluctuations on tanker maritime network structure and traffic flow changes.” *Applied Energy* **237**, 390-403 (DOI: 10.1016/j.apenergy.2019.01.011).
- 2019 A.T. Murray and T.H. Grubestic. “Evolving regional analytics in a rural world.” *International Regional Science Review* **42**, 374-399 (DOI: 10.1177/0160017619827071).
- 2019 J. Yao, X. Zhang and A.T. Murray. “Location optimization of urban fire stations: access and service coverage.” *Computers, Environment and Urban Systems*, **73**, 184-190 (DOI: 10.1016/j.compenvurbsys.2018.10.006).
- 2018 A.T. Murray. “Complexities in spatial center derivation.” *Transactions in GIS* **22**, 1335-1350 (DOI: 10.1111/tgis.12476).
- 2018 X. Feng and A.T. Murray. “Allocation using a heterogeneous space Voronoi diagram.” *Journal of Geographical Systems* **20**, 207-226 (DOI: 10.1007/s10109-018-0274-5).
- 2018 L. Conrow, A.T. Murray and H.A. Fischer. “An optimization approach for equitable bicycle share station siting.” *Journal of Transport Geography* **69**, 163-170 (DOI: 10.1016/j.jtrangeo.2018.04.023).
- 2018 H. Goto and A.T. Murray. “Optimization of project schedules in the critical-chain project-management max-plus-linear framework.” *International Review on Modelling and Simulations* **11** (DOI: 10.15866/iremos.v11i4.13485).
- 2018 A.T. Murray, X. Feng and A. Shokoufandeh. “Heterogeneous skeleton for summarizing continuously distributed demand in a region.” In *10<sup>th</sup> International Conference on Geographic Information Science (GIScience 2018)*, edited by S. Winter, A. Griffin and M. Sester, 12:1-12:11 (Germany: Dagstuhl Publishing) (DOI: 10.4230/LIPIcs.GISCIENCE.2018.12).
- 2018 I. Hong, M. Kuby and A.T. Murray. “A range-restricted recharging station coverage model for drone delivery service planning.” *Transportation Research C: Emerging Technologies* **90**, 198-212 (DOI: 10.1016/j.trc.2018.02.017).
- 2018 S. Wang, S. Gao, X. Feng, A.T. Murray and M. Zeng. “A context-based geoprocessing framework for optimizing meetup location of multiple moving objects along road networks.” *International Journal of Geographical Information Science* **32**, 1368-1390 (DOI: 10.1080/13658816.2018.1431838).
- 2018 X. Feng and A.T. Murray. “Spatial analytics for enhancing street light coverage of public spaces.” *LEUKOS* **14**, 13-23 (DOI: 10.1080/15502724.2017.1321486).
- 2018 A.T. Murray. “Evolving location analytics for service coverage modeling.” *Geographical Analysis* **50**, 207-222 (DOI: 10.1111/gean.12146).
- 2018 J. Yao, X. Zhang and A.T. Murray. “Spatial optimization for land use allocation: accounting for sustainability concerns.” *International Regional Science Review* **41**, 579-600 (DOI: 10.1177/0160017617728551).
- 2018 R. Wei and A.T. Murray. “Spatial uncertainty challenges in location modeling with dispersion requirements.” In *Spatial Analysis and Location Modeling in Urban and Regional Systems*, edited by J.-C. Thill, 283-300 (New York: Springer) (DOI: 10.1007/978-3-642-37896-6\_12).
- 2017 I. Hong, M. Kuby and A.T. Murray “A deviation flow refueling location model for continuous space: a commercial drone delivery system for urban areas.” In *Advances in*

- Geocomputation* , edited by D. Griffith, Y. Chun and D. Dean, 125-132 (Springer) (DOI: 10.1007/978-3-319-22786-3\_12).
- 2017 A.T. Murray. “Regional analytics.” *Annals of Regional Science* **59**, 1-13 (DOI: 10.1007/s00168-017-0825-6).
- 2017 Y. Zhang, A.T. Murray and B.L. Turner. “Optimizing green space locations to reduce daytime and nighttime urban heat island effects in Phoenix, Arizona.” *Landscape and Urban Planning* **165**, 162-171 (DOI: 10.1016/j.landurbplan.2017.04.009).
- 2017 Q. Zhao, E.A. Wentz and A.T. Murray. “Tree shade coverage optimization in an urban residential environment.” *Building and Environment* **115**, 269-280 (DOI: 10.1016/j.buildenv.2017.01.036).
- 2017 K. Grace, R. Wei and A.T. Murray. “A spatial analytic framework for assessing and improving food aid distribution in developing countries.” *Food Security* **9**, 867-880 (<https://doi.org/10.1007/s12571-017-0703-1>).
- 2017 A.T. Murray. “GIS in regional research.” In *Regional Research Frontiers – Vol. 2: Methodological Advance, Regional Systems Modeling and Open Science*, edited by R. Jackson and P. Shaeffer, 169-180 (Springer) (DOI: 10.1007/978-3-319-50590-9\_10).
- 2017 D. Tong and A.T. Murray. “Location analysis: developments on the horizon.” *Regional Research Frontiers – Vol. 2: Methodological Advance, Regional Systems Modeling and Open Science*, edited by R. Jackson and P. Shaeffer, 193-208 (Springer) (DOI: 10.1007/978-3-319-50590-9\_12).
- 2017 L.J. Wolf and A.T. Murray. “Spatial analysis.” In *International Encyclopedia of Geography: People, the Earth, Environment, and Technology*, edited by D. Richardson, N. Castree, M.F. Goodchild, A. Kobayashi, W. Liu and R.A. Marston (New York: John Wiley & Sons) (DOI: 10.1002/9781118786352.wbieg0505).
- 2017 S. McLafferty and A.T. Murray. “Regional perspectives on public health.” In *Regional Research Frontiers- Vol. 1: Innovations, Regional Growth and Migration*, edited by R. Jackson and P. Shaeffer, 161-174 (Springer) (DOI: 10.1007/978-3-319-50547-3\_10).
- 2016 T.H. Grubestic, R. Wei, A.T. Murray and W.A. Pridemore. “Comparative approaches for assessing access to alcohol outlets: exploring the utility of a gravity potential approach.” *Population Health Metrics* **14**, 25 (DOI: 10.1186/s12963-016-0097-x).
- 2016 R.L. Oxley, L.W. Mayes and A.T. Murray. “Optimization model for the sustainable water resource management of river basins.” *Water Resources Management* **30**, 3247-3264.
- 2016 S. Kleinschmidt, A.T. Murray, S. Rey, L. Anselin and T.H. Grubestic. “Spatial uncertainty in cluster detection.” *Spatial Information Research* **24**, 181-189.
- 2016 A.T. Murray. “Assessing the impacts of traditional school year calendar start dates.” *Socio-Economic Planning Sciences* **54**, 28-36.
- 2016 P.V. Amaral and A.T. Murray. “Equity in regional access to renal dialysis in Brazil.” *Regional Science Policy & Practice* **8**, 27-44.
- 2016 I. Hong, A.T. Murray and S.J. Rey. “Obstacle-avoiding shortest path derivation in a multicore computing environment.” *Computers, Environment and Urban Systems* **55**, 1-10.

- 2016 A.T. Murray and X. Feng. "Public street lighting service standard assessment and achievement." *Socio-Economic Planning Sciences* **53**,14-22.
- 2016 I. Hong, A.T. Murray and L.J. Wolf. "Spatial filtering for identifying a shortest path around obstacles." *Geographical Analysis* **48**, 176-190.
- 2016 A.T. Murray. "Maximal coverage location problem: impacts, significance and evolution." *International Regional Science Review* **39**, 5-27.
- 2016 T.H. Grubestic, R. Wei, A.T. Murray and F. Wei. "Essential Air Service in the United States: exploring strategies to enhance spatial and operational efficiencies." *International Regional Science Review* **39**, 108-130.
- 2016 I. Hong and A.T. Murray. "Assessing raster GIS approximation for Euclidean shortest path routing." *Transactions in GIS* **20**, 570-584.
- 2016 R. Wei and A.T. Murray. "A parallel algorithm for coverage optimization on multi-core architectures." *International Journal of Geographical Information Science* **30**, 432-450.
- 2015 A.T. Murray and T.H Grubestic. "Locational planning of health care facilities." In *Spatial Analysis in Health Geography*, edited by P. Kanaroglou, E. Delmelle and A. Paez, 243-259 (Farnham: Ashgate).
- 2015 A.T. Murray. "GIS and Transportation." In *Routledge Handbook of Transportation*, edited by D. Teodorovic, 437-447 (New York: Routledge).
- 2015 M. Ronnqvist, S. D'Amours, A. Weintraub, A. Jofre, E. Gunn, R.G. Haight, D. Martell, A.T. Murray and C. Romero. "Operational research challenges in forestry: 33 open problems." *Annals of Operations Research* **232**, 11-40.
- 2015 Y. Liu and A.T. Murray. "An integrated framework to support global and local pattern assessment for residential movements." *Cityscape: A Journal of Policy Development and Research* **17**, 127-140.
- 2015 A.T. Murray. "Fire station siting." In *Applications of Location Analysis*, edited by H.A. Eiselt and V. Marianov, 293-306 (Springer).
- 2015 N. Xiao and A.T. Murray. "Interpolation." In *Cartography in the Twentieth Century*, edited by M. Monmonier, 693-696 (Chicago: University of Chicago).
- 2015 R. Wei and A.T. Murray. "Continuous space maximal coverage: insights, advances and challenges." *Computers & Operations Research* **62**, 325-336.
- 2015 R. Wei and A.T. Murray. "Spatial uncertainty in harvest scheduling." *Annals of Operations Research* **232**, 275-289.
- 2015 A.T. Murray. "Evolving spatial analytics and rural area classifications." In *Workshop on Rationalizing Rural Area Classifications*, April, National Academies of Sciences, Engineering, and Medicine, Washington, DC. ([http://sites.nationalacademies.org/DBASSE/CNSTAT/DBASSE\\_160632](http://sites.nationalacademies.org/DBASSE/CNSTAT/DBASSE_160632)).
- 2015 I. Hong, M. Kuby, A.T. Murray. "Deviation flow refueling location model for continuous space: commercial drone delivery system for urban area." *Proceedings of the 14<sup>th</sup> International Conference on GeoComputation* (<http://www.geocomputation.org/>).
- 2014 A.T. Murray, T.H. Grubestic and R. Wei. "Spatially significant cluster detection." *Spatial Statistics* **10**, 103-116.

- 2014 T.H. Grubestic, J.A. Miller and A.T. Murray. "Geospatial and geodemographic insights for diabetes in the United States." *Applied Geography* **55**, 117-126.
- 2014 J. Yao, V. Agadjanian and A.T. Murray. "Spatial and social inequities in HIV testing utilization in the context of rapid scale-up of HIV/AIDS services in rural Mozambique." *Health & Place* **28**, 133-141.
- 2014 S.J. Rey, A.T. Murray, T.H. Grubestic, E.A. Mack, R. Wei, L. Anselin and M. Griffin. "Sex offender residential movement patterns: a Markov chain analysis." *Professional Geographer* **66**, 102-11.
- 2014 T.H. Grubestic, R. Wei and A.T. Murray. "Spatial clustering overview and comparison: accuracy, sensitivity and computational expense." *Annals, Association of American Geographers* **104**, 1134-1156.
- 2014 R. Wei, A.T. Murray and R. Batta. "A bounding based solution approach for the continuous arc covering problem." *Journal of Geographical Systems* **16**, 161-182.
- 2014 J. Yao and A.T. Murray. "Locational effectiveness of clinics providing sexual and reproductive health services to women in rural Mozambique." *International Regional Science Review* **37**, 172-193.
- 2014 R. Wei and A.T. Murray. "Evaluating polygon overlay to support spatial optimization coverage modeling." *Geographical Analysis* **46**, 209-229.
- 2014 T-K Shyy, I. Azeezullah, I. Azeezullah, R.J. Stimson and A.T. Murray. "Classification for visualizing data: Integrating multiple attributes and space for choropleth display." In *Handbook of Research Methods and Applications in Spatially Integrated Social Science*, edited by R.J. Stimson, 265-286 (Edward Elgar: Cheltenham).
- 2014 J. Yao and A.T. Murray. "Serving regional demand in facility location." *Papers in Regional Science* **93**, 643-663.
- 2014 A.T. Murray, R. Wei and T.H. Grubestic. "An approach for examining alternatives attributable to locational uncertainty." *Environment and Planning B: Planning and Design* **41**, 93-109.
- 2014 R. Wei and A.T. Murray. "A multi-objective evolutionary algorithm for facility dispersion under conditions of spatial uncertainty." *Journal of the Operational Research Society* **65**, 1133-1142.
- 2014 Q. Zhao, E. Wentz and A.T. Murray. "Shade optimization in a desert environment." In *Extended Abstract Proceedings of the GIScience 2014*, edited by K. Stewart, E. Pebesma, G. Navratil, P. Fogliaroni and M. Duckham, 134-137 (GeoInfo Series: Vienna, Austria).
- 2013 T.H. Grubestic, A.T. Murray and T.C. Matisziw. "Putting a price on politics as usual: rural air transport in the United States." *Transport Policy* **30**, 117-124.
- 2013 J. Yao, A.T. Murray and V. Agadjanian. "A geographical perspective on access to sexual and reproductive health care for women in rural Africa." *Social Science & Medicine* **96**, 60-68.
- 2013 A.T. Murray. "Optimising the spatial location of urban fire stations." *Fire Safety Journal* **62**, 64-71.

- 2013 I. Hong and A.T. Murray. "Efficient measurement of continuous space shortest distance around barriers." *International Journal of Geographical Information Science* **27**, 2302-2318.
- 2013 B.L. Turner II, A.C. Janetos, P.H. Verburg and A.T. Murray. "Land system architecture: using land systems to adapt and mitigate global environmental change." *Global Environmental Change* **23**, 395-397.
- 2013 A.T. Murray, T.H. Grubestic, E.A. Mack, R. Wei, S.J. Rey, L. Anselin and M. Griffin. "Convicted sex offender residential movements." In *Crime Modeling and Mapping Using Geospatial Technologies*, edited by M. Leitner, 51-71 (New York: Springer).
- 2013 A.T. Murray and T.H. Grubestic. "Exploring spatial patterns of crime using non-hierarchical cluster analysis." In *Crime Modeling and Mapping Using Geospatial Technologies*, edited by M. Leitner, 105-124 (New York: Springer).
- 2013 J. Yao and A.T. Murray. "Continuous surface representation and approximation: spatial analytical implications." *International Journal of Geographical Information Science* **27**, 883-897.
- 2013 A.T. Murray and R. Wei. "A computational approach for eliminating error in the solution of the location set covering problem." *European Journal Operational Research* **224**, 52-64.
- 2014 A.T. Murray and T.H. Grubestic. "Fortifying large scale, geospatial networks: implications for supervisory control and data acquisition systems." In *Crisis Management: Concepts, Methodologies, Tools, and Applications*, 224-246 (Hershey, PA: IGI Global) (DOI: 10.4018/978-1-4666-4707-7.ch009). [publisher reprint of Murray and Grubestic (2013)]
- 2013 A.T. Murray. "Location theory." In *Oxford Bibliographies in Geography*, edited by B. Warf (<http://www.oxfordbibliographies.com/obo/page/geography>) (New York: Oxford University Press) (updated 2017).
- 2013 L. Anselin, A.T. Murray and S.J. Rey. "Spatial analysis." In *The Oxford Handbook of Quantitative Methods*, Volume 2, edited by T.D. Little, 154-174 (Oxford, UK: Oxford University Press).
- 2013 A.T. Murray and T.H. Grubestic. "Fortifying large scale, geospatial networks: implications for supervisory control and data acquisition systems." In *Securing Critical Infrastructures and Critical Control Systems: Approaches for Threat Protection*, edited by C. Laing, A. Badii and P. Vickers, 301-323 (Hershey, PA: IGI Global) (DOI: 10.4018/978-1-4666-2659-1.ch013).
- 2013 A.T. Murray, J. Koschinsky, Y. Liu, S.J. Rey and L.A. Brown. "Are foreclosures contagious? An exploratory space-time analysis of Franklin County, Ohio 2001-2008." *International Journal of Applied Geospatial Research* **4**, 19-36.
- 2013 A.T. Murray. "An overview of network vulnerability modeling approaches." *GeoJournal* **78**, 209-221.
- 2013 R. Wei and A.T. Murray. "Assessing continuous demand representation in coverage modeling." *Proceedings of the 12<sup>th</sup> International Conference on GeoComputation* (<http://www.geocomputation.org>).

- 2013 I. Hong and A.T. Murray. "Efficient wayfinding in complex environment: derivation of a continuous space shortest path." *Proceedings of the 6<sup>th</sup> ACM SIGSPATIAL International Workshop on Computational Transportation Science*.
- 2012 T.H. Grubestic, A.T. Murray, W.A. Pridemore, L. Philip-Tabb, Y. Liu and R. Wei. "Alcohol beverage control, privatization and the geographic distribution of alcohol outlets." *BMC Public Health* **12**, 1015.
- 2012 A.T. Murray, P. Gober, L. Anselin, S.J. Rey, D. Sampson P.D. Padegimas and Y. Liu. "Spatial optimization models for water supply allocation." *Water Resources Management* **26**, 2243-2257.
- 2012 E.M. Delmelle, S. Li and A.T. Murray. "Identifying bus stop redundancy: a GIS-based spatial optimization approach." *Computers, Environment and Urban Systems* **36**, 445-455.
- 2012 T.H. Grubestic, T.C. Matisziw and A.T. Murray. "Assessing geographic coverage of the Essential Air Service program." *Socio-Economic Planning Sciences* **46**, 124-135.
- 2012 R. Wei and A.T. Murray. "An integrated approach for addressing geographic uncertainty in spatial optimization." *International Journal of Geographical Information Science* **26**, 1231-1249.
- 2012 D. Tong and A.T. Murray. "Spatial optimization in geography." *Annals of the Association of American Geographers* **102**, 1290-1309.
- 2012 M.T. Cudnik, J. Yao, D. Zive, M.R. Sayre, C.D. Newgard and A.T. Murray. "Surrogate markers of transport distance for out-of-hospital cardiac arrest patients." *Prehospital Emergency Care* **16**, 266-272.
- 2012 A.T. Murray, D. Tong and T.H. Grubestic. "Spatial optimization: expanding emergency services to address regional growth and development." In *Studies in Applied Geography and Spatial Analysis*, edited by R. Stimson and K. Haynes, 109-122 (UK: Edward Elgar).
- 2012 A.T. Murray and T.H. Grubestic. "Spatial optimization and geographic uncertainty: implications for sex offender management strategies." In *Community-Based Operations Research: Decision Modeling for Local Impact and Diverse Populations*, edited by M. Johnson, 121-142 (Berlin: Springer).
- 2012 A.T. Murray and T.H. Grubestic. "Critical infrastructure protection: the vulnerability conundrum." *Telematics and Informatics* **29**, 56-65.
- 2012 A.T. Murray, Y. Liu, S. Rey and L. Anselin. "Exploring movement object patterns." *Annals of Regional Science* **49**, 471-484.
- 2011 A.T. Murray, T.H. Grubestic, R. Wei and E.A. Mack. "A hybrid geocoding methodology for spatio-temporal data." *Transactions in GIS* **15**, 795-809.
- 2011 J. Yao, A.T. Murray, V. Agadjanian and S. Hayford. "Geographic influences on sexual and reproductive health service utilization in rural Mozambique." *Applied Geography* **32**, 601-607.
- 2011 T.H. Grubestic, A.T. Murray and E. Mack. "Sex offenders, residence restrictions, housing and urban morphology: a review and synthesis." *Cityscape: A Journal of Policy Development and Research* **13**, 7-31.
- 2011 X. Wu, A.T. Murray and N. Xiao. "A multiobjective evolutionary algorithm for optimizing spatial contiguity in reserve design." *Landscape Ecology* **26**, 425-437.



- 2011 S.J. Rey, A.T. Murray and L. Anselin. "Visualizing regional income distribution dynamics." *Letters in Spatial and Resource Sciences* **4**, 81-90.
- 2011 T.H. Grubestic, T.C. Matisziw and A.T. Murray. "Market coverage and service quality in digital subscriber lines infrastructure planning." *International Regional Science Review* **34**, 368-390.
- 2011 J. Corcoran, A.T. Murray and R.J. Stimson. "Spatially disaggregating employment growth estimates." *International Regional Science Review* **34**, 138-156.
- 2010 A.T. Murray. "Location-allocation modeling." *Encyclopedia of Geography*, edited by B. Warf (Thousand Oaks: Sage).
- 2010 A.T. Murray. "Advances in location modeling: GIS linkages and contributions." *Journal of Geographical Systems* **12**, 335-354.
- 2010 T.C. Matisziw, A.T. Murray and T.H. Grubestic. "Strategic network restoration." *Networks and Spatial Economics* **10**, 345-361.
- 2010 T.H. Grubestic and A.T. Murray. "Methods to support policy evaluation of sex offender laws." *Papers in Regional Science* **89**, 669-684.
- 2010 A.T. Murray. "Quantitative geography." *Journal of Regional Science* **50**, 143-163.
- 2010 G. Lee and A.T. Murray. "Maximal covering with network survivability requirements in wireless mesh networks." *Computers, Environment and Urban Systems* **34**, 49-57.
- 2010 A.T. Murray, D. Tong and K. Kim. "Enhancing classic coverage location models." *International Regional Science Review* **33**, 115-133.
- 2009 A.T. Murray. "Location theory." In *International Encyclopedia of Human Geography*, volume 1, edited by R. Kitchin and N. Thrift, 270-276 (Oxford: Elsevier).
- 2009 M. Goycoolea, J.P. Vielma, A.T. Murray and A. Weintraub. "Evaluating approaches for solving the area restriction model in harvest scheduling." *Forest Science* **55**, 149-165.
- 2009 T.C. Matisziw and A.T. Murray. "Area coverage maximization in service facility siting." *Journal of Geographical Systems* **11**, 175-189.
- 2009 D. Tong, A.T. Murray and N. Xiao. "Heuristics in spatial analysis: a genetic algorithm for coverage maximization." *Annals of the Association of American Geographers* **99**, 698-711.
- 2009 T.C. Matisziw and A.T. Murray. "Connectivity change in habitat networks." *Landscape Ecology* **24**, 89-100.
- 2009 A.T. Murray and D. Tong. "GIS and spatial analysis in the media." *Applied Geography* **29**, 250-259.
- 2009 T.C. Matisziw, A.T. Murray and T.H. Grubestic. "Exploring the vulnerability of network infrastructure to disruption." *Annals of Regional Science* **43**, 307-321.
- 2009 T.C. Matisziw and A.T. Murray. "Siting a facility in continuous space to maximize coverage of continuously distributed demand." *Socio-Economic Planning Sciences* **43**, 131-139.
- 2009 T.C. Matisziw, A.T. Murray and J.P. Osleeb. "The contributions of Charles S. ReVelle." *Socio-Economic Planning Sciences* **43**, 90-91.

- 2009 D. Tong and A.T. Murray. "Maximizing coverage of spatial demand for service." *Papers in Regional Science* **88**, 85-97.
- 2009 T.C. Matisziw and A.T. Murray. "Modeling s-t path availability to support disaster vulnerability assessment of network infrastructure." *Computers & Operations Research* **36**, 16-26.
- 2009 J.P. Vielma, M. Goycoolea, A.T. Murray and A. Weintraub. "Comparing alternative formulations for the ARM." *Proceedings of the 13<sup>th</sup> Symposium for Systems Analysis in Forest Resources*.
- 2008 A.T. Murray. "A note on 'A review of the status and use of validation procedures for heuristics used in forest planning'". *International Journal of Mathematical and Computational Forestry & Natural-Resource Science* **1**, 37-38.
- 2008 T.H. Grubestic and A.T. Murray. "Sex offender residency and spatial equity." *Applied Spatial Analysis and Policy* **1**, 175-192.
- 2008 A.T. Murray and H. Kim. "Efficient Efficient identification of geographic restriction conditions in anti-covering location models using GIS." *Letters in Spatial and Resource Sciences* **1**, 159-169.
- 2008 A.T. Murray, T.C. Matisziw, H. Wei and D. Tong. "A GeoComputational heuristic for coverage maximization in service facility siting." *Transactions in GIS* **12**, 757-773.
- 2008 T.H. Grubestic, A.T. Murray and E.A. Mack. "Sex offenders, housing and spatial restriction zones." *GeoJournal* **73**, 255-269.
- 2008 A.T. Murray, T.C. Matisziw and T.H. Grubestic. "A methodological overview of network vulnerability analysis." *Growth and Change* **39**, 573-592.
- 2008 J.A. Downs, R.J. Gates and A.T. Murray. "Estimating carrying capacity for sandhill cranes using habitat suitability and spatial optimization models." *Ecological Modelling* **214**, 284-292.
- 2008 D.E. Snediker, A.T. Murray and T.C. Matisziw. "Decision support for network disruption mitigation." *Decision Support Systems* **44**, 954-969.
- 2008 K. Kim and A.T. Murray. "Enhancing spatial representation in primary and secondary coverage location modeling." *Journal of Regional Science* **48**, 745-768.
- 2008 K. Kim, A.T. Murray and N. Xiao. "A multi-objective evolutionary algorithm for surveillance sensor placement." *Environment and Planning B: Planning and Design* **35**, 935-948.
- 2008 T.H. Grubestic, T.C. Matisziw, A.T. Murray, and D. Snediker. "Comparative approaches for assessing network vulnerability." *International Regional Science Review* **31**, 88-112.
- 2008 A.T. Murray, M.E. O'Kelly and R.L. Church. "Regional service coverage modeling." *Computers & Operations Research* **35**, 339-355.
- 2008 B. Farhan and A.T. Murray. "Siting park-and-ride facilities using a multi-objective spatial optimization model." *Computers & Operations Research* **35**, 445-456.
- 2008 X. Wu and A.T. Murray. "A new approach to quantifying spatial contiguity using graph theory and spatial interaction." *International Journal of Geographical Information Science* **22**, 387-407.

- 2008 A.T. Murray. "Optimization." In *Encyclopedia of Geographic Information Science*, edited by K. Kemp, p. 333-334 (Thousand Oaks: Sage).
- 2008 X. Wu and A.T. Murray. "Spatial contiguity optimization in land acquisition." *Journal of Land Use Science* **2**, 243-256.
- 2007 A.T. Murray, T.C. Matisziw and T.H. Grubestic. "Critical network infrastructure analysis: interdiction and system flow." *Journal of Geographical Systems* **9**, 103-117.
- 2007 T.H. Grubestic, E. Mack and A.T. Murray. "Geographic exclusion: spatial analysis for evaluating the implications of Megan's Law." *Social Science Computer Review* **25**, 143-162.
- 2007 A.T. Murray and D. Tong. "Coverage optimization in continuous space facility siting." *International Journal of Geographical Information Sciences* **21**, 757-776.
- 2007 A.T. Murray, K. Kim, J.W. Davis, R. Machiraju and R. Parent. "Coverage optimization to support security monitoring." *Computers, Environment and Urban Systems* **31**, 133-147.
- 2007 C. ReVelle, A.T. Murray and D. Serra. "Location models for ceding market share and shrinking services." *Omega* **35**, 533-540.
- 2007 J.P. Vielma, A.T. Murray, D.M. Ryan and A. Weintraub. "Improving computational capabilities for addressing volume constraints in forest harvest scheduling problems." *European Journal of Operational Research* **176**, 1246-1264.
- 2007 C. Wu and A.T. Murray. "Population estimation using Landsat Enhanced Thematic Mapper imagery." *Geographical Analysis* **39**, 26-43.
- 2007 A.T. Murray and T.H. Grubestic. "Overview of reliability and vulnerability in critical infrastructure." In *Critical Infrastructure: Reliability and Vulnerability*, edited by A. Murray and T. Grubestic, p. 1-8 (Berlin: Springer).
- 2007 T.H. Grubestic, A.T. Murray and J. Mefford. "Continuity in critical network infrastructures: accounting for nodal disruptions." In *Critical Infrastructure: Reliability and Vulnerability*, edited by A. Murray and T. Grubestic, p. 197-220 (Berlin: Springer).
- 2007 T.C. Matisziw, A.T. Murray and T.H. Grubestic. "Bounding network attack vulnerability through cutset identification." In *Critical Infrastructure: Reliability and Vulnerability*, edited by A. Murray and T. Grubestic, p. 243-256 (Berlin: Springer).
- 2007 A.T. Murray. "Spatial environmental concerns." In *Handbook of Operations Research in Natural Resources*, edited by A. Weintraub, C. Romero, T. Bjorndal and R. Epstein, p. 419-429 (New York: Springer).
- 2007 F. Janoos, R. Machiraju, R. Parent, J.W. Davis, A. Murray. "Sensor configuration for coverage optimization for surveillance applications." In *Proceedings of the IS&T/SPIE Symposium on Electronic Imaging*, vol. 6491.
- 2007 T.C. Matisziw, A.T. Murray and T.H. Grubestic. "Evaluating vulnerability and risk in interstate highway operation." In *Proceedings of the Transportation Research Board Annual Meeting* (Washington, DC.: TRB).
- 2007 T.H. Grubestic, A.T. Murray and E.A. Mack. "Geographic exclusion: spatial analysis for evaluating the implications of Megan's Law." *Proceedings from the Ninth Annual International Crime Mapping Research Conference* (Washington, D.C.: NIJ).

- 2006 T.C. Matisziw and A.T. Murray. "Promoting species persistence through spatial association optimization in nature reserve design." *Journal of Geographical Systems* **8**, 289-305.
- 2006 H. Wei, A.T. Murray and N. Xiao. "Solving the continuous space p-center problem: planning application issues." *IMA Journal of Management Mathematics* **17**, 413-425.
- 2006 B. Farhan and A.T. Murray. "Distance decay and coverage in facility location planning." *Annals of Regional Science* **40**, 279-295.
- 2006 T.H. Grubestic and A.T. Murray. "Vital nodes, interconnected infrastructures and the geographies of network survivability." *Annals of the Association of American Geographers* **96**, 64-83.
- 2006 T.C. Matisziw, A.T. Murray and C. Kim. "Strategic route extension in transit networks." *European Journal of Operational Research* **171**, 661-673.
- 2006 A. Weintraub and A.T. Murray. "A review of combinatorial problems induced by spatial forest harvesting planning." *Discrete Applied Mathematics* **154**, 867-879.
- 2005 A.T. Murray. "Geography in coverage modeling: exploiting spatial structure to address complementary partial service of areas." *Annals of the Association of American Geographers* **95**, 761-772.
- 2005 E.G. Lobao and A.T. Murray. "Exploratory analysis of the homeless shelter system in Columbus, Ohio." *Geografiska Annaler: Series B* **87**, 61-73.
- 2005 C. Wu and A.T. Murray. "Optimizing public transit quality and system access: the multiple route maximal covering/shortest path problem." *Environment and Planning B: Planning and Design* **32**, 163-178.
- 2005 T.H. Grubestic and A.T. Murray. "Spatial-historical landscapes of telecommunication network survivability." *Telecommunications Policy* **29**, 801-820.
- 2005 C. Wu and A.T. Murray. "A cokriging method for estimating population density in urban areas." *Computers, Environment and Urban Systems* **29**, 558-579.
- 2005 T.H. Grubestic and A.T. Murray. "Geographies of imperfection in telecommunication analysis." *Telecommunications Policy* **29**, 69-94.
- 2005 B. Farhan and A.T. Murray. "A GIS-based approach for delineating market areas for park-and-ride facilities." *Transactions in GIS* **9**, 91-108.
- 2005 M. Goycoolea, A.T. Murray, F. Barahona, R. Epstein and A. Weintraub. "Harvest scheduling subject to maximum area restrictions: exploring exact approaches." *Operations Research* **53**, 490-500.
- 2005 T.-K. Shyy, R.J. Stimson, J. Western, A.T. Murray and L. Mazerolle. "Web GIS for mapping community crime rates: approaches and challenges." In *Geographic Information Systems and Crime Analysis*, Chapter 14, edited by F. Wang, p. 236-252 (Hershey, PA: IRM Press).
- 2005 A.T. Murray and X. Wu. "Assessing landscape contiguity in reserve design." *Systems Analysis in Forest Resources: Proceedings of the 2003 Symposium*, edited by M. Bevers and T.M. Barrett, 85-88 (Gen. Tech. Rep. PNW-GTR-656. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station).

- 2005 D. Ryan, J.P. Vielma, A.T. Murray and A. Weintraub. "Improved solution techniques for multi-period area-based forest harvest scheduling problems." *Systems Analysis in Forest Resources: Proceedings of the 2003 Symposium*, edited by M. Bevers and T.M. Barrett, 285-290 (Gen. Tech. Rep. PNW-GTR-656. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station).
- 2004 W.V. Ackerman and A.T. Murray. "Assessing spatial patterns of crime in Lima, Ohio." *Cities* **21**, 423-437.
- 2004 M.W. Horner and A.T. Murray. "Spatial representation and scale impacts in transit service assessment." *Environment and Planning B: Planning and Design* **31**, 785-797.
- 2004 A.T. Murray, M. Goycoolea and A. Weintraub. "Incorporating average and maximum area restrictions in harvest scheduling models." *Canadian Journal of Forest Research* **34**, 456-464.
- 2004 T.H. Grubestic and A.T. Murray. "'Where' matters: Location and Wi-Fi access." *Journal of Urban Technology* **11**, 1-28.
- 2004 R.W. Jackson and A.T. Murray. "Alternative formulations for updating input-output matrices." *Economic Systems Research* **16**, 135-148.
- 2004 T.H. Grubestic and A.T. Murray. "Waiting for broadband: local competition and the spatial distribution of advanced telecommunication services in the United States." *Growth and Change* **35**, 139-165.
- 2004 M.E. O'Kelly and A.T. Murray. "A lattice covering model for evaluating existing service facilities." *Papers in Regional Science* **83**, 565-580.
- 2004 T.H. Grubestic and A.T. Murray. "Assessing positional uncertainty in geocoded data." *Proceedings of the 24<sup>th</sup> Urban Data Management Symposium* (Netherlands: UDMS).
- 2003 A.T. Murray. "A coverage model for improving public transit system accessibility and expanding access." *Annals of Operations Research* **123**, 143-156.
- 2003 P.T. Shyy, R.J. Stimson and A.T. Murray. "An Internet GIS and spatial model to benchmark local government socio-economic performance." *Australasian Journal of Regional Studies* **9**, 29-45.
- 2003 A.T. Murray and X. Wu. "Accessibility tradeoffs in public transit planning." *Journal of Geographical Systems* **5**, 93-107.
- 2003 M.P. Kwan, A.T. Murray, M.E. O'Kelly and M. Tiefelsdorf. "Recent advances in accessibility research: representation, methodology and applications." *Journal of Geographical Systems* **5**, 129-139.
- 2003 C. Wu and A.T. Murray. "Estimating impervious surface distribution by spectral mixture analysis." *Remote Sensing of Environment* **84**, 493-505.
- 2003 A.T. Murray. "Site placement uncertainty in location analysis." *Computers, Environment and Urban Systems* **27**, 205-221.
- 2003 M.W. Horner and A.T. Murray. "a multi-objective approach to improving regional jobs-housing balance." *Regional Studies* **37**, 135-146.
- 2003 D.P. Ward, A.T. Murray and S.R. Phinn. "Integrating spatial optimization and cellular automata for evaluating urban change." *Annals of Regional Science* **37**, 131-148.

- 2003 T.H. Grubestic, M.E. O’Kelly and A.T. Murray. “A geographic perspective on telecommunication network survivability.” *Telematics and Informatics* **20**, 51-69.
- 2003 J.P. Vielma, A.T. Murray, D.M. Ryan and A. Weintraub. “Improved solution techniques for multi-period area-based forest harvest scheduling problems.” *Proceedings of the 38<sup>th</sup> Annual Conference of the Operational Research Society of New Zealand (ORSNZ’03)*, 21-28.
- 2003 R. Epstein, M. Goycoolea, A.T. Murray and A. Weintraub. “An adjacency-modeling problem based on constructing harvesting areas.” *Systems Analysis in Forest Resources*, edited by G.J. Arthaud and T.M. Barrett, 279-289 (Dordrecht: Kluwer Scientific).
- 2002 A.T. Murray and M.E. O’Kelly. “Assessing representation error in point-based coverage modeling.” *Journal of Geographical Systems* **4**, 171-191.
- 2002 A.T. Murray and A. Weintraub. “Scale and unit specification influences in harvest scheduling with maximum area restrictions.” *Forest Science* **48**, 779-789.
- 2002 A.T. Murray and T.H. Grubestic. “Identifying non-hierarchical spatial clusters.” *International Journal of Industrial Engineering* **9**, 86-95.
- 2002 T.H. Grubestic and A.T. Murray. “Constructing the divide: spatial disparities in broadband access.” *Papers in Regional Science* **81**, 197-221.
- 2002 M.W. Horner and A.T. Murray. “Excess commuting and the modifiable areal unit problem.” *Urban Studies* **39**, 131-139.
- 2002 B. Roberts and A.T. Murray. “National and regional spatial corporate structure.” *Annals of Regional Science* **36**, 347-368.
- 2002 S. Phinn, M. Stanford, P. Scarth, A.T. Murray and P.T. Shyy. “Monitoring the composition and form of urban environments based on the vegetation-impervious surface-soil (VIS) model by subpixel analysis techniques.” *International Journal of Remote Sensing* **23**, 4131-4153.
- 2002 A.T. Murray. “SDSS in the management of forest resources.” In *The Encyclopedia of Life Support Systems* (Oxford, UK: EOLSS Publishers). [<http://www.eolss.net>].
- 2001 A.T. Murray and R. Davis. “Equity in regional service provision.” *Journal of Regional Science* **41**, 577-600.
- 2001 H.-S. Cha and A.T. Murray. “Assessing public transit service equity in Columbus, Ohio.” *Studies in Regional and Urban Planning* **9**, 69-83.
- 2001 T. Shyy, R. Stimson, S. Baum, R. Davis, A. Murray and R. Barker. “An Internet GIS for improving access to regional performance data: a decision support system to enhance location development and planning.” *Australian Planner* **38(3/4)**, 158-166.
- 2001 A.T. Murray. “Strategic analysis of public transport coverage.” *Socio-Economic Planning Sciences* **35**, 175-188.
- 2001 D.P. Ward, R.J. Stimson and A.T. Murray. “A spatial decision support system to visualize optimal patterns of future urban growth meeting sustainability criteria: a case study of the gold coast.” *Australian Planner* **38(2)**, 80-89.
- 2001 A.T. Murray, I. McGuffog, J.S. Western and P. Mullins. “Exploratory spatial data analysis techniques for examining urban crime.” *British Journal of Criminology* **41**, 309-329.

- 2001 V. Estivill-Castro, I. Lee and A.T. Murray. "Criteria on proximity graphs for boundary extraction and spatial clustering." *Advances in Knowledge Discovery and Data Mining (Proceedings of 5<sup>th</sup> Pacific-Asia Conference, PAKDD 2001)*, 348-357 (New York: Springer-Verlag).
- 2000 A.T. Murray and T. Shyy. "Integrating attribute and space characteristics in choropleth display and spatial data mining." *International Journal of Geographical Information Science* **14**, 649-667.
- 2000 D.P. Ward, A.T. Murray and S.R. Phinn. "A stochastically constrained cellular automata model of urban growth." *Computers, Environment and Urban Systems* **24**, 539-558.
- 2000 A. Weintraub, R.L. Church, A.T. Murray and M. Guignard. "Forest management models and combinatorial algorithms: analysis of state of the art." *Annals of Operations Research* **96**, 271-285.
- 2000 D.P. Ward, S.R. Phinn and A.T. Murray. "Monitoring growth in rapidly urbanizing areas using remotely sensed data." *Professional Geographer* **52**, 371-386.
- 2000 A.T. Murray and S. Snyder. "Spatial modeling in forest management and natural resource planning." *Forest Science* **46**, 153-156.
- 2000 R.L. Church, A.T. Murray and K.H. Barber. "Forest planning at the tactical level." *Annals of Operations Research* **95**, 3-18.
- 2000 A.T. Murray. "Spatial characteristics and comparisons of interaction and median clustering models." *Geographical Analysis* **32**, 1-18.
- 2000 R.L. Church, A.T. Murray, M.A. Figueroa and K. Barber. "Support system development for forest ecosystem management." *European Journal of Operational Research* **121**, 247-258.
- 2000 V. Estivill-Castro and A.T. Murray (2000). "Weighted Facility Location and Clustering via Hybrid Optimisation". *Proceedings of the International ICSC Conference on Intelligent Systems and Applications ISA-2000*, edited by F. Naghdy, F. Kurfess, H. Ogata, E. Szczerbicki, H. Bothe, and H. Tlan, 1514-079 on CD-ROM (Canada: ICSC Academic Press). ISBN 3-906454-24-X.
- 2000 V. Estivill-Castro and A.T. Murray. "Hybrid optimization for clustering in data mining." *CLAIO 2000*, on CD-ROM (Mexico: IMSIO).
- 2000 A.T. Murray. "Spatially lagged choropleth display." *Proceedings of 9<sup>th</sup> International Symposium on Spatial Data Handling*, edited by P. Forer, A. Yeh and J. He, 1a40-49 (Beijing: International Geographical Union).
- 2000 A.T. Murray and R.L. Church. "Optimizing the location of harvesting equipment and access roads." *Seventh Symposium on Systems Analysis in Forest Resources*, edited by J. Fried, L. Leefers, and M. Vasievich, North Central Research Station General Technical Report NC-205, 361-363 (Washington D.C.: USDA Forest Service).
- 1999 A.T. Murray. "Spatial analysis using clustering methods: evaluating the use of central point and median approaches." *Journal of Geographical Systems* **1**, 367-383.
- 1999 A.T. Murray. "Spatial restrictions in harvest scheduling." *Forest Science* **45**, 45-52.
- 1999 A.T. Murray and R.L. Church. "Using proximity restrictions for locating undesirable facilities." *Studies in Locational Analysis* **12**, 81-99.

- 1998 A.T. Murray. "Ecosystem management or infeasible guidelines? Implications of adjacency restrictions for wildlife habitat and timber production." *Canadian Journal of Forest Research* **28**, 1093-1094.
- 1998 A.T. Murray, R. Davis, R.J. Stimson and L. Ferreira. "Public transportation access." *Transportation Research D* **3**, 319-328.
- 1998 A.T. Murray. "Route planning for harvest site access." *Canadian Journal of Forest Research* **28**, 1084-1087.
- 1998 R.L. Church, A.T. Murray and A. Weintraub. "Locational issues in forest management." *Location Science* **6**, 137-153.
- 1998 A.T. Murray, R.L. Church and A. Weintraub. "Operational forest planning and Steiner tree extensions." *Geographical Systems* **5**, 221-237.
- 1998 A.T. Murray and V. Estivill-Castro. "Cluster discovery techniques for exploratory spatial data analysis." *International Journal of Geographical Information Science* **12**, 431-443.
- 1998 A.T. Murray, R.L. Church, R.A. Gerrard and W.S. Tsui. "Impact models for siting undesirable facilities." *Papers in Regional Science* **77**, 19-36.
- 1998 A.T. Murray. "Minimizing aggregation error in input-output models." *Environment and Planning A* **30**, 1125-1128.
- 1998 V. Estivill-Castro and A.T. Murray. "Mining spatial data via clustering." *Proceedings of 8<sup>th</sup> International Symposium on Spatial Data Handling*, edited by T. Poiker and N. Chrisman, 522-532 (Vancouver: International Geographical Union).
- 1998 V. Estivill-Castro and A.T. Murray. "Discovering associations in spatial data – an efficient medoid based approach." *Research and Development in Knowledge Discovery and Data Mining: Second Pacific-Asia Conference*, edited by X. Wu, R. Kotagiri and K. Korb, 110-121 (New York: Springer).
- 1998 V. Estivill-Castro and A.T. Murray. "Spatial clustering for data mining with genetic algorithms." *International ICSC Symposium on Engineering of Intelligent Systems*, edited by E. Alpaydin and C. Fyfe, on CD-ROM (Canada: ICSC Academic Press).
- 1998 A.T. Murray, J.S. Western, P. Mullins and I. McGuffog. "Analyzing patterns of regional criminal activity." *GIS/LIS' 98*, on CD-ROM, 611-617 (Maryland: American Society for Photogrammetry and Remote Sensing).
- 1998 A.T. Murray. "Transport access and environmental sustainability." *International Conference on Modeling Geographical and Environmental Systems with Geographical Information Systems*, edited by P. Lai, Y. Leung and W. Shi, 336-339 (Hong Kong: The Chinese University of Hong Kong).
- 1997 A.T. Murray and R.A. Gerrard. "Capacitated service and regional constraints in location-allocation modeling." *Location Science* **5**, 103-118.
- 1997 A.T. Murray and J.M. Gottsegen. "The influence of data aggregation on the stability of *p*-median location model solutions." *Geographical Analysis* **29**, 200-213.
- 1997 A.T. Murray and R.L. Church. "Facets for node packing." *European Journal of Operational Research* **101**, 598-608.
- 1997 A.T. Murray and R.L. Church. "Solving the anti-covering location problem using Lagrangian relaxation." *Computers & Operations Research* **24**, 127-140.



- 1996 A.T. Murray and R.L. Church. "Constructing and selecting adjacency constraints." *INFOR* **34**, 232-248.
- 1996 A.T. Murray and R.L. Church. "Applying simulated annealing to location planning models." *Journal of Heuristics* **2**, 31-53.
- 1996 A.T. Murray and R.L. Church. "Analyzing cliques for imposing adjacency restrictions in forest models." *Forest Science* **42**, 166-175.
- 1996 J.M. Gottsegen and A.T. Murray. "Analyzing the relationships of spatial structure in aggregated data." *GIS/LIS' 96*, 457-466 (Maryland: American Society for Photogrammetry and Remote Sensing).
- 1995 A.T. Murray and R.L. Church. "Measuring the efficacy of adjacency constraint structure in forest planning." *Canadian Journal of Forest Research* **25**, 1416-1424.
- 1995 A.T. Murray and R.L. Church. "Solid-waste-disposal site location." *Journal of Urban Planning and Development ASCE* **121**, 109-114.
- 1995 A.T. Murray and R.L. Church. "Heuristic solution approaches to operational forest planning problems." *OR Spektrum* **17**, 193-203.
- 1995 R.L. Church, A.T. Murray, K.H. Barber and R. Dyrland. "A spatial decision support system for doing hierarchical habitat planning." *Analysis in Support of Ecosystem Management*, 283-292 (Washington D.C.: USDA Forest Service).
- 1994 R.L. Church, A.T. Murray and K. Barber. "Designing a hierarchical planning model for USDA Forest Service planning." *Proceedings of the 1994 Symposium on Systems Analysis and Forest Resources*, edited by J. Sessions and J.D. Brodie, 401-409 (Maryland: Society of American Foresters).
- 1994 A.T. Murray, R.L. Church and M.A. Figueroa. "Designing a spatial decision support system for forest ecosystem management." *Proceedings of GIS'94 Eight Annual Symposium on Geographic Information Systems*, 651-658 (Canada).
- 1993 A.T. Murray and R.L. Church. "Adjacency constraint aggregation." *International Symposium on Systems Analysis and Management Decisions in Forestry*, edited by G. Paredes, 131-138 (Chile: Universidad Austral de Chile).
- 1993 R.L. Church and A.T. Murray. "Modeling school utilization and consolidation." *Journal of Urban Planning and Development ASCE* **119**, 23-38.

*Bulletins and Technical Reports (4 total)*

- 2024 P. Kedron, T. Nelson, S. Dodge, A. Frazier, A. Murray, M. Goodchild, S. Lutsky and E. Kozaki. *Spatial Data Science in an Age of Scientific Disruption*. UCSB Center for Spatial Studies and Data Science Report (UCSB).
- 2021 R.L. Church, A.T. Murray and B.A. Pludow, *The Development of Spatial Optimization Tools to Support Efforts to Transition to Fire Resilient Forest Landscapes*, USDA Final Project Report (UCSB).
- 2002 A.T. Murray, *Airborne Techniques for Estimating Traffic Flow in the Private Sector*, National Consortia on Remote Sensing in Transportation – Flows (NCRST-F) (Center for Mapping, The Ohio State University, Columbus, Ohio).

- 1997 R.J. Stimson, M. Manicaros, A. Kabamba and A.T. Murray. *Ageing and Housing: ageing and retirement housing in Australia*. AHURI Research Monograph 4 (Brisbane: Australian Housing and Urban Research Institute).

*Book Reviews (2 total)*

- 2002 Geographical Analysis, vol. 34, 91-92 – *GIS and Multicriteria Decision Analysis* by J. Malczewski, 1999 (New York: John Wiley and Sons)
- 2000 Papers in Regional Science, vol. 79, 103-104 – *The Economics of Industrial Location* by P. McCann, 1998 (Berlin: Springer-Verlag).

*Publications in Progress (17 total)*

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**Courses Taught**

- GEOG 172 (UCSB) – Intermediate Geographical Data Analysis (2016, 2017, 2018, 2019)
- GEOG 176B (UCSB) – Technical Issues in Geographic Information Systems (2024)
- GEOG 190/290 (UCSB) – Location Theory and Modeling (2017, 2019, 2021, 2023)
- GEOG 191/291 (UCSB) – Introduction to Optimization Methods for Geographic Problems (SP 2021, FA 2021, 2023)
- GEOG 192 (UCSB) – Urban and Environmental Systems Analysis (2024)
- GEOG 200A (UCSB) – Introduction to Geographic Research (2017, 2018, 2019, 2020)
- GEOG 210B (UCSB) – Analytical Methods in Geography II (2017)
- GEOG 275 (UCSB) – Seminar in Geographical Information Systems (2024)
- GEOG 294 (UCSB) – Advanced Topics in Location and Transportation Systems (2016, 2018, 2020, 2022)
- INFO 220 (Drexel) – Geographic Information Science (2014, 2015)

- GPH 473/591 (ASU) – Geographic Information Science II (2009, 2010, 2011, 2012, 2014)
- GPH/PUP 481/581 (ASU) – Optimization Fundamentals for Spatial Analysis (2009, 2010, 2011, 2012, 2013) (GCU 494/598 prior to 2012)
- GPH/PUP 482/582 (ASU) – Location Analysis and Modeling (2009, 2010, 2012, 2014) (GCU 494/598 prior to 2012)
- GPH/PUP 598 (ASU) – Advanced Topics in Location Modeling: Shortest paths, obstacles and uncertainty (2013)
- GCU/GPH 591 (ASU) – Geography Forum (Professional Development) (2010, 2011)
- GCU/GPH 591 (ASU) – Geography Colloquium (2009, 2010, 2011, 2012, 2013)
- PUP 701 (ASU) – Urban Planning Colloquium (2012, 2013)
- GCU 598/PUP 591 (ASU) – Special Topics: Location Analysis and Modeling (2010)
- Geog 200 (OSU) – World Regional Geography (2000 Winter and Autumn, 2001)
- Geog 607 (OSU) – Fundamentals of Geographic Information System (Team taught: 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007)
- Geog 647 (OSU) – Locational Analysis (2005, 2006, 2007, 2008)
- Geog 683 (OSU) – Introduction to Geographic Analysis (2002, 2003, 2004, 2005)
- Geog 685 (OSU) – Intermediate Geographical Information Systems (2000, 2001, 2002, 2003, 2004)
- Geog 740 (OSU) – Locational Analysis (2006, 2008)
- Geog 840.01 (OSU) – Seminar in Location Theory: Spatial representation issues (2006)
- Geog 840.01 (OSU) – Seminar in Location Theory: GIS and modeling (2007)
- Geog 840.02 (OSU) – Seminar in Locational Analysis (1999)
- Geog 840.02 (OSU) – Seminar in Locational Analysis: Natural resource management (2002)
- Geog 845.01 (OSU) – Seminar in Transportation Geography: Public transit (2001)
- Geog 889 (OSU) – Seminar in Geography: Professional development in geography (Co-taught: 2003, 2004, 2005)
- Geog 983 (OSU) – Special Topics in Quantitative Geography: Lagrangian relaxation (2000)
- Geog 983 (OSU) – Special Topics in Quantitative Geography: Voronoi diagrams and spatial optimization (2003)
- Geog 983 (OSU) – Special Topics in Quantitative Geography: Network analysis (2004)
- GN 342 (UQ) – Spatial Analysis and Geographical Information Systems (1998)
- GN 882 (UQ) – Natural Resources Information Systems (Co-taught 1998)
- ITN 357 (QUT) – Special Topic in Information Studies: GIS and Spatial Analysis (1997)

## Students Advised

### Postdoctoral (advisor) (2 total)

- Timothy Matisziw – Ohio State University (2005-2008) [Professor, University of Missouri]
- Tony Grubestic – Ohio State University (2001-2002) [Professor University of California at Riverside/ Professor and Associate Dean, University of Texas / Professor, Arizona State University / Professor, Drexel University / Associate Professor, Oregon State University / Associate Professor, Indiana University / Assistant Professor, University of Cincinnati]

### Doctoral (advisor) (27 total)

- Zhongqi Zheng – University of California at Santa Barbara
- Yuyang Zhang – University of California at Santa Barbara
- Darlene Rini – University of California at Santa Barbara
- Vanessa Figueroa – University of California at Santa Barbara
- Jiwon Baik – University of California at Santa Barbara, ABD 2024 (“Enhancing wildfire resilience through advanced decision-making and risk management”). **Awards:** 2022-23 Excellence in Teaching Award (Geography, UCSB), 2024 Jack and Laura Dangermond Fellowship (Geography, UCSB).
- Evgeny Noi (co-advisor) – University of California at Santa Barbara, 2024 (“Mapping mobility disruptions: understanding human movement in crisis contexts”). **Awards:** 2022-23 Excellence in Research Award (Geography, UCSB) [Research Associate, University of Colorado, Population Center / Institute of Behavioral Science]
- Seonga Cho (co-advisor) – University of California at Santa Barbara, 2024 (“Challenges and solutions in multi-objective spatial optimization involving continuous space siting”). **Awards:** 2023 Jack and Laura Dangermond Fellowship (Geography, UCSB) [Assistant Professor, School of Digital Humanities and Computational Social Sciences, Korea Advanced Institute of Science and Technology (KAIST) / Scientist, Ecole Polytechnique Federale de Lausanne, Architecture, Civil and Environmental Engineering]
- Enbo Zhou – University of California at Santa Barbara, 2024 (“The impact of orientation in spatial optimization for urban planning”) [Machine Learning Engineer, Pinterest]
- B. Amelia Pludow – University of California at Santa Barbara, 2024 (“Considerations of space for prioritizing wildfire risk reductions in the wildland-urban interface”). **Awards:** 2021-22 UCSB Graduate Research Mentorship Fellowship; 2022-23 David S. Simonett Memorial Award for Service (Geography, UCSB); 2023 Jack and Laura Dangermond Fellowship (Geography, UCSB) [Engineer, Jensen Hughes Inc.]
- Susan Burtner – University of California at Santa Barbara, 2023 (“Network and computational approaches for measuring human interaction”). **Awards:** 2021-22 Excellence in Teaching Award (Graduate Student Association, UCSB); 2021-22 Geography Excellence in Teaching Award (Geography, UCSB); 2021-22 David S. Simonett Memorial Award for Service (Geography, UCSB); 2022 Jack and Laura

Dangermond Fellowship (Geography, UCSB) [Scientific Director, Center for Neighborhood Engaged Research and Science, Northwestern University]

- Jing Xu – University of California at Santa Barbara, 2021 “Addressing facility workload balancing in coverage problems” **Awards:** 2022 SOLA Dissertation Award (Section on Location Analysis, INFORMS - The Institute for Operations Research and the Management Sciences) [Senior Data Scientist, Meta]
- Xin Feng – University of California at Santa Barbara, 2019, “Heterogeneity impacts and implications in allocation and location processes” **Awards:** 2018-19 Excellence in Research Award (Geography, UCSB) [Assistant Professor, University of Oklahoma / Postdoctoral scholar, UC Riverside]
- Insu Hong – Arizona State University, 2015, “Deriving an obstacle-avoiding shortest path in continuous space: a spatial analytic approach” [Senior Consultant, CJ Logistics / Assistant Professor, West Virginia University]
- Ran Wei – Arizona State University, 2013, “Addressing geographic uncertainty in spatial optimization” **Awards:** 2011 UCGIS Summer Assembly Transactions in GIS Best Paper Award, 2011-12 ASU Graduate Research Support Program Award, 2012 ASU Graduate College Completion Fellowship, 2012-13 Regional Science Association International Benjamin H. Stevens Graduate Fellowship, 2021 INFORMS Section on Location Analysis Chuck ReVelle Rising Star Award [Associate Professor, University of California at Riverside / Assistant Professor, University of Utah / Postdoctoral scholar, Oregon State University]
- Jing Yao – Arizona State University, 2012, “Spatial optimization approaches for solving the continuous Weber and multi-Weber problems” **Awards:** 2012 Chinese Government Award for Outstanding Self-financed Students Abroad; 2013-15 Young Scientists Fund grant (National Natural Science Foundation of China) [Professor, University of Glasgow / Research Fellow, University of St Andrews]
- Yin Liu – Arizona State University, 2012, “An exploratory toolkit for exploring residential movement patterns at a micro scale” [Research Scientist, Sichuan Normal University]
- Khaled Shammout – Ohio State University, ABD Spring 2008 (“Three-step approach to designing a comprehensive bus transit network”) [VP of Strategic Planning and Development, Southwest Ohio Regional Transit Authority]
- Jessica Mefford – Ohio State University, ABD Summer 2006 (“Determining activity space: An integrative spatial and behavioral approach to identifying travel decision outcomes under conditions of uncertainty”) [Executive Director, Metro Transit, St. Louis, Missouri]
- Ho-Seop Cha – Ohio State University, 2008, “Enhancing equity in public transportation using geographic information systems and spatial optimization” [Assistant Professor, Park University / Assistant Professor, University of Central Missouri]
- Hu Wei – Ohio State University, 2007, “Solving continuous space location problems” [Chief Data Officer, Yingying Group]
- Daoqin Tong – Ohio State University, 2007, “Continuous space facility location for covering spatial demand objects” **Awards:** 2006 UCGIS Summer Assembly Best Paper

Award, 2016 North American Regional Science Council Hewings Award [Professor, Arizona State University / Assistant Professor, University of Arizona]

- Kamyong Kim – Ohio State University, 2007, “Spatial analytical approaches for supporting security monitoring” [Professor, Kyungpook National University / Lecturer, Ewha Womans University]
- Xiaolan Wu – Ohio State University, 2005, “Quantification and optimization of spatial contiguity in land use planning” [Credit Risk Statistical Modeler, KeyBank / Assistant Professor, Central Michigan University]
- Changshan Wu – Ohio State University, 2003, “Remote sensing, geographic information systems and spatial modeling for analyzing public transit services” **Awards:** 2003 E. Willard and Ruby S. Miller Fellow (OSU), 2006 Intergraph UCGIS Young Scholar Award [Professor and Chair, University of Wisconsin at Milwaukee]
- Bilal Farhan – Ohio State University, 2003, “Evaluation, modeling and policy assessment for park and ride services as a component of public transportation” [Chief Engineer, Roads & Transport Authority, United Arab Emirates]
- Ickjai Lee (co-advisor) – University of Newcastle, 2002, “Multi-purpose boundary-based clustering on proximity graphs for geographical data mining” [Professor, James Cook University]
- Doug Ward (co-advisor) – University of Queensland, 2001, “Spatial form and dynamics of urban growth” [Senior Research Fellow, Griffith University]

Doctoral (committee member) (33 total)

- Danial Alizadeh – University of California at Santa Barbara
- Dylan Skrah – San Diego State University
- Reza Mortaheb – San Diego State University
- Yanni Zhan – University of California at Santa Barbara, ABD 2024
- Chanwoo Jin – San Diego State University, 2022 (Assistant Professor, Northwest Missouri State University)
- Rafael Ramos – University of California at Santa Barbara, 2019 (Postdoctoral Research Associate, INPE, Brazil)
- Yujia Zhang – Arizona State University, 2018 (Postdoctoral scholar, Center for Geospatial Sciences, University California at Riverside)
- Jorge Chen – University of California at Santa Barbara, 2017 (Research Scientist, Oak Ridge Institute for Science and Education)
- Sarah Blakeley – University of California at Santa Barbara (examination committee Fall 2016) (Postdoctoral scholar, Climate Hazards Center, University of California at Santa Barbara)
- Fangwu Wei – Drexel University, 2016 (examination committee Spring 2015) (Assistant Research Scientist, Arizona State University)
- Robert Oxley – Arizona State University (Sustainable Engineering and the Built Environment), 2015

- Ning Wang – Arizona State University (Industrial Engineering), 2013 (Lead data scientist, KMPG)
- Nicholas Malizia – Arizona State University, 2013 (Director of Data Science, GeoInnovation at Indigo)
- Lawrence Joseph – Arizona State University, 2013 (examination committee Summer 2010) (Franchise Development, KFC)
- David Folch - Arizona State University, 2012 (Assistant Professor, Northern Arizona University / Assistant Professor, Florida State University)
- Jong-Geun Kim – Arizona State University, 2010 (Lecturer, Seoul National University)
- Gunhak Lee – Ohio State University, 2008 (Professor, Seoul National University, South Korea)
- Myung Jin Kim – Ohio State University, 2011 (examination committee Spring 2007)
- Michael Niedzielski – Ohio State University, 2009 (examination committee Spring 2007) (Institute of Geography and Spatial Organization, Polish Academy of Sciences / Associate Professor, University of North Dakota)
- Jung Hwi (David) Lee – Ohio State University (City and Regional Planning), 2010 (examination committee Spring 2006) (Assistant Director, Long Range Planning Division, Tennessee Department of Transportation)
- Hyun Kim – Ohio State University, 2008 (Associate Professor, University of Tennessee / Assistant Professor, University of South Florida)
- Sunhee Sang – Ohio State University, 2008 (examination committee Spring 2005)
- Sumei Zhang – Ohio State University (City and Regional Planning), 2008 (examination committee Spring 2004) (Associate Professor, University of Louisville)
- Wook Lee – Ohio State University, 2005 (Associate Professor, Edinboro University)
- Timothy Matisziw – Ohio State University, 2005 (Associate Professor, University of Missouri)
- Hui Xie – Ohio State University (City and Regional Planning), ABD Summer 2002 (Senior Transportation Engineer, OKI Regional COG)
- Sherrylyn Henry – Ohio State University, ABD Autumn 2001
- Hyun-Mi Kim – Ohio State University, 2005 (examination committee Winter 2002) (Lecturer, Seoul National University, South Korea)
- Changjoo Kim – Ohio State University, 2004 (Associate Professor, University of Cincinnati)
- Sudhir Thakur – Ohio State University, 2004 (Associate Professor, California State University, Sacramento)
- Mark Horner – Ohio State University, 2002 (Professor, Florida State University)
- Tony Grubestic – Ohio State University, 2001 (Professor, University of Texas / Professor, Arizona State University / Professor, Drexel University / Associate Professor, Oregon)



State University / Associate Professor, Indiana University / Assistant Professor, University of Cincinnati)

- Jiyeong Lee – Ohio State University, 2001 (examination committee Winter 2000) (Professor, University of Seoul, South Korea)

Doctoral (external reviewer) (5 total)

- Shivesh Karan – Indian Institute of Technology, Dhanbad, Environmental Science and Engineering, 2019
- Monika Mangla – Thapar Institute of Engineering and Technology, Computer Science and Engineering, 2018
- Mohammad Aakil Caunhye – Nanyang Technological University, School of Mechanical and Aerospace Engineering, 2013
- Mustafa Canbolat – McMaster University, School of Business, 2010
- Mohan Akella – State University of New York at Buffalo, Department of Industrial Engineering, 2005

Master's (advisor) (18 total)

- Zhongqi Zheng – University of California at Santa Barbara, 2024, “Unseen risks: social vulnerability and the unsheltered homeless in wildfire-prone regions”
- Jiwon Baik – University of California at Santa Barbara, 2021, “A bi-objective facility location problem: coverage and access”
- B. Amelia Pludow – University of California at Santa Barbara, 2019, “Evaluating service system coverage of wireless Internet access”
- Jing Xu – University of California at Santa Barbara, 2018, “Spatial variability in retail gasoline pricing behavior”
- Sharisse Fisher – Arizona State University, 2013, “A spatial decision support system for optimizing the environmental rehabilitation of borderlands” (Geographic Information Specialist, Bureau of Land Management)
- Stephanie Kleinschmidt – Arizona State University, 2013, “Positional uncertainty in spatial data and its effect on cluster detection” (GIS Specialist, Gradient)
- George Oliver – Arizona State University, 2012, “Modeling the influence of vehicle characteristics on carsharing utilization” (Software Engineer, CARMERA)
- Paul Padegimas – Arizona State University, 2011 (Project Manager, UNICO Engineering)
- Jeffrey Olson – Ohio State University, 2007, “Map projection and coverage modeling at a continental scale” (Associate Professor, University of Wisconsin-Whitewater)
- Diane Snediker – Ohio State University, 2007, “Decision support for network disruption mitigation” (Geographer, U.S. Census Bureau)
- Brian Chastain – Ohio State University, 2005, “A comparative analysis of methods for imposing spatial structure in forest harvest scheduling” (Consultant, Geospatial Data Science, General Dynamics)

- Darlene Magold – Ohio State University, 2004, “Evaluating development in urban floodplains using geographical information systems and spatial analysis techniques” (Chief Executive Officer, Etch / MTECH)
- Amanda Trepac (now Zaza) – Ohio State University, 2004, “Comparative evaluation of environmental justice concerns in transportation project assessment” (Manager, Global Strategic Development and GIS, The Wendy’s Company)
- David Twehues – Ohio State University, 2004, “Evaluating the emergency warning siren system in Columbus, Ohio” (Head of Marketing, Europe, Wayfair)
- Robert Henry – Ohio State University, 2003, “Linking spatial, temporal, and spatio-temporal aspects of auto thefts with criminological theory and time-specific analysis” (Sr. GIS Application Consultant, CentralSquare Technologies)
- Erick Lobao – Ohio State University, 2002, “Exploratory spatial analysis of homelessness and shelter system perceptions in Columbus, Ohio” (Enterprise Data Coordinator, City of Columbus)
- Xiaolan Wu – Ohio State University, 2002, “Estimating balance velocities using GIS-based spatial analytical techniques” (Credit Risk Statistical Modeler, KeyBank)
- Ho-Seop Cha – Ohio State University, 2001, “Assessing public transit service equity in Columbus, Ohio” (Assistant Professor, Park University)

Master’s (committee member) (14 total)

- Sofia Kaloper – University of California at Santa Barbara, 2024
- Carlos Baez – University of California at Santa Barbara, 2017
- Jillian Elder – Arizona State University, 2009
- Miti Gupta – Ohio State University (Allied Medical Professions), 2008
- Mark Sundermeier – Ohio State University, 2008
- Dingmou Li – Ohio State University, 2007
- Michael Niedzielski – Ohio State University, 2005
- Daoqin Tong – Ohio State University (Civil Engineering), 2004
- Joni Downs – Ohio State University (Natural Resources), 2004
- Youngho Kim – Ohio State University, 2003
- Tzu-Lung Sun – Ohio State University (Civil Engineering), 2002
- Sunhee Sang – Ohio State University, 2002
- Richard Healy – Ohio State University, 2001
- Enzhou Wang – Ohio State University, 2001

Master’s (external reviewer) (9 total)

- Christon Thomas – University of the West Indies, Geomatics Engineering and Land Management, 2023

- Mark Sankar – University of the West Indies, Geomatics Engineering and Land Management, 2023
- Nyron Ramgattee – University of the West Indies, Geomatics Engineering and Land Management, 2023
- Devashish Ramdath – University of the West Indies, Geomatics Engineering and Land Management, 2023
- Tenika Griffith – University of the West Indies, Geomatics Engineering and Land Management, 2023
- Brett Lucas – University of the West Indies, Geomatics Engineering and Land Management, 2023
- Ria Jack – University of the West Indies, Geomatics Engineering and Land Management, 2023
- Jantonelle Samuel – University of the West Indies, Geomatics Engineering and Land Management, 2022
- Dime Kekana – University of Cape Town, Engineering and the Built Environment, 2019

Undergraduate (advisor) (14 total)

- Sizhe Du – University of California at Santa Barbara, 2024
- Lily Strange – University of California at Santa Barbara, 2024
- Thelonious Funk – University of California at Santa Barbara, 2024
- Hannah Malack – University of California at Santa Barbara, 2023
- Rylee Pupa – University of California at Santa Barbara, 2023
- Luis Validivia – University of California at Santa Barbara (College of Creative Studies, Mathematics), 2021, “Alternative model for wildfire risk optimization”
- Haoyu Shi – University of California at Santa Barbara, 2020
- Menghan Jiao – University of California at Santa Barbara, 2019-20
- Jiamin Tan – University of California at Santa Barbara, 2019-20
- Victoria Murillo – University of California at Santa Barbara (Statistical and Applied Probability), 2019
- Thomas Crimmel – University of California at Santa Barbara, 2018
- Danny Kolosta – University of California at Santa Barbara, 2018
- Wendy Gao – University of California at Santa Barbara (Statistics and Applied Probability), 2018
- Landon Settle (Senior thesis) – University of California at Santa Barbara (College of Creative Studies, Mathematics), 2017, “Nonlinear optimization of contiguity-constrained multiple linear regression including an indicator variable”
- Tess Irving-Ruffing – University of California at Santa Barbara, 2016-17

- Alecia Radatz (Honors thesis) – Arizona State University, 2010, “Public transit and faith communities: a transportation geography analysis with regards to the religious divisions of Belfast”

## Research Funding

### *Submitted*

*Awarded* (36 total; \$ 11,805,961 as PI or Co-PI)

- 2024-2025 Murray, A. *Fire/EMS Capacity in Rural Communities*. Rural Advancement Institute, \$48,460.
- 2024-2026 Murray, A., M. Moritz and D. Rini. *Advanced Spatial Data Analytics for Parcel- and Neighborhood-Level Wildfire Damage and Risk Assessment*. Bureau of Land Management/Joint Fire Science Program, \$499,900.
- 2023-2026 Murray, A., L. Carvalho, C. Jones, D. Roberts, S. Sweeney and M. Moritz. *Wildfire Resilience Initiative*. Yardi Foundation, \$3,700,000.
- 2022-2023 Murray, A., L. Carvalho, C. Jones, D. Roberts and M. Moritz. *Wildfire Resilience Initiative*. Yardi Foundation, \$1,000,000.
- 2020-2021 Church, R. and A. Murray. *The Development of Spatial Optimization Tools to Support Efforts to Transition to Fire Resilient Forest Landscapes*. USDA Forest Service / Pacific Southwest Forest and Range Experiment Station, \$94,901.
- 2020-2022 Cassels, S., A. Murray P. Gorbach and A. Vaughan. *Activity Spaces for HIV Risk and Prevention Among Diverse Men Who Have Sex with Men in Los Angeles*. National Institutes of Health, \$401,769.
- 2017-2023 Carvalho, L., A. Murray, C. Jones, D. Roberts and R. Church. *PREEVENTS Track 2: Understanding Extreme Fire Weather Hazards and Improving Resilience in Coastal Santa Barbara, California*. National Science Foundation, \$1,508,987.
- 2017-2018 King, J., K. Caylor, D. Harlow and A. Murray. *Creating an Augmented-Reality Sandbox for Teaching and Learning about Earth Surfaces (CASTLES)*. University of California (Faculty Outreach Grants, Office of Education Partnerships – UCSB), \$15,253.
- 2014 Murray, A. *Mitigating Costs, Light pollution and Safety through Spatial Analysis and Strategic Planning in Public Lighting*. Arizona State University (College of Liberal Arts and Sciences NS-SS-GRG / SGSUP), \$48,520.
- 2012-2014 Grubestic, T., L. Tabb and A. Murray. *Collaborative Research: Spatial Cluster Detection Based on Contiguity*. National Science Foundation, \$350,000.
- 2010-2011 Agadjanian, V., S. Hayford and A. Murray. *Childbearing Dynamics in Setting of High HIV Prevalence and Massive ART Rollout*. National Institutes of Health, \$243,000.
- 2010-2015 Gober, P., C. Redman, C. Kirkwood, M. Nelson and D. White. *Decision Center for A Desert City II: Urban Climate Adaptation*. National Science Foundation, \$7,503,929 (Murray as Senior Project Personnel).

- 2009-2012 Murray, A. *Improving Survival from Sudden Cardiac Arrest: A Regional Geospatial Analysis*. American Heart Association (subcontract from Ohio State University), \$127,500.
- 2009-2011 Murray, A., M. Griffin, S. Rey and T. Grubestic. *Collaborative Research: Spatial Analytical Framework for Examining Sex Offender Residency Issues over Space and Time*. National Science Foundation, \$250,000.
- 2009-2024 Murray, A. *International Regional Science Review*. Sage, \$384,000.
- 2007-2009 Matisziw, T., A. Murray and T. Grubestic. *Collaborative Research: Mitigating Disaster and Terrorism Impacts to Critical Infrastructure*. National Science Foundation, \$234,197.
- 2006-2007 Murray, A. and J. Borstad. *Exploration of Spatio-Temporal Variation in Sedentary Lifestyles*. The Ohio State University (Initiative in Population Research), \$39,573.
- 2006-2008 Murray, A. *Housing Deed Transfers in Ohio*. Western Ohio Research Consortium and Ohio Urban University Program, \$85,000 (\$60K in 2006 and \$25K in 2007).
- 2005-2007 Murray, A. *Geographic Representation in Location Coverage Modeling*. National Science Foundation (BCS-0518967), \$180,000.
- 2004-2007 Parent, R., R. Machiraju, J. Davis, D. Woods and A. Murray. *Multi-level, Active Attention Surveillance*. National Science Foundation (IIS-0428249), \$1,300,000.
- 2004-2009 Culver, D., J. Reutter, A. Randall, K. Bedford and E. Irwin. *Large Lake Ecosystems: Modeling Interactions Among Human, Biological, and Physical Processes*. National Science Foundation - Biocomplexity, \$1,399,923 (A. Murray as Senior Personnel – Associate Investigator).
- 2004-2005 Murray, A. *Emergency Warning Siren Coverage in Franklin County: Analysis and Modeling*. The Ohio State University (Center for Urban and Regional Analysis), \$30,258.
- 2004-2008 Stimson, R., M. Bell, J. Mangan, K. Burrage, T. Wilson, D. Pullar, A. Murray, A. Skinner, P. Crossman, R. Barker, A. Taylor. *An Integrated Large Scale Urban Model and Spatial Decision Support System Simulating Growth and Evaluating Sustainability Outcomes for Southeast Queensland*. Australian Research Council, AUD\$420,000 (Principal Investigator).
- 2002-2003 Kraybill, D., H. Morrow-Jones, A. Murray and L. Lobao. *Economic Growth and Local Environmental Policies*. The Ohio State University (Environmental Policy Initiative), \$27,975.
- 2001-2004 Murray, A. *Spatial Representation and Modeling in Natural Resource management*. National Science Foundation (BCS-0114362), \$130,009.
- 2001 Murray, A. *Airborne Techniques for Estimating Traffic Flow in the Private Sector*. US Department of Transportation through National Consortia on Remote Sensing in Transportation - Flows (NCRST-F), \$30,000
- 2001 Murray, A. *Spatial Analysis of Homeless Shelters in Columbus, Ohio*. Community Shelter Board, \$5,520.

- 2000-2001 Murray, A. and W. Ackerman. *Geo-Coding Lima Crime Data for 2000/2001 and Preliminary Analysis*. Lima Police Department, \$7,500 (\$3,000 in 2000 and \$4,500 in 2001).
- 2000 Murray, A. *Use and integration of geographic information systems and spatial analysis techniques for identifying patterns of urban crime*. The Ohio State University (Committee on Urban Affairs), \$20,000.
- 2000 Murray, A. *Geographic information systems based approaches for assessing regional public transportation coverage*. The Ohio State University (Office of Research Seed Grant), \$17,499.
- 1999-2001 Estivill-Castro, V. and A. Murray. *Clustering for knowledge discovery, pattern spotting and exploratory analysis in spatial databases*. Australian Research Council, AUD\$150,000 (Associate Investigator after 9/99).
- 1999 Stimson, R., D. Wadley, A. Murray and D. Rudd. *Potential roles for the retirement village industry in providing appropriate affordable housing alternatives in an ageing Australian society*. Australian Research Council, AUD\$50,000.
- 1999 Phinn, S. and A. Murray. *Monitoring urban growth using multi-temporal satellite images and spatial models*. Australian Research Council, AUD\$19,500.
- 1998-2000 Stimson, R. and A. Murray. *Spatial data systems for evaluating regional performance in Queensland to inform strategies for managing growth and decline*. Australian Research Council, AUD\$180,700 (Associate Investigator after 9/99).
- 1997-1999 Murray, A. *Decision support systems for planning urban growth and development*. Australian Research Council, AUD\$122,000.
- 1997 Estivill-Castro, V. and A. Murray. *Knowledge discovery, pattern spotting and data analysis in geographical information systems*. Australian Research Council, AUD\$14,000.
- 1997 Murray, A. and B. Roberts. *Analysing and modelling spatial corporate structure*. Australian Housing and Urban Research Institute, AUD\$15,200.
- 1997 Murray, A. *Modelling aggregation in input-output systems*. Queensland University of Technology, AUD\$6,000.

## Meetings and Conference Presentations

- 2025 A.T. Murray. “Neighborhood hazard evacuation bottlenecks.” *12<sup>th</sup> Triennial Symposium on Transportation Analysis conference (TRISTAN XII)*, Okinawa, Japan, June 22-27, 2025.
- 2025 A.T. Murray. “Who goes, who stays? Identifying critical neighborhood evacuation areas.” *Western Regional Science Association 64<sup>th</sup> Annual Meeting*, Henderson, Nevada, USA, February 12-15, 2025.
- 2025 Z. Zheng and A.T. Murray. “Social vulnerability under fire: examining the risks for the unsheltered homeless in wildfire-prone areas.” *Western Regional Science Association 64<sup>th</sup> Annual Meeting*, Henderson, Nevada, USA, February 12-15, 2025.

- 2025 D. Skrah, S. Rey and A. Murray. “Exploring segregation in education systems using Openstreetmap and optimization modeling.” *Western Regional Science Association 64<sup>th</sup> Annual Meeting*, Henderson, Nevada, USA, February 12-15, 2025.
- 2024 A.T. Murray. “Location and regional risk of fire.” *71<sup>st</sup> North American Meetings of the Regional Science Association International*, New Orleans, Louisiana, USA, November 13-16, 2024.
- 2024 Z. Zheng and A.T. Murray. “Evacuation bottlenecks in fire prone regions.” *71<sup>st</sup> North American Meetings of the Regional Science Association International*, New Orleans, Louisiana, USA, November 13-16, 2024.
- 2024 J. Baik, A.T. Murray, J. Xu and E. Zhou. “Regional optimization to enhance district efficiency, fairness, and equity.” *71<sup>st</sup> North American Meetings of the Regional Science Association International*, New Orleans, Louisiana, USA, November 13-16, 2024.
- 2024 D. Skrah, A. Murray and S. Rey. “Exploring segregation in education systems using OpenStreetMap and optimization modeling.” *71<sup>st</sup> North American Meetings of the Regional Science Association International*, New Orleans, Louisiana, USA, November 13-16, 2024.
- 2024 V. Echeverri Figueroa and A.T. Murray. “Urban safety and the role of hydrant structure and configuration.” *71<sup>st</sup> North American Meetings of the Regional Science Association International*, New Orleans, Louisiana, USA, November 13-16, 2024.
- 2024 E. Zhou and A.T. Murray. “Heterogeneous directional sensor coverage problem.” *INFORMS*, Seattle, Washington, USA, October 20-23, 2024.
- 2024 A.T. Murray. “Optimizing wildland fuels treatment to mitigate wildfire risk and vulnerability.” *Optimization and Wildfire Conference*, Luso, Portugal, October 1-4, 2024.
- 2024 A.T. Murray. “Sustainable and resilient co-existence with fire risk.” *63<sup>rd</sup> European Regional Science Association Congress*, Terceira, Azores, Portugal, August 26-30, 2024.
- 2024 E. Zhou and A.T. Murray. “Locating and orienting facilities with anisotropic coverage.” *31<sup>st</sup> International Conference on Geoinformatics*, Toronto, Canada, August 14-16, 2024.
- 2024 Z. Zheng, A.T. Murray, S.D. Arabadjis and S.H. Sweeney. “A missing dimension in social vulnerability assessment: dynamics of unsheltered homeless population.” *All-UC Demography Conference*, UCLA, Los Angeles, California, USA, May 16-17, 2024.
- 2024 R. Mortaheb, A.T. Murray and P. Jankowski. “The dual of the transportation problem revisited: optimizing land use and growth management strategies to enhance regional commuting patterns in the Orlando metropolitan area.” *2024 American Association of Geographers Annual Meeting*, Honolulu, Hawaii, USA, April 16-20, 2024.
- 2024 A.T. Murray. “Revisiting spatial compactness measures and metrics.” *2024 American Association of Geographers Annual Meeting*, Honolulu, Hawaii, USA, April 16-20, 2024.
- 2024 J. Baik and A.T. Murray. “Enhanced compactness measurement for complex geometries using Euclidean shortest path.” *2024 American Association of Geographers Annual Meeting*, Honolulu, Hawaii, USA, April 16-20, 2024.
- 2024 E. Zhou and A.T. Murray. “Addressing orientation in spatial optimization for facility siting.” *2024 American Association of Geographers Annual Meeting*, Honolulu, Hawaii, USA, April 16-20, 2024.

- 2024 V.E. Figueroa and A.T. Murray. “Enhancing wildfire preparedness: integrating socioeconomic factors in strategic hydrant placement.” *2024 American Association of Geographers Annual Meeting*, Honolulu, Hawaii, USA, April 16-20, 2024.
- 2024 A.T. Murray. “Regional analytics in the assessment of compactness.” *Western Regional Science Association 63<sup>rd</sup> Annual Meeting*, Monterey, California, USA, February 11-14, 2024.
- 2024 J. Baik and A.T. Murray. “Location analytics to support wildfire response prepositioning.” *2024 Hawaii International Conference on System Sciences*, Honolulu, Hawaii, USA, January 3-6, 2024.
- 2023 J. Baik and A.T. Murray. “Enhancing strategic positioning through interactive watershed-based coverage optimization.” *70<sup>th</sup> North American Meetings of the Regional Science Association International*, San Diego, California, USA, November 14-18, 2023.
- 2023 V. Echeverri Figueroa and A.T. Murray. “Hydrant coverage analysis and assessment as critical infrastructure to support structure fire and wildfire response.” *70<sup>th</sup> North American Meetings of the Regional Science Association International*, San Diego, California, USA, November 14-18, 2023.
- 2023 S. Cho, A.T. Murray, S. Dodge and R.L. Church. “Examining the impacts of continuously represented surfaces in coverage and access location models.” *70<sup>th</sup> North American Meetings of the Regional Science Association International*, San Diego, California, USA, November 14-18, 2023.
- 2023 E. Zhou and A.T. Murray. “Assessment of facility layout: a heuristic for aligning idealized region lattice.” *70<sup>th</sup> North American Meetings of the Regional Science Association International*, San Diego, California, USA, November 14-18, 2023.
- 2023 R. Mortaheb, A.T. Murray and P. Jankowski. “Form-based codes revisited: integrating GIS with multi-objective linear programming to measure excess commuting in the Orlando metro region.” *70<sup>th</sup> North American Meetings of the Regional Science Association International*, San Diego, California, USA, November 14-18, 2023.
- 2023 M. Hildemann, A.T. Murray and J.A. Versteegen. “Evolving fields with genetic programming for efficient land use allocation optimization.” *12<sup>th</sup> International Conference on Geographic Information Science*, Leeds, UK, September 12-15, 2023.
- 2023 A.T. Murray, J. Baik, V. Echeverri and D. Rini. “Location modeling to mitigate wildfire risk.” *International Symposium on Locational Decisions (ISOLDE) XVI and EWGLA XXVIII*, Kaiserslautern and Baden-Baden, Germany, June 25-30, 2023.
- 2023 S. Cassels, S. Reid, V. Wang, A. Murray, R. Bolanoa, S. Shoptaw and P. Gorbach. “Patterns of sexual minority men’s residential and health risk activity spaces in Los Angeles, CA”. *Population Association of America 2023 Annual Meeting*, New Orleans, Louisiana, USA, April 12-15, 2023.
- 2023 J. Baik, A.T. Murray and H. Malak. “Seating assessment support by LiDAR and spatial optimization.” *2023 American Association of Geographers Annual Meeting*, Denver, Colorado, USA, March 23-27, 2023.
- 2023 V. Echeverri, A.T. Murray and R.L. Church. “Land acquisition, contiguity, and compactness.” *2023 American Association of Geographers Annual Meeting*, Denver, Colorado, USA, March 23-27, 2023.



- 2023 A.T. Murray, K. Shammout, R. Farwell, K. Burrows and T. Cox. “Addressing mobility needs through on-demand services.” *Western Regional Science Association 62<sup>nd</sup> Annual Meeting*, Waikoloa Village, Hawaii, USA, February 15-18, 2023.
- 2023 A. Pludow, A.T. Murray, V. Echeverri and R.L. Church. “Evaluation of forest treatment planning considering multiple objectives.” *Western Regional Science Association 62<sup>nd</sup> Annual Meeting*, Waikoloa Village, Hawaii, USA, February 15-18, 2023.
- 2022 A.T. Murray. “The Art of Regional Science.” *69<sup>th</sup> North American Meetings of the Regional Science Association International*, Montreal, Quebec, Canada, November 9-12, 2022.
- 2022 L. Anselin, S. Rey and A.T. Murray. “The contributions of Art Getis to regional science and spatial analysis.” *69<sup>th</sup> North American Meetings of the Regional Science Association International*, Montreal, Quebec, Canada, November 9-12, 2022.
- 2022 J. Baik and A.T. Murray. “Locational analysis and open-source spatial optimization.” *69<sup>th</sup> North American Meetings of the Regional Science Association International*, Montreal, Quebec, Canada, November 9-12, 2022.
- 2022 V. Echeverri Figueroa, A.T. Murray and R.L. Church. “Assessing computational performance in land allocation problems with contiguity requirements.” *69<sup>th</sup> North American Meetings of the Regional Science Association International*, Montreal, Quebec, Canada, November 9-12, 2022.
- 2022 B.A. Pludow, A.T. Murray, V. Echeverri Figueroa and R.L. Church. “Evaluation of a forest treatment planning heuristic for multiple objective problems.” *69<sup>th</sup> North American Meetings of the Regional Science Association International*, Montreal, Quebec, Canada, November 9-12, 2022.
- 2022 A.T. Murray and R.L. Church. “Location optimization of contiguous areas.” *INFORMS*, Indianapolis, Indiana, USA, October 16-19, 2022.
- 2022 A.T. Murray and S. Burtner. “Regional analytics to support COVID-19 physical distancing needs.” *61<sup>st</sup> European Regional Science Association Congress (The Regional Science Academy, Special Academic Session)*, Pecs, Hungary, August 22-26, 2022.
- 2022 S. Burtner and A.T. Murray. “Extracting movement from text.” *2022 American Association of Geographers Annual Meeting*, February 25-March 1, 2022.
- 2022 J. Xu, A.T. Murray, R.L. Church and R. Wei. “Service allocation equity modeling.” *2022 American Association of Geographers Annual Meeting*, February 25-March 1, 2022.
- 2022 S. Cho, A.T. Murray and S. Dodge. “Exploring spatial unit effect on spatial optimization.” *2022 American Association of Geographers Annual Meeting*, February 25-March 1, 2022.
- 2022 A.T. Murray, R.L. Church, B.A. Pludow and P. Stine. “Wildfire mitigation land use modeling.” *Western Regional Science Association 61<sup>st</sup> Annual Meeting*, Scottsdale, Arizona, USA, February 17-20, 2022.
- 2022 A.T. Murray, R.L. Church, B.A. Pludow and P. Stine. “Location analytics for transitioning to fire resilient landscapes.” *55<sup>th</sup> Hawaii International Conference on System Sciences*, January 4-7, 2022.
- 2021 A.T. Murray, R.L. Church and J. Baik. “Addressing multiple resource possibilities in the Weber model.” *68<sup>th</sup> North American Meetings of the Regional Science Association International*, Denver, Colorado, USA, November 10-13, 2021.

- 2021 B.A. Pludow and A.T. Murray. "Evaluating Wildfire risk reduction scenarios in the wildland-urban interface." *68<sup>th</sup> North American Meetings of the Regional Science Association International*, Denver, Colorado, USA, November 10-13, 2021.
- 2021 S. Cho, A.T. Murray and S. Dodge. "Solving a location-allocation problem that addresses access and coverage." *68<sup>th</sup> North American Meetings of the Regional Science Association International*, Denver, Colorado, USA, November 10-13, 2021.
- 2021 A.T. Murray and J. Baik. "A spatial algorithm to identify all non-dominated solutions in coverage and access optimization." *INFORMS*, Anaheim, California, USA, October 24-27, 2021.
- 2021 A.T. Murray, A. Ortiz and S. Cho. "Location analytics for strategic defense in baseball." *International Symposium on Locational Decisions XV*, July 5-9, 2021.
- 2021 H. Chen and A.T. Murray. "Open-source geospatial software for location cover models." *GISRUK 2021*, April 14-16, 2021.
- 2021 A. Pludow and A.T. Murray. "Spatial variability of demographic characteristics in zones of high wildfire risk." *2021 Annual Meeting of the American Association of Geographers*, April 7-11, 2021.
- 2021 J. Baik and A.T. Murray. "Strategic location that accounts for access and coverage." *2021 Annual Meeting of the American Association of Geographers*, April 7-11, 2021.
- 2021 J. Xu, A.T. Murray, R.L. Church and R. Wei. "Service allocation equity modeling." *2021 Annual Meeting of the American Association of Geographers*, April 7-11, 2021.
- 2021 S. Cho, A. Murray and S. Dodge. "Bi-objective optimization applying multi-weber problem and planar maximal covering location problem." *2021 Annual Meeting of the American Association of Geographers*, April 7-11, 2021.
- 2021 S. Burtner and A.T. Murray. "Spatial movement in natural language expressions." *2021 Annual Meeting of the American Association of Geographers*, April 7-11, 2021.
- 2021 A.T. Murray. "Facilitated access to spatial analytics." *Western Regional Science Association 60<sup>th</sup> Annual Meeting*, February 22-25, 2021.
- 2021 A.T. Murray. "Replicability challenges in location analytics." *54<sup>th</sup> Hawaii International Conference on System Sciences*, January 4-8, 2021.
- 2020 B.A. Pludow and A.T. Murray. "Strategic reduction of wildfire risk in the wildland-urban interface." *67<sup>th</sup> North American Meetings of the Regional Science Association International*, November 9-13, 2020.
- 2020 E. Noi and A.T. Murray. "Spatial sampling configuration for air quality network monitoring." *67<sup>th</sup> North American Meetings of the Regional Science Association International*, November 9-13, 2020.
- 2020 S. Burtner and A.T. Murray. "COVID-19 and minimizing spatial interactions in micro-spatial environments." *67<sup>th</sup> North American Meetings of the Regional Science Association International*, November 9-13, 2020.
- 2020 H. Chen and A.T. Murray. "Open source approaches for location coverage modelling." *2020 Annual Meeting of the American Association of Geographers*, April 6-10, 2020.

- 2019 H. Goto and A.T. Murray. “Acoustical impacts in coverage modeling.” *66<sup>th</sup> North American Meetings of the Regional Science Association International*, Pittsburgh, Pennsylvania, USA, November 13-16, 2019.
- 2019 B.A. Pludow and A.T. Murray. “Socio-demographic characteristics at the wildland-urban interface and wildfire risk mitigation.” *66<sup>th</sup> North American Meetings of the Regional Science Association International*, Pittsburgh, Pennsylvania, USA, November 13-16, 2019.
- 2019 S. Burtner and A.T. Murray. “Making the ‘neighborhood’: Using spatial clustering of travel activity to inform neighborhood delineations.” *66<sup>th</sup> North American Meetings of the Regional Science Association International*, Pittsburgh, Pennsylvania, USA, November 13-16, 2019.
- 2019 A.T. Murray. “Geocomputation and spatial analytics.” *GeoComputation 2019*, Queenstown, New Zealand, September 18-21, 2019.
- 2019 A.T. Murray, R.L. Church, J. Xu, L. Carvalho, C. Jones and D. Roberts. “Coastal vulnerability under extreme fire weather.” *2019 Applied Geography Commission*, Gran Sasso Science Institute, L’Aquila, Italy, June 17-19, 2019.
- 2019 J. Xu, A.T. Murray, Z. Wang and R.L. Church. “Facility workloads in covering modeling.” *2019 Annual Meeting of the American Association of Geographers*, Washington D.C., USA, April 3-7, 2019.
- 2019 A. Pludow and A.T. Murray. “Land use conflicts associated with growth and development.” *2019 Annual Meeting of the American Association of Geographers*, Washington D.C., USA, April 3-7, 2019.
- 2019 X. Feng and A.T. Murray. “Location and allocation under spatiotemporal heterogeneity: A case of optimizing drone-equipped stations.” *2019 Annual Meeting of the American Association of Geographers*, Washington D.C., USA, April 3-7, 2019.
- 2019 S. Burtner and A.T. Murray. “Social mobility and segregation examined through networked behavior.” *2019 Annual Meeting of the American Association of Geographers*, Washington D.C., USA, April 3-7, 2019.
- 2019 E. Noi and A.T. Murray. “Urban sensing optimization and sampling.” *2019 Annual Meeting of the American Association of Geographers*, Washington D.C., USA, April 3-7, 2019.
- 2018 A.T Murray, J. Xu, Z. Wang and R.L. Church. “Issues and challenges in capacitated coverage modeling.” *65<sup>th</sup> North American Meetings of the Regional Science Association International*, San Antonio, Texas, USA, November 7-10, 2018.
- 2018 A.T Murray, X. Feng and R.L. Church. “Allocation complexities in single facility siting.” *65<sup>th</sup> North American Meetings of the Regional Science Association International*, San Antonio, Texas, USA, November 7-10, 2018.
- 2018 X. Feng, A.T Murray and R.L. Church. “Medical drone delivery: optimizing location and allocation under spatiotemporal heterogeneity.” *65<sup>th</sup> North American Meetings of the Regional Science Association International*, San Antonio, Texas, USA, November 7-10, 2018.

- 2018 B.A. Pludow and A.T Murray. “Wireless access coverage in an urban area.” *65<sup>th</sup> North American Meetings of the Regional Science Association International*, San Antonio, Texas, USA, November 7-10, 2018.
- 2018 I. Hong and A.T. Murray. “Deriving obstacle-avoiding service coverage on Euclidean plane.” *65<sup>th</sup> North American Meetings of the Regional Science Association International*, San Antonio, Texas, USA, November 7-10, 2018.
- 2018 A.T. Murray. “GIS and the subtle proliferation of optimization.” *INFORMS*, Phoenix, Arizona, USA, November 4-7, 2018.
- 2018 A.T. Murray, X. Feng and A. Shokoufandeh. “Heterogeneous skeleton for summarizing continuously distributed demand in a region.” *GIScience 2018*, Melbourne, Victoria, Australia, August 28-31, 2018.
- 2018 H. Goto and A.T. Murray. “Coverage planning to account for acoustical properties associated with emergency warning sirens.” *29<sup>th</sup> European Conference on Operational Research*, Valencia, Spain, July 8-11, 2018.
- 2018 X. Feng, S. Wang, S. Gao, Y. Cao and A.T. Murray. “Optimizing activity locations in GIS using a multi-objective trajectory approach.” *UCGIS 2018 Symposium and CaGIS AutoCarto*, Madison, Wisconsin, USA, May 22-24, 2018.
- 2018 J. Xu and A.T. Murray. “Assessment of commercial location analytics.” *2018 Annual Meeting of the American Association of Geographers*, New Orleans, Louisiana, USA, April 10-14, 2018.
- 2018 J. Xu and A.T. Murray. “Spatial analytics for exploring retail gasoline price variability.” *Western Regional Science Association 57<sup>th</sup> Annual Meeting*, Pasadena, California, USA, February 11-14, 2018.
- 2018 X. Feng and A.T. Murray. “Addressing spatial allocation: planning for drone-based emergency medical service.” *Western Regional Science Association 57<sup>th</sup> Annual Meeting*, Pasadena, California, USA, February 11-14, 2018.
- 2018 D. Tong and A.T. Murray. “Location analysis: developments on the horizon.” *Western Regional Science Association 57<sup>th</sup> Annual Meeting*, Pasadena, California, USA, February 11-14, 2018.
- 2017 A.T Murray. “Hidden yet there: regional analytics in GIS.” *64<sup>th</sup> North American Meetings of the Regional Science Association International*, Vancouver, British Columbia, Canada, November 8-11, 2017.
- 2017 A.T. Murray and J. Xu. “GIS based location analytics: empirical performance characteristics.” *64<sup>th</sup> North American Meetings of the Regional Science Association International*, Vancouver, British Columbia, Canada, November 8-11, 2017.
- 2017 H. Goto and A.T. Murray. “Exact optimal solution of a critical chain project management problem.” *Industrial Engineering and Operations Management Conference*, Bogota, Columbia, October 25-26, 2017.
- 2017 A.T. Murray, R. Wei and R.L. Church. “Understanding and mitigating risks and uncertainty in harvest scheduling.” *2017 Symposium on Systems Analysis in Forest Resources*, Suquamish, Washington, USA, August 27-30, 2017.

- 2017 J. Yao and A.T. Murray. "Location modeling to support sustainable land use planning." *International Symposium on Locational Decisions (ISOLDE) XIV*, Toronto, Ontario, Canada, July 9-14, 2017.
- 2017 I. Hong, M. Kuby and A.T. Murray. "A range-restricted recharging station coverage model for drone delivery service planning." *International Symposium on Locational Decisions (ISOLDE) XIV*, Toronto, Ontario, Canada, July 9-14, 2017.
- 2017 A.T. Murray and X. Feng. "Allocation problem solved through Voronoi diagram in heterogeneous space." *International Symposium on Locational Decisions (ISOLDE) XIV*, Toronto, Ontario, Canada, July 9-14, 2017.
- 2017 X. Feng and A.T. Murray. "Heterogeneous Voronoi diagram." *2017 Annual Meeting of the American Association of Geographers*, Boston, Massachusetts, USA, April 5-9, 2017.
- 2017 J. Xu and A.T. Murray. "Detection of nighttime street lighting." *2017 Annual Meeting of the American Association of Geographers*, Boston, Massachusetts, USA, April 5-9, 2017.
- 2016 A.T. Murray. "The evolving location analytics toolbox." *63<sup>rd</sup> North American Meetings of the Regional Science Association International*, Minneapolis, Minnesota, USA, November 9-12, 2016.
- 2016 X. Feng and A.T. Murray. "Heterogeneous space facility siting in order to maximize coverage." *63<sup>rd</sup> North American Meetings of the Regional Science Association International*, Minneapolis, Minnesota, USA, November 9-12, 2016.
- 2016 Y. Zhang, A.T. Murray and B.L. Turner. "Optimizing green space locations to reduce daytime and nighttime urban heat island effects in Phoenix, Arizona." *63<sup>rd</sup> North American Meetings of the Regional Science Association International*, Minneapolis, Minnesota, USA, November 9-12, 2016.
- 2016 K. Grace, R. Wei and A.T. Murray. "Merging population and environmental data to construct a spatial analytic framework for assessing and improving food aid distribution." *2016 Annual Meeting of the Population Association of America*, Washington, D.C., USA, March 31-April 2, 2016.
- 2016 A.T. Murray. "Optimizing school summer break scheduling." *2016 Annual Meeting of the American Association of Geographers*, San Francisco, California, USA, March 29-April 2, 2016.
- 2016 X. Feng and A.T. Murray. "Street light coverage optimization." *2016 Annual Meeting of the American Association of Geographers*, San Francisco, California, USA, March 29-April 2, 2016.
- 2016 A.T. Murray and I. Hong. "Path optimization through complex environments based on spatial knowledge." *LAND-TRANSLOG III*, Santa Cruz, Chile, March 13-17, 2016
- 2016 A.T. Murray. "Strategic scheduling of summer break in K-12 traditional school year planning." *Western Regional Science Association 55<sup>th</sup> Annual Meeting*, Hawaii, USA, February 14-17, 2016.
- 2015 I. Hong, M. Kuby and A. Murray. "Deviation flow refueling location model for continuous space: commercial drone delivery system for urban area." *13<sup>th</sup> International Conference of GeoComputation*, Dallas, Texas, USA, May 20-23, 2015.

- 2015 H.A. Fischer, A.T. Murray and L. Conrow. "Siting bicycle service stations in an urban area." *2015 Annual Meeting of the Association of American Geographers*, Chicago, Illinois, USA, April 21-25, 2015.
- 2015 I. Hong, M. Kuby and A.T. Murray. "Locating recharging stations for commercial drone delivery in urban areas." *2015 Annual Meeting of the Association of American Geographers*, Chicago, Illinois, USA, April 21-25, 2015.
- 2015 R. Wei and A.T. Murray. "A parallel algorithm for the efficient solution of continuous space set coverage problem." *2015 Annual Meeting of the Association of American Geographers*, Chicago, Illinois, USA, April 21-25, 2015.
- 2015 A.T. Murray. "Evolving spatial analytics and rural area classifications." *Rationalizing Rural Area Classifications*, National Academies of Science, Committee on National Statistics (sponsored by Economic Research Service, U.S. Department of Agriculture), Washington, D.C., USA., April 16-17, 2015.
- 2015 T. Grubestic, A.T. Murray and R. Wei. "Alcohol outlet access in the state of Washington." *Western Regional Science Association 54<sup>th</sup> Annual Meeting*, Tucson, Arizona, USA, February 15-18, 2015.
- 2014 A.T. Murray and X. Feng. "Street light coverage optimization." *61<sup>st</sup> North American Meetings of the Regional Science Association International*, Washington, D.C., USA, November 12-15, 2014.
- 2014 R. Wei and A.T. Murray. "A high performance computing approach for solving the continuous space set coverage problem." *61<sup>st</sup> North American Meetings of the Regional Science Association International*, Washington, D.C., USA, November 12-15, 2014.
- 2014 L.J. Wolf, W. Li, C. Fan and A.T. Murray. "Detecting racial gerrymandering using normalized mass moment of inertia methods." *61<sup>st</sup> North American Meetings of the Regional Science Association International*, Washington, D.C., USA, November 12-15, 2014.
- 2014 I. Hong, A.T. Murray and L.J. Wolf. "Shortest path travel around obstacles: enhanced spatial processing." *61<sup>st</sup> North American Meetings of the Regional Science Association International*, Washington, D.C., USA, November 12-15, 2014.
- 2014 A.T. Murray. "Geospatial technologies for natural resource management." *The 2<sup>nd</sup> Saudi International Environmental Technologies Conference 2014*, Riyadh, Saudi Arabia, November 10-12, 2014.
- 2014 R. Wei and A. Murray. "High performance computing to optimize spatial coverage." *INFORMS*, San Francisco, California, USA, November 9-12, 2014.
- 2014 Y. Zhang, A. Murray and K. Wang. "Mitigating urban heat island effects through strategic park siting." *INFORMS*, San Francisco, California, USA, November 9-12, 2014.
- 2014 A.T. Murray Q. Zhao and E. Wentz. "Shade optimization in a desert environment." *GIScience 2014*, Vienna, Austria, September 24-26, 2014.
- 2014 A.T. Murray. "Maximal coverage: application, solution, evolution and continued significance." *International Symposium on Locational Decisions (ISOLDE) XIII*, Naples and Capri, Italy, June 16-20, 2014.

- 2014 Q. Zhao, E.A. Wentz and A.T. Murray. “Shade optimization in a desert environment.” *2014 Annual Meeting of the Association of American Geographers*, Tampa, Florida, USA, April 8-14, 2014.
- 2014 I. Hong, A.T. Murray and S.J. Rey. “High performance computing to derive obstacle-avoiding shortest paths.” *2014 Annual Meeting of the Association of American Geographers*, Tampa, Florida, USA, April 8-14, 2014.
- 2014 L.J. Wolf, I. Hong and A.T. Murray. “Complexity bounds for deriving a shortest Euclidean path.” *2014 Annual Meeting of the Association of American Geographers*, Tampa, Florida, USA, April 8-14, 2014.
- 2014 T.H. Grubestic, A.T. Murray, R. Wei and F. Wei. “Essential air service in the United States: Exploring strategies to enhance spatial and operational efficiencies.” *Western Regional Science Association 53<sup>rd</sup> Annual Meeting*, San Diego, California, USA, February 16-19, 2014.
- 2013 A.T. Murray, T. Grubestic and R. Wei. “Spatial cluster detection and interpretation.” *6<sup>th</sup> International Conference of the ERCIM WG on Computational and Methodological Statistics (ERCIM 2013)*, London, UK, December 14-16, 2013.
- 2013 A.T. Murray. “Forty years of maximal coverage location modeling.” *60<sup>th</sup> North American Meetings of the Regional Science Association International*, Atlanta, Georgia, USA, November 13-16, 2013.
- 2013 R. Wei and A.T. Murray. “Continuous space siting for maximal coverage.” *60<sup>th</sup> North American Meetings of the Regional Science Association International*, Atlanta, Georgia, USA, November 13-16, 2013.
- 2013 A.T. Murray, T.H. Grubestic and R. Wei. “Maximal coverage and data envelopment analysis in evaluating rural air transport in the US.” *60<sup>th</sup> North American Meetings of the Regional Science Association International*, Atlanta, Georgia, USA, November 13-16, 2013.
- 2013 T.H. Grubestic, A.T. Murray and R. Wei. “Evaluating the spatial precision of cluster detection approaches.” *60<sup>th</sup> North American Meetings of the Regional Science Association International*, Atlanta, Georgia, USA, November 13-16, 2013.
- 2013 I. Hong and A.T. Murray. “Efficient wayfinding in complex environment: derivation of a continuous space shortest path.” *6<sup>th</sup> ACM SIGSPATIAL International Workshop on Computational Transportation Science*, Orlando, Florida, USA, November 5, 2013
- 2013 A.T. Murray and I. Hong. “Navigating complex environments.” *INFORMS*, Minneapolis, Minnesota, USA, October 6-9, 2013.
- 2013 R. Wei, A.T. Murray and R. Batta. “A bounding based solution approach for the continuous arc covering problem.” *INFORMS*, Minneapolis, Minnesota, USA, October 6-9, 2013.
- 2013 R. Wei and A. T. Murray. “Assessing continuous demand representation in coverage modeling.” *12<sup>th</sup> International Conference on GeoComputation*, Wuhan, China, May 23-25, 2013.
- 2013 A.T. Murray and I. Hong. “Finding my way.” *2013 Annual Meeting of the Association of American Geographers*, Los Angeles, New California, USA, April 9-13, 2013.

- 2013 J. Yao, A.T. Murray and V. Agadjanian. "Geographical access to sexual and reproductive health care for women in rural Mozambique." *2013 Annual Meeting of the Association of American Geographers*, Los Angeles, New California, USA, April 9-13, 2013.
- 2013 R. Wei and A.T. Murray. "Continuous demand representation to support coverage modeling." *2013 Annual Meeting of the Association of American Geographers*, Los Angeles, New California, USA, April 9-13, 2013.
- 2013 P.V. Amaral and A.T. Murray. "Spatial allocation of dialysis machines in Brazil." *2013 Annual Meeting of the Association of American Geographers*, Los Angeles, New California, USA, April 9-13, 2013.
- 2013 T. Grubestic, A.T. Murray and L. Tabb. "Evaluating spatial precision of approaches for irregularly shaped spatial cluster detection." *2013 Annual Meeting of the Association of American Geographers*, Los Angeles, New California, USA, April 9-13, 2013.
- 2013 A.T. Murray. "Expanding fire station service provision." *Western Regional Science Association 52<sup>nd</sup> Annual Meeting*, Santa Barbara, California, USA, February 24-27, 2013.
- 2013 R. Wei and A.T. Murray. "Spatial uncertainty challenges in location modeling with dispersion requirements." *Western Regional Science Association 52<sup>nd</sup> Annual Meeting*, Santa Barbara, California, USA, February 24-27, 2013.
- 2013 T.H. Grubestic, A.T. Murray and T.C. Matisziw. "Putting a price on politics as usual: Rural air transport in the United States." *Western Regional Science Association 52<sup>nd</sup> Annual Meeting*, Santa Barbara, California, USA, February 24-27, 2013.
- 2013 J. Yao and A.T. Murray. "Evaluation of health care facility locations: A case study in rural Mozambique." *Western Regional Science Association 52<sup>nd</sup> Annual Meeting*, Santa Barbara, California, USA, February 24-27, 2013.
- 2012 W.A. Pridemore, T. Grubestic, A.T. Murray, L.P. Tabb, Y. Liu and R. Wei. "Using spatial optimization modeling to examine alcohol beverage control and to estimate future dispersion of alcohol outlets." *68<sup>th</sup> Annual Meeting of The American Society of Criminology*, Chicago, Illinois, USA, November 14-17, 2012.
- 2012 A.T. Murray, R. Wei and T.H. Grubestic. "Spatial contiguity in cluster detection." *59<sup>th</sup> North American Meetings of the Regional Science Association International*, Ottawa, Ontario, Canada, November 7-10, 2012.
- 2012 T.H. Grubestic, A.T. Murray and T. Matisziw. "Putting a price on politics as usual rural air transport in the United States." *59<sup>th</sup> North American Meetings of the Regional Science Association International*, Ottawa, Ontario, Canada, November 7-10, 2012.
- 2012 R. Wei and A.T. Murray. "Evaluating polygon overlay to support coverage modeling." *59<sup>th</sup> North American Meetings of the Regional Science Association International*, Ottawa, Ontario, Canada, November 7-10, 2012.
- 2012 T.H. Grubestic, A.T. Murray, R. Wei, J. Yao and W. Lazarus. "Model support for school boundary planning." *59<sup>th</sup> North American Meetings of the Regional Science Association International*, Ottawa, Ontario, Canada, November 7-10, 2012.
- 2012 A.T. Murray. "Positional uncertainty in coverage modeling." *INFORMS*, Phoenix, Arizona, USA, October 14-17, 2012.
- 2012 A.T. Murray, T.H. Grubestic, S. Rey and L. Anselin. "Spatial data uncertainty and cluster detection." *GIScience 2012*, Columbus, Ohio, USA, September 18-21, 2012.



- 2012 R. Wei and A.T. Murray. "Achieving dispersive goals and objectives in locational planning." *GIScience 2012*, Columbus, Ohio, USA, September 18-21, 2012.
- 2012 A.T. Murray and I. Hong. "Deriving shortest distance in the presence of obstacles." *International Symposium on Locational Decisions (ISOLDE) XII*, Nagoya and Kyoto, Japan, July 19-24, 2012.
- 2012 R. Wei and A.T. Murray. "A facility dispersion heuristic in the case of spatial uncertainty." *International Symposium on Locational Decisions (ISOLDE) XII*, Nagoya and Kyoto, Japan, July 19-24, 2012.
- 2012 J. Yao and A.T. Murray. "Assessment of sexual and reproductive health service location in rural Mozambique." *International Symposium on Locational Decisions (ISOLDE) XII*, Nagoya and Kyoto, Japan, July 19-24, 2012.
- 2012 A.T. Murray. "基調講演." *15<sup>th</sup> Symposium CSIS*. Center for Spatial Information Science, University of Tokyo, Tokyo, Japan, July 19, 2012.
- 2012 M. Cudnik, J. Yao, A.T. Murray, S Pennington and J. Christenson. "Does GIS-derived transport time prediction reflect actual transport times in out of hospital cardiac arrest patients?" *Society for Academic Emergency Medicine 2012 Annual Meeting*, Chicago, Illinois, USA, May 9-12, 2012.
- 2012 R. Wei and A.T. Murray. "Spatial uncertainty in forest management planning." *2012 Annual Meeting of the Association of American Geographers*, New York, New York, USA, February 24-28, 2012.
- 2012 S. Kleinschmidt, A.T. Murray, S.J. Rey and T.H Grubestic. "Spatial patterns and geographic data uncertainty." *2012 Annual Meeting of the Association of American Geographers*, New York, New York, USA, February 24-28, 2012.
- 2012 J. Yao and A.T. Murray. "Continuous surface representation and approximation: spatial analytical implications." *2012 Annual Meeting of the Association of American Geographers*, New York, New York, USA, February 24-28, 2012.
- 2012 Y. Liu, A.T. Murray and S.J. Rey. "Local patterns of movement behavior." *2012 Annual Meeting of the Association of American Geographers*, New York, New York, USA, February 24-28, 2012.
- 2012 A.T. Murray and D. Tong. "Regional science and spatial optimization. *Western Regional Science Association 51<sup>st</sup> Annual Meeting*, Poipu, Kauai, Hawaii, USA, February 8-11, 2012.
- 2011 A.T. Murray and R. Wei. "Spatial coverage modeling: bounds for eliminating representational error." *LAND-TRANSLOG II*, Puerto Varas, Chile, December 12-15, 2011.
- 2011 A.T. Murray, R. Wei, E.A. Mack and T.H. Grubestic. "Spatio-temporal geocoding to support rehabilitative services provision." *First International Geospatial Geocoding Conference*, Esri Conference Center, Redlands, California, USA, December 6-7, 2011.
- 2011 A.T. Murray and R. Wei. "Addressing spatial uncertainty in dispersion modeling." *INFORMS*, Charlotte, North Carolina, USA, November 13-16, 2011.

- 2011 A.T. Murray and R. Wei. "Computational bounds for location set covering." *58<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Miami, Florida, USA, November 9-12, 2011.
- 2011 R. Wei and A.T. Murray. "Multi-objective models that address spatial uncertainty." *58<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Miami, Florida, USA, November 9-12, 2011.
- 2011 T.H. Grubestic, A.T. Murray, W.A. Pridemore and L. Philip-Tabb. "Managing the spatial distribution of alcohol outlets with the intent of reducing violence." *58<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Miami, Florida, USA, November 9-12, 2011.
- 2011 L. Philip Tabb, T.H. Grubestic, W.A. Pridemore and A. Murray. "The spatial distribution of alcohol outlets and assaultive violence in the City of Philadelphia: developing a new spatial scan statistic." *2011 Joint Statistical Meetings*, Miami, Florida, USA, July 30 - August 4, 2011.
- 2011 R. Wei and A.T. Murray. "An integrated approach for addressing spatial uncertainty in a spatial optimization model." *UCGIS Summer Assembly*, Boulder, Colorado, USA, June 22-23, 2011.
- 2011 A.T. Murray, I. Hong and R. Wei. "Comparison techniques for solving an implicit coverage model." *2011 Annual Meeting of the Association of American Geographers*, Seattle, Washington, USA, April 12-16, 2011.
- 2011 X. Kang, S.J. Rey and A.T. Murray. "Regionalization approaches for ESDA: implementation and evaluation in PySAL." *2011 Annual Meeting of the Association of American Geographers*, Seattle, Washington, USA, April 12-16, 2011.
- 2011 F. Li, S.J. Rey and A.T. Murray. "Cluster detection methods in PySAL." *2011 Annual Meeting of the Association of American Geographers*, Seattle, Washington, USA, April 12-16, 2011.
- 2011 J. Yao, A.T. Murray, V. Agadjanian and S. Hayford. "Exploratory spatial analysis of sexual and reproductive health services utilization in rural Mozambique." *2011 Annual Meeting of the Association of American Geographers*, Seattle, Washington, USA, April 12-16, 2011.
- 2011 S.J. Rey, A.T. Murray and L. Anselin. "Visualizing regional income distribution dynamics." *Western Regional Science Association 50<sup>th</sup> Annual Meeting*, Monterey, California, USA, February 27-March 2, 2011.
- 2010 A.T. Murray. "Vulnerability reduction through strategic protection." *57<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Denver, Colorado, USA, November 11-13, 2010.
- 2010 T.H. Grubestic, T.C. Matisziw and A.T. Murray. "Optimizing essential air service (EAS) airport locations." *57<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Denver, Colorado, USA, November 11-13, 2010.
- 2010 J. Yao and A.T. Murray. "Siting a single facility to best serve an area." *57<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Denver, Colorado, USA, November 11-13, 2010.

- 2010 R. Wei and A.T. Murray. "Intelligent identification of dispersion constraints in spatial optimization problems." *57<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Denver, Colorado, USA, November 11-13, 2010.
- 2010 P.D. Padegimas and A.T. Murray. "Cooperative water management using spatial optimization." *57<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Denver, Colorado, USA, November 11-13, 2010.
- 2010 Y. Liu and A.T. Murray. "Local measures for assessing movement patterns." *57<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Denver, Colorado, USA, November 11-13, 2010.
- 2010 A.T. Murray. "Network infrastructure vulnerability mitigation." *INFORMS*, Austin, Texas, USA, November 7-10, 2010.
- 2010 A.T. Murray, D. Tong and T.H. Grubestic. "Spatial optimization: expanding emergency services to address regional growth and development." *International Geographical Union Applied Geography Commission (CO8.01)*, Ericeira, Portugal, July 18-22, 2010.
- 2010 A.T. Murray. "Enhancing location optimization modeling capabilities through the use of GIS." *24<sup>th</sup> European Conference on Operational Research*, Lisbon, Portugal, July 11-14, 2010.
- 2010 A.T. Murray, Y. Liu, J. Koschinsky and L.A. Brown. "Spatial contagion effects in socio-economic collapse: foreclosure in Columbus Ohio 2003-2007." *2010 Annual Meeting of the Association of American Geographers*, Washington, D.C., USA, April 14-18, 2010.
- 2010 T.H. Grubestic, T. Matisziw and A.T. Murray. "The impact of urban morphology on sex offender residence restrictions." *2010 Annual Meeting of the Association of American Geographers*, Washington, D.C., USA, April 14-18, 2010.
- 2010 R. Wei, A.T. Murray, S.J. Rey, T.H. Grubestic and E. Mack. "ESDA for identifying patterns in sex offender residential change." *2010 Annual Meeting of the Association of American Geographers*, Washington, D.C., USA, April 14-18, 2010.
- 2010 P. Padegimas, A.T. Murray, S. Rey, L. Anselin and P. Gober. "Modeling to support multi-district water management." *2010 Annual Meeting of the Association of American Geographers*, Washington, D.C., USA, April 14-18, 2010.
- 2010 J. Yao, A.T. Murray, S. Hayford, V. Agadjanian and B. Cau. "Regional variability of women's HIV/AIDS risks: a case study of Gaza, Mozambique." *2010 Annual Meeting of the Association of American Geographers*, Washington, D.C., USA, April 14-18, 2010.
- 2010 Y. Liu, A.T. Murray, S. Rey and L. Anselin. "Exploring movement patterns." *2010 Annual Meeting of the Association of American Geographers*, Washington, D.C., USA, April 14-18, 2010.
- 2010 A.T. Murray, Y. Liu, S.J. Rey and L. Anselin. "Exploring movement object patterns." *Western Regional Science Association 49<sup>th</sup> Annual Meeting*, Sedona, Arizona, USA, February 21-24, 2010.
- 2009 A.T. Murray. "Evolving spatial detail and complexity in vulnerability assessment modeling." *56<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, San Francisco, California, USA, November 18-21, 2009.
- 2009 A.T. Murray, P.D. Padegimas, L. Anselin, S. Rey and P. Gober. "A spatial optimization model for water supply allocation." *56<sup>th</sup> Annual North American Meetings of the Regional*

- Science Association International*, San Francisco, California, USA, November 18-21, 2009.
- 2009 T.H. Grubestic, T. Matisziw and A.T. Murray. "Sex offender residence restrictions and urban morphology: a modeling framework and comparative analysis." *56<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, San Francisco, California, USA, November 18-21, 2009.
- 2009 L. Brown, A. Murray, J. Koschinsky and Y. Liu. "Spatial contagion effects in socio-economic collapse: foreclosure in Columbus Ohio 2003-2007." *56<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, San Francisco, California, USA, November 18-21, 2009.
- 2009 T.H. Grubestic and A.T. Murray. "Spatial uncertainty and location modeling: implications for sex offender mitigation strategies." *INFORMS*, San Diego, California, USA, October 11-14, 2009.
- 2009 A.T. Murray. "Quantitative geography." Symposium of the 50<sup>th</sup> Anniversary of the Journal of Regional Science, New York, New York, USA, April 23-24, 2009.
- 2009 A.T. Murray. "GIS contributions in advancing location science." Location and Network Design (LAND) Workshop, Pucon, Chile, March 22-25, 2009.
- 2009 A.T. Murray and Y. Liu. "Exploratory spatial data analysis of origin-destination patterns." *2009 Annual Meeting of the Association of American Geographers*, Las Vegas, Nevada, USA, March 22-27, 2009.
- 2009 P.D. Padegimas and A.T. Murray. "Location modeling software." *2009 Annual Meeting of the Association of American Geographers*, Las Vegas, Nevada, USA, March 22-27, 2009.
- 2009 J. Corcoran, A.T. Murray and R.J. Stimson. "Spatially disaggregating employment growth estimates." Western Regional Science Association 48<sup>th</sup> Annual Meeting, Napa Valley, California, USA, February 22-25, 2009.
- 2008 A.T. Murray. "Location analysis and GIS." *55<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Brooklyn, New York, USA, November 19-22, 2008.
- 2008 D. Tong, H. Wei and A.T. Murray. "Efficient vertex p-center problem solution." *55<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Brooklyn, New York, USA, November 19-22, 2008.
- 2008 T.C. Matisziw, A.T. Murray and T.H. Grubestic. "Accounting for uncertainty in network restoration planning." *55<sup>th</sup> Annual North American Meetings of the Regional Science Association International*, Brooklyn, New York, USA, November 19-22, 2008.
- 2008 A.T. Murray and T.C. Matisziw. "Optimizing network infrastructure service recovery." *INFORMS*, Washington, D.C., USA, October 12-15, 2008.
- 2008 T.H. Grubestic and A.T. Murray. "Optimization models for policy evaluation of sex offender laws." *INFORMS*, Washington, D.C., USA, October 12-15, 2008.
- 2008 A. Weintraub, M. Goycoolea, A. Murray and J. Vielma. "Imposing maximum clear-cut size constraints in harvest scheduling models: a comparison of three approaches." *CLAIO 2008 (XIV Latin-Ibero American Congress on Operations Research)*, Cartagena de Indias, Colombia, September 9-12, 2008.

- 2008 A.T. Murray and R.L. Church. "Location analysis and GIS." *International Symposium on Locational Decisions (ISOLDE) XI*, Santa Barbara, California, USA, June 26 - July 1, 2008.
- 2008 T.H. Grubestic, T.C. Matisziw and A.T. Murray. "Market coverage and service quality in digital subscriber lines infrastructure planning." *International Symposium on Locational Decisions (ISOLDE) XI*, Santa Barbara, California, USA, June 26 - July 1, 2008.
- 2008 T.C. Matisziw, A.T. Murray and T.H. Grubestic. "Prioritizing network service restoration." *International Symposium on Locational Decisions (ISOLDE) XI*, Santa Barbara, California, USA, June 26 - July 1, 2008.
- 2008 D. Tong, A.T. Murray, T.H. Grubestic and S. Dall'erba. "Coverage optimization for deploying an wireless mesh network." *International Symposium on Locational Decisions (ISOLDE) XI*, Santa Barbara, California, USA, June 26 - July 1, 2008.
- 2008 A.T. Murray, J. Corcoran and R.J. Stimson. "Estimating employment growth under commute minimization scenarios." *2008 Annual Meeting of the Association of American Geographers*, Boston, Massachusetts, USA, April 15-19, 2008.
- 2008 J. Olson, A.T. Murray and K. Kim. "Radar location: exploring coverage modeling issues." *2008 Annual Meeting of the Association of American Geographers*, Boston, Massachusetts, USA, April 15-19, 2008.
- 2008 T.C. Matisziw, A.T. Murray and T.H. Grubestic. "Strategic infrastructure restoration." *2008 Annual Meeting of the Association of American Geographers*, Boston, Massachusetts, USA, April 15-19, 2008.
- 2008 H.-S. Cha and A.T. Murray. "Public transit service equity and spatial representation." *2008 Annual Meeting of the Association of American Geographers*, Boston, Massachusetts, USA, April 15-19, 2008.
- 2008 D. Tong, A.T. Murray and N. Xiao. "Heuristics in facility location: a genetic algorithm for coverage maximization." *Western Regional Science Association 47<sup>th</sup> Annual Meeting*, Hawaii, USA, February 17-20, 2008.
- 2008 T.H. Grubestic and A.T. Murray. "Spatial equity in exposure to risk: sex offender residency." *Western Regional Science Association 47<sup>th</sup> Annual Meeting*, Hawaii, USA, February 17-20, 2008.
- 2007 A.T. Murray. "Extending the boundaries with location analysis and GIScience." *54<sup>th</sup> North American Regional Science Association International*, Savannah, Georgia, USA, November 7-10, 2007.
- 2007 T.H. Grubestic and A.T. Murray. "Spatial dispersion of convicted sex offenders." *54<sup>th</sup> North American Regional Science Association International*, Savannah, Georgia, USA, November 7-10, 2007.
- 2007 T.C. Matisziw, A.T. Murray and T.H. Grubestic. "Network vulnerability analysis: implications for planning and policy." *54<sup>th</sup> North American Regional Science Association International*, Savannah, Georgia, USA, November 7-10, 2007.
- 2007 J. Olson and A.T. Murray. "Continental scale radar siting." *54<sup>th</sup> North American Regional Science Association International*, Savannah, Georgia, USA, November 7-10, 2007.

- 2007 D. Tong, A.T. Murray and N. Xiao. "Incorporating spatial information for solving a coverage maximization siting problem." *54<sup>th</sup> North American Regional Science Association International*, Savannah, Georgia, USA, November 7-10, 2007.
- 2007 X. Wu, A.T. Murray and N. Xiao. "Optimizing relative contiguity in reserve design." *54<sup>th</sup> North American Regional Science Association International*, Savannah, Georgia, USA, November 7-10, 2007.
- 2007 A.A. Iqbal and A.T. Murray. "Locating emergency warning sirens: a new approach." *Association of Collegiate Schools of Planning 48<sup>th</sup> Annual Conference*. Milwaukee, Wisconsin, USA, October 18-21, 2007.
- 2007 A.T. Murray, T.C. Matisziw, D. Tong, H. Wei. "GeoComputational approaches to coverage maximization in service facility siting." *GeoComputation 2007*, Kildare, Ireland, September 3-5, 2007.
- 2007 K. Kim and A.T. Murray. "Spatial representation issues in surveillance sensor location modeling." *103<sup>rd</sup> Annual Meeting of the Association of American Geographers*, San Francisco, California, USA, April 17-21 2007.
- 2007 D.E. Snediker, A.T. Murray and T.C. Matisziw. "Decision support for network management." *103<sup>rd</sup> Annual Meeting of the Association of American Geographers*, San Francisco, California, USA, April 17-21 2007.
- 2007 J.N. Mefford and A.T. Murray. "Discrete choice and spatial analysis of travelers' responsiveness to urban land use and transportation system change." *103<sup>rd</sup> Annual Meeting of the Association of American Geographers*, San Francisco, California, USA, April 17-21 2007.
- 2007 H. Wei, R.C. Tiwari and A.T. Murray. "A spatial semiparametric Bayesian model for predicting cancer mortality rates." *103<sup>rd</sup> Annual Meeting of the Association of American Geographers*, San Francisco, California, USA, April 17-21 2007.
- 2007 G. Lee and A. Murray. "Municipal wireless broadband network design: facility location-network design approach." *103<sup>rd</sup> Annual Meeting of the Association of American Geographers*, San Francisco, California, USA, April 17-21 2007.
- 2007 D. Tong and A.T. Murray. "Addressing region-wide coverage issues." *103<sup>rd</sup> Annual Meeting of the Association of American Geographers*, San Francisco, California, USA, April 17-21 2007.
- 2007 T.C. Matisziw and A.T. Murray. "Assessing nature reserve vulnerability." *103<sup>rd</sup> Annual Meeting of the Association of American Geographers*, San Francisco, California, USA, April 17-21 2007.
- 2007 J. Olson and A.T. Murray. "Large scale set covering." *103<sup>rd</sup> Annual Meeting of the Association of American Geographers*, San Francisco, California, USA, April 17-21 2007.
- 2007 E. Delmelle and A. Murray. "Spatial sampling and location modeling." *103<sup>rd</sup> Annual Meeting of the Association of American Geographers*, San Francisco, California, USA, April 17-21 2007.
- 2007 T.H. Grubestic, A.T. Murray and E.A. Mack. "Geographic exclusion: spatial analysis for evaluating the implications of Megan's Law." *Ninth Annual International Crime Mapping Research Conference*, Pittsburgh, Pennsylvania, USA, March 28-31, 2007.

- 2007 F. Janoos, R. Machiraju, R. Parent, J.W. Davis, A. Murray. "Sensor orientation for coverage optimization for surveillance applications." IS&T/SPIE 19<sup>th</sup> Annual Symposium on Electronic Imaging, Science and Technology, San Jose, California, USA, January 28 – February 1, 2007.
- 2007 Matisziw, T.C., A.T. Murray, and T.H. Grubestic. "Evaluating vulnerability and risk in interstate highway operation. *Transportation Research Board 86<sup>th</sup> Annual Meeting*, Washington, D.C., USA, January 21-25, 2007.
- 2006 H. Wei and A.T. Murray. "A hierarchical spatial model to explore the effect of West Nile Virus on wild bird population." *53<sup>rd</sup> North American Meeting of the Regional Science Association International*, Toronto, Ontario, Canada, November 16-18, 2006
- 2006 D. Tong and A.T. Murray. "Maximizing regional coverage using spatial objects." *53<sup>rd</sup> North American Meeting of the Regional Science Association International*, Toronto, Ontario, Canada, November 16-18, 2006
- 2006 T.H. Grubestic, T.C. Matisziw and A.T. Murray. "Comparative approaches for assessing network performance and vulnerability." *53<sup>rd</sup> North American Meeting of the Regional Science Association International*, Toronto, Ontario, Canada, November 16-18, 2006
- 2006 T.C. Matisziw and A.T. Murray. "Reducing model complexity in the search for vital network facilities." *53<sup>rd</sup> North American Meeting of the Regional Science Association International*, Toronto, Ontario, Canada, November 16-18, 2006
- 2006 K. Kim, A.T. Murray and N. Xiao "A multi-objective evolutionary algorithm for surveillance sensor placement." *53<sup>rd</sup> North American Meeting of the Regional Science Association International*, Toronto, Ontario, Canada, November 16-18, 2006
- 2006 M. Goycoolea, J. Vielma, A.T. Murray and A. Weintraub. "Green up and adjacency issues in forest spatial harvesting." *INFORMS Annual Meeting*, Pittsburgh, Pennsylvania, USA, November 5-8, 2006.
- 2006 M. Goycoolea, J. Vielma, A.T. Murray and A. Weintraub. "Comparing two formulations for the ARM problem." *12<sup>th</sup> Symposium for Systems Analysis in Forest Resources*, Burlington, Vermont, USA, September 5-8, 2006.
- 2006 D. Tong and A.T. Murray. "Geographical information science to enhance location coverage modeling." *UCGIS Summer Assembly 2006*, Vancouver, Washington, USA, June 28 - July 1, 2006.
- 2006 D. Tong and A.T. Murray. "Partial coverage in continuous space facility siting." *102<sup>nd</sup> Annual Meeting of the Association of American Geographers*, Chicago, Illinois, USA, March 7-11, 2006.
- 2006 T.C. Matisziw and A.T. Murray. "The contributions of Professor Charles S. ReVelle." *102<sup>nd</sup> Annual Meeting of the Association of American Geographers*, Chicago, Illinois, USA, March 7-11, 2006.
- 2006 K. Kim and A.T. Murray. "Modeling to support 24/7 security monitoring." *102<sup>nd</sup> Annual Meeting of the Association of American Geographers*, Chicago, Illinois, USA, March 7-11, 2006.
- 2006 J. Mefford, A.T. Murray and T.H. Grubestic. "Multi-objective optimization for identifying vulnerability in critical network infrastructure." *102<sup>nd</sup> Annual Meeting of the Association of American Geographers*, Chicago, Illinois, USA, March 7-11, 2006.

- 2006 X. Wu and A.T. Murray. "Identifying critical network infrastructure: n most vital arc problem." *102<sup>nd</sup> Annual Meeting of the Association of American Geographers*, Chicago, Illinois, USA, March 7-11, 2006.
- 2006 H. Wei A.T. Murray and T.C. Matisziw. "An EM algorithm for inferring OD traffic matrix." *102<sup>nd</sup> Annual Meeting of the Association of American Geographers*, Chicago, Illinois, USA, March 7-11, 2006.
- 2006 A.T. Murray and D. Tong. "Analyzing structure fires in Massachusetts: regional science and the media." *45<sup>th</sup> Annual Meeting of the Western Regional Science Association*, Santa Fe, New Mexico, USA, February 22-26, 2006.
- 2005 J.P. Vielma, M. Goycoolea, A. Murray and A. Weintraub. "Comparison of methodologies for limiting opening sizes in forest harvest scheduling." *INFORMS Annual Meeting*, San Francisco, California, USA, November 13-16, 2005.
- 2005 A.T. Murray and K. Kim. "Modeling to support greater integration of surveillance system sensors." *52<sup>nd</sup> North American Meeting of the Regional Science Association International*, Las Vegas, Nevada, USA, November 10-12, 2005.
- 2005 A.T. Murray and D. Tong. "Coverage in continuous space facility siting." *52<sup>nd</sup> North American Meeting of the Regional Science Association International*, Las Vegas, Nevada, USA, November 10-12, 2005.
- 2005 A.T. Murray, T.C. Matisziw and T.H. Grubestic. "Simulating impacts of network interdiction on O-D flow activity." *52<sup>nd</sup> North American Meeting of the Regional Science Association International*, Las Vegas, Nevada, USA, November 10-12, 2005.
- 2005 X. Wu, A.T. Murray and N. Xiao. "A hybrid evolutionary algorithm for optimizing spatial contiguity in multiobjective land acquisition." *52<sup>nd</sup> North American Meeting of the Regional Science Association International*, Las Vegas, Nevada, USA, November 10-12, 2005.
- 2005 H. Wei and A.T. Murray. "Bayesian inference for origin-destination matrix estimation." *52<sup>nd</sup> North American Meeting of the Regional Science Association International*, Las Vegas, Nevada, USA, November 10-12, 2005.
- 2005 T. Grubestic, A.T. Murray and J. Mefford. "Continuity in critical network infrastructures: measuring nodal disruptions." *52<sup>nd</sup> North American Meeting of the Regional Science Association International*, Las Vegas, Nevada, USA, November 10-12, 2005.
- 2005 A.T. Murray and D. Tong . "Threshold coverage optimization." *International Symposium on Locational Decisions (ISOLDE) X*, Spain (Sevilla and Islantilla), June 2-9, 2005.
- 2005 C. ReVelle, A.T. Murray and D. Serra. "Location models for ceding market share and shrinking services." *International Symposium on Locational Decisions (ISOLDE) X*, Spain (Sevilla and Islantilla), June 2-9, 2005.
- 2005 A.T. Murray, K. Kim, J. Davis, R. Machiraju and R. Parent. "Coverage optimization to support security monitoring." *101<sup>st</sup> Annual Meeting of the Association of American Geographers*, Denver, Colorado, USA, April 5-9, 2005.
- 2005 H. Wei, A.T. Murray and N. Xiao. "Solving the continuous space p-center problem: planning application issues." *101<sup>st</sup> Annual Meeting of the Association of American Geographers*, Denver, Colorado, USA, April 5-9, 2005.



- 2005 B. Chastain and A.T. Murray. "Spatial structure in harvest scheduling optimization." *101<sup>st</sup> Annual Meeting of the Association of American Geographers*, Denver, Colorado, USA, April 5-9, 2005.
- 2005 X. Wu, A.T. Murray and N. Xiao. "Solution approaches for land use planning models addressing spatial contiguity." *101<sup>st</sup> Annual Meeting of the Association of American Geographers*, Denver, Colorado, USA, April 5-9, 2005.
- 2005 T.H. Grubestic and A.T. Murray. "Asset concentration and the geographic dimensions of cascading failure." *44<sup>th</sup> Annual Meeting of the Western Regional Science Association*, San Diego, California, USA, February 23-26, 2005.
- 2004 T.C. Matisziw and A.T. Murray. "Modeling continuous location and demand in the coverage of non-convex regions." *51<sup>th</sup> North American Meeting of the Regional Science Association International*, Seattle, Washington, USA, November 11-13, 2004.
- 2004 X. Wu and A.T. Murray. "Optimizing spatial contiguity in land use modeling." *51<sup>th</sup> North American Meeting of the Regional Science Association International*, Seattle, Washington, USA, November 11-13, 2004.
- 2004 T.H. Grubestic and A.T. Murray. "Vital nodes, interconnected infrastructures and the geographies of cascading failure." *51<sup>th</sup> North American Meeting of the Regional Science Association International*, Seattle, Washington, USA, November 11-13, 2004.
- 2004 X. Wu and A.T. Murray. "Spatial contiguity in land use planning." *GIScience 2004*, College Park, Maryland, USA, October 20-23, 2004.
- 2004 C. Wu and A.T. Murray. "Validating population estimates using remote sensing." *American Society for Photogrammetry & Remote Sensing - ASPRS 2004 Annual Conference*, Denver, Colorado, USA, May 23-28, 2004.
- 2004 A. Weintraub, D. Ryan, J. Vielma and A.T. Murray. "Exact formulation for spatial harvesting problems." *CORS/INFORMS Joint International Meeting*, Banff, Alberta, Canada, May 16-19, 2004.
- 2004 A.T. Murray. "Coverage modeling of geographic areas." *Centennial Meeting of the Association of American Geographers*, Philadelphia, Pennsylvania, USA, March 14-19, 2004.
- 2004 W.V. Ackerman and A.T. Murray. "A vector analysis of violent crime in Lima, Ohio." *Centennial Meeting of the Association of American Geographers*, Philadelphia, Pennsylvania, USA, March 14-19, 2004.
- 2004 T.C. Matisziw and A.T. Murray. "Enhancing species survivability in nature reserve design." *Centennial Meeting of the Association of American Geographers*, Philadelphia, Pennsylvania, USA, March 14-19, 2004.
- 2004 X. Wu and A.T. Murray. "Quantification of spatial contiguity." *Centennial Meeting of the Association of American Geographers*, Philadelphia, Pennsylvania, USA, March 14-19, 2004.
- 2003 A.T. Murray and B. Farhan. "Modeling coverage and distance decay." *50<sup>th</sup> North American Meeting of the Regional Science Association International*, Philadelphia, Pennsylvania, USA, November 20-22, 2003.
- 2003 T.H. Grubestic and Alan T. Murray. "Geocoding accuracy and its impact on location modeling and planning: a review of the critical issues." *50<sup>th</sup> North American Meeting of*

- the Regional Science Association International*, Philadelphia, Pennsylvania, USA, November 20-22, 2003.
- 2003 C. Wu and A.T. Murray. "Addressing quality and coverage in transit system management." *50<sup>th</sup> North American Meeting of the Regional Science Association International*, Philadelphia, Pennsylvania, USA, November 20-22, 2003.
- 2003 A. Weintraub, D. Ryan, A. Murray and J.P. Vielma. "Solving a difficult exact formulation of a spatial forestry problem." *Mathematical Programming in Rio, A Conference in Honour of Nelson Maculan*, Buzios, Brasil November 9-12, 2003.
- 2003 A.T. Murray and C. Wu . "Using GIS to improve transit planning." *Ohio Transportation Engineering Conference*, Columbus, Ohio, USA, November 5-6, 2003.
- 2003 A.T. Murray and X. Wu. "Assessing landscape contiguity in reserve design." *Symposium for Systems Analysis in Forest Resources*, Stevenson, Washington, USA, October 7-9, 2003.
- 2003 A.T. Murray, J.P. Vielma, D. Ryan and A. Weintraub. "Improved solution techniques for multi-period area-based harvest scheduling problems." *Symposium for Systems Analysis in Forest Resources*, Stevenson, Washington, USA, October 7-9, 2003.
- 2003 E. Lobao and A.T. Murray. "Examining spatial inequality within the homeless shelter system in Columbus, Ohio." *66<sup>th</sup> Annual Meeting of the Rural Sociological Society*, Montreal, Quebec, Canada, July 27-30, 2003.
- 2003 A.T. Murray and R.W. Jackson. "Approaches for IO matrix updating." *99<sup>th</sup> Annual Meeting of the Association of American Geographers*, New Orleans, Louisiana, USA, March 4-8, 2003.
- 2003 C. Wu and A.T. Murray. "A cokriging method for estimating population density in urban areas." *99<sup>th</sup> Annual Meeting of the Association of American Geographers*, New Orleans, Louisiana, USA, March 4-8, 2003.
- 2003 B. Farhan and A.T. Murray. "A new approach for locating park and ride facilities." *99<sup>th</sup> Annual Meeting of the Association of American Geographers*, New Orleans, Louisiana, USA, March 4-8, 2003.
- 2003 W.V. Ackerman and A.T. Murray. "Assessing spatial patterns of crime in Lima, Ohio." *99<sup>th</sup> Annual Meeting of the Association of American Geographers*, New Orleans, Louisiana, USA, March 4-8, 2003.
- 2003 T.C. Matisziw, C. Kim and A.T. Murray. "Strategic bus route extension." *99<sup>th</sup> Annual Meeting of the Association of American Geographers*, New Orleans, Louisiana, USA, March 4-8, 2003.
- 2003 B. Farhan and A.T. Murray. "A GIS-based approach for delineating market areas for park-and-ride facilities." *Transportation Research Board 82<sup>nd</sup> Annual Meeting*, Washington, D.C., USA, January 12-15, 2003.
- 2002 A.T. Murray and T.H. Grubestic. "Assessing the reliability of crime analysis using imperfect spatial information." *The Sixth International Crime Mapping Research Conference* (National Institute of Justice, Mapping and Analysis for Public Safety program), Denver, Colorado, USA, December 8-11, 2002.
- 2002 T.H. Grubestic and A.T. Murray. "Imperfect spatial information: implications for crime mapping and analysis." *The Sixth International Crime Mapping Research Conference*

- (National Institute of Justice, Mapping and Analysis for Public Safety program), Denver, Colorado, USA, December 8-11, 2002.
- 2002 A.T. Murray, M. Goycoolea and A. Weintraub. "Modeling average and maximum area restrictions in harvest scheduling." *INFORMS*, San Jose, California, USA, November 17-20, 2002.
- 2002 A.T. Murray and X. Wu. "Supporting public transit service provision planning: access and accessibility concerns." *49<sup>th</sup> North American Meeting of the Regional Science Association International*, San Juan, Puerto Rico, November 13-16, 2002.
- 2002 T.H. Grubestic and A.T. Murray. "Broadband internet access and competition in the last-mile." *49<sup>th</sup> North American Meeting of the Regional Science Association International*, San Juan, Puerto Rico, November 13-16, 2002.
- 2002 T.C. Matisziw, C. Kim and A.T. Murray. "Strategic service extension in bus-based public transportation systems." *49<sup>th</sup> North American Meeting of the Regional Science Association International*, San Juan, Puerto Rico, November 13-16, 2002.
- 2002 M.W. Horner and A.T. Murray. "Rethinking estimates of spatial access to transit service." *49<sup>th</sup> North American Meeting of the Regional Science Association International*, San Juan, Puerto Rico, November 13-16, 2002.
- 2002 R.W. Jackson and A.T. Murray. "Alternative matrix updating formulations." *49<sup>th</sup> North American Meeting of the Regional Science Association International*, San Juan, Puerto Rico, November 13-16, 2002.
- 2002 B. Farhan and A.T. Murray. "A new approach for locating park-and-ride facilities." *2002 Annual Meeting of the East Lakes Division of the Association of American Geographers*, Central Michigan University, Mt. Pleasant, MI, USA, October 18-19, 2002.
- 2002 W.V. Ackerman and A.T. Murray. "Assessing spatial patterns of crime in Lima, Ohio." *Ohio Criminal Justice Research Conference*, Columbus, Ohio, USA, October 15, 2002.
- 2002 R.W. Jackson and A.T. Murray. "Alternate formulations for minimizing inter-matrix distances." *Fourteenth International Conference on Input-Output Techniques*, Montréal, Canada, October 10-15, 2002.
- 2002 A.T. Murray, M.E. O'Kelly and R.L. Church. "Exploring geometric representation in coverage modeling." *International Symposium on Locational Decisions (ISOLDE) IX*, Fredericton, New Brunswick, Canada, June 12-18, 2002.
- 2002 A.T. Murray. "Overview of private sector approaches for estimating traffic flow using aerial photography and videography." *North American Travel Monitoring Exhibition and Conference*, Orlando, Florida, USA, May 12-16, 2002.
- 2002 A.T. Murray and T.H. Grubestic. "Spatial models for crime hot spot detection." *98<sup>th</sup> Annual Meeting of the Association of American Geographers*, Los Angeles, California, USA, March 19-23, 2002.
- 2002 C. Wu and A.T. Murray. "Estimating population distribution for transit planning using integrated GIS and RS technologies." *98<sup>th</sup> Annual Meeting of the Association of American Geographers*, Los Angeles, California, USA, March 19-23, 2002.
- 2002 R.W. Jackson and A.T. Murray. "Competition and complementarities in multi-regional economic development." *98<sup>th</sup> Annual Meeting of the Association of American Geographers*, Los Angeles, California, USA, March 19-23, 2002.

- 2002 X. Wu, K. Jezek and A.T. Murray. "Antarctic ice sheet balance velocities." *98<sup>th</sup> Annual Meeting of the Association of American Geographers*, Los Angeles, California, USA, March 19-23, 2002.
- 2002 E.G. Lobao and A.T. Murray. "Exploratory spatial data analysis of homeless services in Columbus, Ohio." *98<sup>th</sup> Annual Meeting of the Association of American Geographers*, Los Angeles, California, USA, March 19-23, 2002.
- 2002 B. Farhan and A.T. Murray. "An approach for delineating park and ride market areas." *98<sup>th</sup> Annual Meeting of the Association of American Geographers*, Los Angeles, California, USA, March 19-23, 2002.
- 2002 S.K. Thakur, A.T. Murray and R.W. Jackson. "Evaluating the spatial distribution of Research and Development facilities in India." *98<sup>th</sup> Annual Meeting of the Association of American Geographers*, Los Angeles, California, USA, March 19-23, 2002.
- 2002 H.-S. Cha and A.T. Murray. "Assessing public transit service equity in Columbus, Ohio." *98<sup>th</sup> Annual Meeting of the Association of American Geographers*, Los Angeles, California, USA, March 19-23, 2002.
- 2002 M. Goycoolea, A.T. Murray, J. Vielma, F. Barahona, R. Epstein and A. Weintraub. "An exact algorithm for the area restriction model." *Systems Analysis Forestry Symposium Chile 2002*, Punta de Tralca, Chile, March 4-7, 2002.
- 2001 T.H. Grubestic and A.T. Murray. "Detecting hot-spots using cluster analysis and GIS." *5<sup>th</sup> Annual International Crime Mapping Research Conference*, Dallas, Texas, USA, November 30 - December 4, 2001.
- 2001 A.T. Murray. "Addressing access and accessibility in public transit service." *48<sup>th</sup> North American Meeting of the Regional Science Association International*, Charleston, South Carolina, USA, November 15-17, 2001.
- 2001 M.W. Horner and A.T. Murray. "Reducing congestion through strategic planning." *48<sup>th</sup> North American Meeting of the Regional Science Association International*, Charleston, South Carolina, USA, November 15-17, 2001.
- 2001 M.E. O'Kelly and A.T. Murray. "Geometric models for planar covering with application to warning sirens." *48<sup>th</sup> North American Meeting of the Regional Science Association International*, Charleston, South Carolina, USA, November 15-17, 2001.
- 2001 T.H. Grubestic, M.E. O'Kelly and A.T. Murray. "Network reliability and the commercial Internet." *48<sup>th</sup> North American Meeting of the Regional Science Association International*, Charleston, South Carolina, USA, November 15-17, 2001.
- 2001 A.T. Murray. "A hybrid coverage model for accessing public transportation service provision." *INFORMS*, Miami, Florida, USA, November 4-7, 2001.
- 2001 A. Weintraub, M. Goycoolea, A.T. Murray, R. Epstein and F. Barahona. "Solving the adjacency problem constructing the harvesting units." *INFORMS*, Miami, Florida, USA, November 4-7, 2001.
- 2001 T. Shyy, R.J. Stimson and A.T. Murray. "Internet GIS to benchmark local government socio-economic performance." *7<sup>th</sup> Pacific Conference of the Regional Science Association International*. Portland, Oregon, USA, June 30 - July 4, 2001.

- 2001 A. Weintraub, M. Goycoolea, R. Epstein, F. Barahona and A. Murray. "A branch and price approach for a difficult combinatorial problem in spatial forestry." *CORS-OPTD 2001*, Quebec, Canada, May 7-9, 2001.
- 2001 V. Estivill-Castro, I. Lee and A.T. Murray. "Criteria on proximity graphs for boundary extraction and spatial clustering." *The fifth Asian Pacific Conference on Knowledge Discovery and Data Mining - PAKDD-01*, Hong Kong, China, April 16-18, 2001.
- 2001 A.T. Murray. "Extending access in public transportation service provision." *97<sup>th</sup> Annual Meeting of the Association of American Geographers*, New York, New York, USA, February 27 - March 3, 2001.
- 2001 A.T. Murray. "Spatial pattern detection and scale." *Spatial Statistics and Spatial Econometrics Conference* (sponsored by the Applied Econometrics Association and the Western Regional Science Association), Palm Springs, California, USA, February 24-28, 2001.
- 2000 V. Estivill-Castro and A.T. Murray. "Clustering and weighted facility location via hybrid optimization." *International ICSC Congress on Intelligent Systems and Applications*, Wollongong, NSW, Australia, December 12-15, 2000.
- 2000 A.T. Murray and W.V. Ackerman. "Assessing spatial patterns of crime in smaller communities." *4<sup>th</sup> Annual International Crime Mapping Research Conference*, San Diego, California, USA, December 9-12, 2000.
- 2000 A.T. Murray. "Suggested locations in space." *47<sup>th</sup> North American Meeting of the Regional Science Association International*, Chicago, Illinois, USA, November 9-12, 2000.
- 2000 T.H. Grubestic, A.T. Murray and M.E. O'Kelly. "Constructing the divide: spatial disparities in broadband access." *47<sup>th</sup> North American Meeting of the Regional Science Association International*, Chicago, Illinois, USA, November 9-12, 2000.
- 2000 S.K. Thakur, A.T. Murray and R.W. Jackson. "Evaluating the spatial distribution of Research and Development facilities in India." *47<sup>th</sup> North American Meeting of the Regional Science Association International*, Chicago, Illinois, USA, November 9-12, 2000.
- 2000 A.T. Murray and M.E. O'Kelly. "Spatial modeling and represented geographic space." *GIScience 2000 - First International Conference on Geographic Information Science*, Savannah, Georgia, USA, October 28-31, 2000.
- 2000 R. Epstein, M. Goycoolea, A.T. Murray and A. Weintraub. "An adjacency-modeling problem based on constructing harvesting areas." *2000 Symposium on Systems Analysis in Forest Resources*, Aspen, Colorado, USA, September 27-30, 2000.
- 2000 A.T. Murray and V. Estivill-Castro. "Hybrid optimization for clustering in data mining." *CLAIO 2000*, Mexico City, Mexico, September 4-8, 2000.
- 2000 A.T. Murray. "Spatially lagged choropleth display." *9<sup>th</sup> International Symposium on Spatial Data Handling (SDH)*, Beijing, P.R. China, August 10-12, 2000.
- 2000 D. Ward and R.J. Stimson and A.T. Murray. "A spatial decision support system model for planning real time optimal allocation of regional growth: a case study of the Gold Coast sub-region in South East Queensland." *6<sup>th</sup> World Congress of the Regional Science Association International*, Lugano, Switzerland, May 16-20, 2000.

- 2000 A.T. Murray. "Suitable access coverage in the provision of public transportation." *INFORMS*, Salt Lake City, Utah, USA, May 7-10, 2000.
- 2000 A.T. Murray and A. Weintraub. "Approaches for solving the area restriction model in harvest scheduling." *INFORMS*, Salt Lake City, Utah, USA, May 7-10, 2000.
- 2000 A.T. Murray. "Exploring crime patterns using quantitative methods." *96<sup>th</sup> Annual Meeting of the Association of American Geographers*, Pittsburgh, Pennsylvania, USA, April 4-8, 2000.
- 2000 T. Shyy, R. Davis, R.J. Stimson and A.T. Murray. "An internet geographical information system for revolutionizing access to regional development research." *Western Regional Science Association 39<sup>th</sup> Annual Meeting*, Kauai, Hawaii, USA, February 26 – March 1, 2000.
- 1999 A.T. Murray and T. Shyy. "Spatial patterns and choropleth mapping." *46<sup>th</sup> North American Meeting of the Regional Science Association International*, Montreal, Quebec, Canada, November 11-14, 1999.
- 1999 A.T. Murray, D.P. Ward, S.R. Phinn and R.J. Stimson. "Urban growth scenario evaluation using an integrated spatial optimization model." *46<sup>th</sup> North American Meeting of the Regional Science Association International*, Montreal, Quebec, Canada, November 11-14, 1999.
- 1999 R. Davis, T. Shyy, R.J. Stimson, A.T. Murray and C. Pettit. "Developing an interactive spatial database for decision makers in regional Queensland." *1999 Australia and New Zealand Regional Science Association International Annual Conference*, New Castle, New South Wales, Australia, September 19-22, 1999.
- 1999 D.P. Ward, A.T. Murray and S.R. Phinn. "Integrating cellular automata and spatial optimization for evaluating rapidly urbanizing regions." *4<sup>th</sup> International Conference on GeoComputation*, Fredericksburg, Virginia, USA, July 25-28, 1999.
- 1999 B. Hooper and A.T. Murray. "Social data for catchment management: integrating GIS, demographic and attitudinal surveys for improved catchment decision-making." *International Symposium on Society and Resource Management*, Brisbane, Australia, July 7-10, 1999.
- 1999 A.T. Murray and R. Davis. "Evaluating equity, fairness and justice concepts in public transport service provision." *95<sup>th</sup> Annual Meeting of the Association of American Geographers*, Honolulu, Hawaii, USA, March 23-27, 1999.
- 1999 A.T. Murray. "Public transport access efficiency and coverage." *Western Regional Science Association 38<sup>th</sup> Annual Meeting*, Ojai, California, USA, February 21-24, 1999.
- 1998 A.T. Murray. "Cluster analysis in the spatial domain." *45<sup>th</sup> North American Meeting of the Regional Science Association International*, Santa Fe, New Mexico, USA, November 11-14, 1998.
- 1998 A.T. Murray, J.S. Western, P. Mullins and I. McGuffog. "Analyzing patterns of regional criminal activity." *GIS/LIS'98*, Fort Worth, Texas, USA, November 10-12, 1998.
- 1998 R.J. Stimson, R. Davis and A.T. Murray. "Changing economic performance of urban centres in Queensland 1986-1996." *Australia and New Zealand Regional Science Association International 22<sup>nd</sup> Meeting*, Barossa Valley, South Australia, Australia, September 21-23, 1998.

- 1998 R. Davis and A.T. Murray. "Equity in public transport service provision." *Australia and New Zealand Regional Science Association International 22<sup>nd</sup> Meeting*, Barossa Valley, South Australia, Australia, September 21-23, 1998.
- 1998 A.T. Murray. "Assessing clustering methods for exploratory spatial data analysis." *38<sup>th</sup> European Regional Science Association Congress*, Vienna, Austria, August 28 – September 1, 1998.
- 1998 V. Estivill-Castro and A.T. Murray. "Mining spatial data via clustering." *Eighth International Symposium on Spatial Data Handling*, Vancouver, British Columbia, Canada, July 12-15, 1998.
- 1998 A.T. Murray. "Transport access and environmental sustainability." *International Conference on Modeling Geographical and Environmental Systems with GIS*, Hong Kong, China, June 23-25, 1998.
- 1998 A.T. Murray. "Forest modeling and spatial optimization." *CORS/INFORMS*, Montreal, Quebec, Canada, April 26-29, 1998.
- 1998 R. Davis and A.T. Murray. "Quantifying social justice: a transport example." *Social Justice/Social Judgment*, Sydney, New South Wales, Australia, April 25-26, 1998.
- 1998 V. Estivill-Castro and A.T. Murray. "Discovering associations in spatial data – an efficient medoid based approach." *2<sup>nd</sup> Pacific-Asia Conference on Knowledge Discovery and Data Mining*, Melbourne, Victoria, Australia, April 15-17, 1998.
- 1998 A.T. Murray, R. Davis and R.J. Stimson. "Regional development and public transport." *Western Regional Science Association 37<sup>th</sup> Annual Meeting*, Monterey, California, USA, February 18-22, 1998.
- 1998 V. Estivill-Castro and A.T. Murray. "Spatial clustering for data mining with genetic algorithms." *Engineering of Intelligent Systems – EIS'98*, Tenerife, Spain, February 11-13, 1998.
- 1997 A.T. Murray and R. Davis. "Environmental sustainability and urban growth management." *Pacific Regional Science Conference Organisation 15<sup>th</sup> Meeting/Australia and New Zealand Regional Science Association 21<sup>st</sup> Meeting*, Wellington, New Zealand, December 8-12, 1997.
- 1997 A.T. Murray and V. Estivill-Castro. "Spatial data analysis and clustering." *44<sup>th</sup> North American Meeting of the Regional Science Association International*, Buffalo, New York, USA, November 6-9, 1997.
- 1997 A.T. Murray. "Urban development: issues in integrated analysis and planning." *Fifth International Workshop on Technological Change and Urban Form – CIB W72/97*, Jakarta, Indonesia, June 18-20, 1997.
- 1997 A.T. Murray and R.L. Church. "Optimizing the location of harvesting equipment and access roads." *1997 Symposium on Systems Analysis in Forest Resources*, Traverse City, Michigan, USA, May 28-31, 1997.
- 1997 R.L. Church, K. Barber, M.A. Figueroa and A.T. Murray. "Generating alternatives in forestry modeling." *INFORMS*, San Diego, USA, May 4-7, 1997.
- 1997 A.T. Murray and R.L. Church. "Forest planning and Steiner tree extensions." *INFORMS*, San Diego, USA, May 4-7, 1997.

- 1997 A.T. Murray. "Aggregation error minimization in input-output modeling." *Western Regional Science Association 36<sup>th</sup> Annual Meeting*, Hawaii, USA, February 23-26, 1997.
- 1997 B. Roberts and A.T. Murray. "Mapping the spatial corporate." *Producer Services in the APEC Region*, Hawaii, USA, February 22-23, 1997.
- 1996 J.M. Gottsegen and A.T. Murray. "Analyzing the relationships of spatial structure in aggregated data." *GIS/LIS '96*, Denver, Colorado, USA, November 19-21, 1996.
- 1996 A.T. Murray and J.M. Gottsegen. "Location model solution stability and the use of aggregate data." *Forty-Third North American Meeting of the Regional Science Association International*, Washington D.C., USA, November 14-17, 1996.
- 1996 R.L. Church, K. Barber and A.T. Murray. "Modeling for desired future conditions in a National Forest." *Society of American Foresters 1996 Convention*, Albuquerque, New Mexico, USA, November 9-13, 1996.
- 1996 A.T. Murray and J.M. Gottsegen. "Aggregation effects on location modeling." *Australia and New Zealand Regional Science Association 20<sup>th</sup> Annual Conference*, Canberra, ACT, Australia, September 23-25, 1996.
- 1996 A.T. Murray, R.L. Church and A. Weintraub. "Locational issues in forest management." *International Symposium on Locational Decisions (ISOLDE) VII*, Edmonton/Jasper, Alberta, Canada, June 25 - July 3, 1996.
- 1996 A.T. Murray and R.L. Church. "Optimizing harvesting operations: locating towers, skidders and roads." *International Symposium on Locational Decisions (ISOLDE) VII*, Edmonton/Jasper, Alberta, Canada, June 25 - July 3, 1996.
- 1995 A.T. Murray and R.L. Church. "The *p*-impact problem for locating noxious and obnoxious facilities." *42<sup>nd</sup> North American Meeting of the Regional Science Association International*, Cincinnati, Ohio, USA, November 9-12, 1995.
- 1995 A.T. Murray and R.L. Church. "Modeling desired future conditions." *INFORMS National Meeting*, Los Angeles, California, USA, April 23-26, 1995.
- 1995 A.T. Murray, R.L. Church, M.A. Figueroa and K. Barber. "A hierarchical land use planning approach for the USDA Forest Service." *INFORMS National Meeting*, Los Angeles, California, USA, April 23-26, 1995.
- 1994 A.T. Murray and R.L. Church. "Expanding spatial detail and restrictions in public sector location models." *Regional Science Association International 41<sup>st</sup> North American Meetings*, Niagara Falls, Ontario, Canada, November 17-20, 1994.
- 1994 A.T. Murray, R.L. Church, M.A. Figueroa, A. Ager and R.J. McGaughey. "Artificial landscape visualization of ecosystem management plans." *Decision Support - 2001*, Toronto, Ontario, Canada, September 12-16, 1994.
- 1994 R.L. Church, A.T. Murray and K. Barber. "Designing a hierarchical planning model for USDA Forest Service planning." *Sixth Symposium on Systems Analysis and Management Decisions in Forestry*, Pacific Grove, California, USA, September 6-9, 1994.
- 1994 A.T. Murray, R.L. Church and M.A. Figueroa. "Developing a spatial decision support system for land use management." *TIMS/ORSA Joint National Meeting*, Boston, Massachusetts, USA, April 24-27, 1994.



- 1994 A.T. Murray, R.L. Church and M.A. Figueroa. "Designing a spatial decision support system for forest ecosystem management." *GIS'94 Eight Annual Symposium on Geographic Information Systems*, Vancouver, British Columbia, Canada, February 21-24, 1994.
- 1993 A.T. Murray and R.L. Church. "Simulated annealing as a solution methodology for location models." *Regional Science Association International Fortieth North American Meetings*, Houston, Texas, USA, November 11-14, 1993.
- 1993 A.T. Murray and R.L. Church. "Heuristic approaches for solving area-based forest planning problems." *ORSA/TIMS Joint National Meeting*, Phoenix, Arizona, USA, October 31 - November 3, 1993.
- 1993 A.T. Murray and R.L. Church. "Adjacency constraint aggregation." *International Symposium on Systems Analysis and Management Decisions in Forestry*, Valdivia, Chile, March 9-12, 1993.
- 1992 A.T. Murray and R.L. Church. "Vehicle availability and estimating service coverage." *Regional Science Association International Thirty-Ninth North American Meetings*, Chicago, Illinois, USA, November 13-15, 1992.
- 1992 A.T. Murray and R.L. Church. "The reliability of  $\alpha$ -reliability." *ORSA/TIMS Joint National Meeting*, San Francisco, California, USA, November 1-4, 1992.
- 1992 R.L. Church, A.T. Murray and S.R. Loban. "Forest planning and management using large scale linear programming." *ORSA/TIMS Joint National Meeting*, San Francisco, California, USA, November 1-4, 1992.
- 1991 A.T. Murray and R.L. Church. "Modeling school utilization and consolidation." *Thirty-Eighth North American Meetings of the Regional Science Association International*, New Orleans, Louisiana, USA, November 7-10, 1991.

## Invited Lectures

- 2024 *Wildfire Evacuation and Survival Workshop* (National Fish and Wildlife Foundation / UCSB Wildfire Prevention and Policy Lecture Series / Noozhawk), Santa Barbara, California, USA. "The geography of evacuation." May 18, 2024.
- 2024 Department of Geographical and Sustainability Sciences (Rushton Academic Excellence Lecture Series), University of Iowa, USA. "Spatial analytics for developing wildfire coexistence strategies". April 26, 2024.
- 2023 Department of Geography (von Humboldt Series), University of California at Los Angeles. "Strategic wildfire risk mitigation." November 27, 2023.
- 2023 *70<sup>th</sup> North American Meetings of the Regional Science Association International* (RSAI Fellows Lecture), San Diego, California, USA. "A location analytics perspective of regional science." November 14-18, 2023.
- 2023 Heidelberg Institute for Geoinformation Technology, University of Heidelberg. "Spatial optimization, significance and evolving GIScience." July 3, 2023.
- 2022 Department of Geography, McGill University. "Geoperspectives in planning for mobility-on-demand." November 10, 2022.

- 2022 *UW-Seattle Workshop on Spatiotemporal Computing Roadmap*, University of Washington, Seattle, Washington, USA. “Spatio-Temporal Resilience Assessment and Planning.” August 18-19, 2022.
- 2022 Department of Geography and Resource Management, Chinese University of Hong Kong, Hong Kong. “GIScience in extreme wildfire mitigation through targeted fuels treatment.” May 3, 2022.
- 2022 School of Public Policy, University of California at Riverside. “Geospatial sciences to support urban, economic, social and environmental planning and policy.” April 25, 2022.
- 2021 *68<sup>th</sup> North American Meetings of the Regional Science Association International*, Denver, Colorado, USA. “International Regional Science Review Trends.” November 10-13, 2021.
- 2020 *67<sup>th</sup> North American Meetings of the Regional Science Association International* (Alonso Book Award Session). R.L. Church and A.T. Murray. “Location covering models.” November 9-13, 2020.
- 2020 Department of Geography, University of Utah, USA. “Extreme weather vulnerability risk and response”. February 7, 2020.
- 2019 *Global Economy and Finance Re-start Conference*, Nanjing, China. “Economic and financial impacts of wildfire and floods” (野火和洪水对经济和金融的影响). November 9-10, 2019.
- 2019 *Understanding Extreme Fire Weather Hazards and Improving Resilience in Coastal Santa Barbara Workshop*, University of California at Santa Barbara, Santa Barbara, California, USA. “Risk, warning and evacuation”. October 24, 2019.
- 2019 *Machine Learning and Famine Early Warning Workshop*, Climate Hazards Center, University of California at Santa Barbara, Santa Barbara, California, USA. “Machine learning from a spatial perspective”. October 16, 2019.
- 2019 Department of Industrial Engineering, University of Naples Federico II, Italy. “Spatial optimization for addressing vulnerability issues”. June 26, 2019.
- 2019 College of Surveying and Geo-Informatics, Tongji University, China. “Spatial data analytics revolution” (空间数据分析革命). June 2, 2019.
- 2019 School of Geographic Sciences, East China Normal University, China. “Addressing vulnerability through spatial data science” (通过空间数据科学解决脆弱性问题). May 30, 2019.
- 2019 *The New Data Revolution in Regional Science*, The Regional Science Academy, Tel Aviv, Israel. “Regional science publication trends.” April 10-11, 2019.
- 2019 Spatial Analysis and Modeling Plenary, Spatial Analysis and Modeling Specialty Group of the Association of American Geographers (plenary), *2019 Annual Meeting of the American Association of Geographers*, Washington D.C., USA. “Spatial analysis and modeling: analytics and spatial data science.” April 3-7, 2019.
- 2019 California Center for Population Research, University of California at Los Angeles, USA. “Population vulnerability and spatial analytics.” March 13, 2019.

- 2019 Department of Geography, Seoul National University, South Korea. “Spatial data science analytics” (공간 데이터 과학 분석). January 17, 2019.
- 2018 *65<sup>th</sup> North American Meetings of the Regional Science Association International (The Regional Science Academy, Special Academic Session)*, San Antonio, Texas, USA. “To cover or not to cover.” November 7-10, 2018.
- 2018 *I/UCRC Spatiotemporal Innovation Center: 2018 Technical Training Course of National Geographic Conditions Monitoring and Analysis*, University of California at Santa Barbara, Santa Barbara, California, USA. “Spatial variability of retail gasoline price in Santa Barbara.” October 23-24, 2018 (with J. Xu).
- 2018 *I/UCRC Spatiotemporal Innovation Center: 2018 Technical Training Course of National Geographic Conditions Monitoring and Analysis*, University of California at Santa Barbara, Santa Barbara, California, USA. “Spatial analytics for the evaluation and enhancement of public street lighting service.” October 23-24, 2018 (with X. Feng).
- 2018 *International Conference on Spatial Analysis and Modeling* (keynote), Tokyo, Japan. “Spatial analysis and modeling evolution” (空間解析とモデリングの進化). September 8-9, 2018.
- 2018 School of Earth and Environmental Sciences, University of Queensland, Australia. “The rise (or return) of spatial optimization.” August 23, 2018.
- 2018 National Institute for Applied Statistics Research Australia, University of Wollongong, Australia. “Observed spatial clustering.” August 22, 2018.
- 2018 School of Earth Sciences and Engineering, Hohai University, China. “GIS时代的中心位置问题”. June 10, 2018.
- 2018 School of Geographic and Oceanographic Sciences, Nanjing University, China. “Questions of central location in an era of GIS”. June 10, 2018.
- 2018 *7<sup>th</sup> International Workshop on Regional, Urban, and Spatial Economics in China* (keynote), Changsha, Hunan, China. “Regional analysis in a rural world” (农村地区的区域分析). June 8-9, 2018.
- 2018 Distinguished Lecture Series in Remote Sensing and GIScience, Peking University, China. “The significance of GIS and spatial optimization” (GIS的意义和空间优化). June 6, 2018.
- 2017 Center for Spatial Information Science / Housing and Urban Analysis Lab, Department of Urban Engineering, University of Tokyo and Department of Logistics and Information Engineering, Tokyo University of Marine Science and Technology, Japan. “Information engineering and optimization in system sustainability planning” (持続可能なシステムのための都市オペレーション研究). December 12, 2017.
- 2017 *Workshop on Urban Operations Research* (keynote), Nanzan University, Japan. “Urban operations research for sustainable systems” (システム・サステナビリティ計画における情報工学と最適化). December 9-10, 2017.
- 2017 Department of Information Systems and Mathematical Sciences, Nanzan University, Japan. “Spatial optimization in commercial GIS” (商業GISにおける空間最適化). December 8, 2017.

- 2017 *I/UCRC Spatiotemporal Innovation Center: 2017 Training Workshop*, University of California at Santa Barbara, Santa Barbara, California, USA. “Providing effective spatio-temporal fire service.” November 6-8, 2017.
- 2017 *Western Regional Science Association 56<sup>th</sup> Annual Meeting* (presidential address), Santa Fe, New Mexico, USA. “Analytics and regional science.” February 15-18, 2017.
- 2016 *International Symposium on National Geographic State Monitoring* (keynote), “Data, modeling and analytics for urban-regional sustainability” (城市区域可持续发展的数据, 建模和分). Wuhan, China, December 17-18, 2016.
- 2016 Jiangxi University of Finance & Economics, China. “Spatial analytics in urban-regional development” (城市区域发展中的空间分析).
- 2016 GeoMundus (keynote), *8<sup>th</sup> International Symposium on Geography, Earth and Environmental Studies*. “Why you should care about advanced spatial analytics.” Castellon de la Plana, Spain, November 4-5, 2016.
- 2016 SOCHER (keynote), *Meeting of the Sociedad Chilena de Estudios Regionales*, “The role of data, modeling and analysis in reshaping regions and cities.” Santiago, Chile, September 8-10, 2016.
- 2016 Departamento de Ingenieria Industrial, Universidad de Chile, Chile. “Facility location optimization advances through spatial knowledge.”
- 2016 Harbin Normal University, China. “Geospatial challenges in analytical definitions of a center.”
- 2016 Peking University, China. “Location and spatial analytics in contemporary planning and decision making environments.”
- 2016 Center for Spatial Studies, University of California at Santa Barbara, USA. “Identifying the center of a spatial object.”
- 2015 Department of Geography, UC Libraries and IT@UC, University of Cincinnati, USA. “Applying GIS to contemporary issues.”
- 2015 School of Social Sciences, Monash University, Australia. “Spatial analytics: past, present and future.”
- 2015 Department of Industrial & Systems Engineering, Lehigh University, USA. “Spatial optimization: evolving analytics, knowledge and theory.”
- 2015 Department of Geography, University of California at Santa Barbara, USA. “Advancing spatial analytics to address urban, economic, social and environmental issues.”
- 2015 School of Geography, Earth and Environmental Sciences, University of Birmingham, UK. “Evolving spatial analytics to support geographical inquiry.”
- 2014 Department of Geography (Getis Lecture in Spatial Analysis), San Diego State University, USA. “Evolution of spatial analytics and geocomputation.”
- 2014 College of Business, University of Kent, UK. “Spatial analytics to support wayfinding and routing in complex urban environments.”
- 2014 College of Computing and Informatics, Drexel University, USA. “GeoComputation and spatial analytics to support planning and decision making.”

- 2014 Department of Geography, University of Utah, USA. “GeoComputation to support valid and meaningful GIScience analysis.”
- 2013 Centre for GeoInformatics, University of St Andrews, Scotland, UK. “Spatial optimization to support navigation of complex environments.”
- 2013 College of Computing and Informatics, Drexel University, USA. “Spatial analytics for navigating complex environments.”
- 2013 Department of Geography, University of California at Santa Barbara, USA. “GIScience advances for navigating complex environments.”
- 2012 Department of Planning and Regional Development, University of Thessaly, Greece. “Επέκταση της παροχής υπηρεσιών αστικών πυροσβεστικών σταθμών: χωρική ανάλυση και χρήση GIS και εφαρμογή.”
- 2012 Department of City and Regional Planning, Cornell University, USA. “Land use planning and spatial data uncertainty.”
- 2012 Department of Geography, University of Hawaii, Manoa, USA. “Addressing spatial data uncertainty in land use planning.”
- 2011 Department of Geography & Earth Sciences, University of North Carolina at Charlotte, USA. “The use of GIS in addressing important contemporary planning problems.”
- 2011 iSchool, Drexel University, USA. “GIS and spatial analysis application challenges in addressing contemporary problems and issues.”
- 2010 Department of Geography, University of Texas, USA. “Sex offender residency change behavior.”
- 2010 School of Computing, Informatics, and Decision Systems Engineering, Decision Systems Seminar Series, Arizona State University, USA. “Network infrastructure fortification.”
- 2010 Center for Population Dynamics, Arizona State University, USA. “Exploratory spatial data analysis of housing movement patterns.”
- 2009 Department of Industrial and Systems Engineering, Texas A&M University, USA. “Geographic information systems (GIS) relevance in optimization.”
- 2008 Department of Geography and Regional Development, University of Arizona, USA. “Sex offender exclusion laws: spatial analytical methods to support policy evaluation and formulation.”
- 2008 School of Geographical Sciences, Arizona State University, USA. “Location modeling and GIScience”.
- 2007 Criminal Justice Research Center and the Institute for Excellence in Justice, The Ohio State University, USA. “Evaluating sex offender exclusion laws.”
- 2007 Initiative in Population Research, The Ohio State University, USA. “Geographic Information Systems (GIS): Introduction and Use in Population Research” (with N. Xiao).
- 2005 Department of Geography, San Diego State University, USA. “Spatial representation and location coverage optimization.”
- 2005 Department of Geology and Geography, West Virginia University, USA. “The importance of spatial representation in emergency service planning.”

- 2004 Department of Geography, University of Connecticut, USA. “A new perspective for coverage modeling.”
- 2004 Department of Geography, University of Cincinnati, USA. “Rethinking coverage modeling in siting emergency warning sirens.”
- 2004 Department of City and Regional Planning, The Ohio State University, USA. “Emergency warning siren coverage: planning and analysis.”
- 2004 Department of Geography, University of California at Los Angeles, USA. “GIST in modeling spatial coverage.”
- 2003 Center for Urban and Regional Analysis, The Ohio State University, USA. “Examining forecasted population growth by integrating regional modeling and local simulation.”
- 2003 Criminal Justice Research Center and Center for Urban and Regional Analysis, The Ohio State University, USA. “Imperfect spatial information and the analysis of crime.”
- 2002 Regional Research Institute, West Virginia University, USA. “Geographical considerations in forest management planning.”
- 2002 Departamento de Ingenieria Industrial, Universidad de Chile, Chile. “Exploring alternative interpretations of maximum area restrictions in harvest scheduling.”
- 2001 Bio-Complexity Workshop, Center for Mapping, The Ohio State University, USA. “Spatial modeling for evaluating urban growth.”
- 2001 Departamento de Ingenieria Industrial, Universidad de Chile, Chile. “The importance of modeling to support forest planning and decision making.”
- 2000 Institute of Remote Sensing Applications, Chinese Academy of Sciences, China. “Potential remote sensing applications in public transportation planning.”
- 1999 Department of Geography, State University of New York at Buffalo, USA. “GIS based approaches for identifying patterns of suburban crime.”
- 1999 Department of Geography, Ohio State University, USA. “Using GIS and spatial analysis for evaluating and planning public transportation.”
- 1999 Department of Geography and Center for the Study of Institutions, Population, and Environmental Change, Indiana University, USA. “Evaluating sustainability issues using GIS and spatial analysis.”
- 1999 Departamento de Ingenieria Industrial, Universidad de Chile, Chile. “Mathematical considerations for imposing spatial restrictions in harvest scheduling problems.”
- 1998 Department of Earth and Atmospheric Sciences, University of Alberta, Canada. “Regional public transportation service access.”
- 1998 Department of Earth and Atmospheric Sciences, University of Alberta, Canada. “Spatially restricted forest harvest scheduling.”
- 1998 Department of Geography, University of Utah, USA. “Regional public transportation service access.”
- 1998 Department of Geography, University of Kentucky, USA. “Regional public transportation service access.”

- 1998 Department of Geography, University of Kentucky, USA. "GIS, spatial analysis and forest management."
- 1998 Department of Anthropology and Sociology, University of Queensland, Australia. "What every sociologist should know about geographical information systems."
- 1998 SEQ 2001, Queensland Government, Australia. "Modelling access to services and facilities."
- 1998 Department of Geography, Southern Illinois University, USA. "The use of GIS in natural resource management."
- 1998 Department of Systems and Industrial Engineering, University of Arizona, USA. "Location models for improving public transport services."
- 1997 Department of Geography, University of Florida, USA. "Systems analysis in forest management planning."
- 1997 Australian Housing and Urban Research Institute, Queensland University of Technology, Australia. "Systems analysis in environmental management planning."
- 1997 School of Forest Resources, University of Georgia, USA. "Analysis and modeling in forest resource management."
- 1997 Department of Geographical Sciences and Planning, University of Queensland, Australia. "Natural resource management."
- 1997 Forest Research Institute, Rotorua, New Zealand. "Harvest scheduling and spatial restrictions."
- 1996 CSIRO - Division of Building, Construction and Engineering, Australia. "Modelling impact in undesirable facility location."
- 1996 Department of Geography, University of Iowa, USA. "Data issues in medical geography: boundaries and aggregation."
- 1996 Department of Geography, University of Iowa, USA. "Land management and policy assessment using integrated optimization."
- 1996 Department of Geography and GISCA, University of Adelaide, Australia. "SDSS and GIS development for integrated analysis and planning."
- 1996 AHURI/CSIRO Knowledge Exchange Seminar, Mallacoota, Victoria, Australia. "GIS and SDSS for sustainable urban and regional planning."
- 1995 Department of Forest Science, Texas A&M University, USA. "Applying heuristic solution techniques to operational forest planning problems."
- 1995 Departamento de Ingenieria Industrial, Universidad de Chile, Chile. "Development and application of heuristics for spatial optimization: location and land management" (with R.L. Church).
- 1995 Department of Geography, University of California, Santa Barbara, USA. "Applying heuristic solution approaches to operational forest planning problems."

## Expert Testimony

John Doe v. Jim Petro et al. (No. 1:05-CV-125) (2005); United States District Court for the Southern District of Ohio, Western Division

2701 Orchard Lane Alcohol Conditional Use Permit (P20-012) Appeal (2022); City of Sacramento, City Council

Robinson, et al. v. Ardoin (No. 3:22-cv-00211-SDD-SDJ) and Galmon, et al. v. Ardoin (No. 3:22-cv-00214-SDD-SDJ) (2022); United State District Court for the Middle District of Louisiana

Nairne, et al. v. Ardoin (NO. 3:22-cv-00178-SDD-SDJ); United State District Court for the Middle District of Louisiana

## Professional Service

### 1. Editorial Activities

(i) Journal Boards and Editorships (see above)

(ii) Edited Journal Special Issues (see above)

(iii) Panelist

*Wildfire Evacuation and Survival Workshop* (National Fish and Wildlife Foundation / UCSB Wildfire Prevention and Policy Lecture Series / Noozhawk), Santa Barbara, California, USA, May 18, 2024.

“Mentorship in Higher Ed”, *UCGIS Symposium 2023*, New Haven, Connecticut, USA, June 6-8, 2023.

*Wildfire Preparedness Exposition* (Santa Barbara County Fire Safe Council & UCSB Wildfire Prevention and Policy Lecture Series), Goleta, California, USA, October 14-15, 2022.

“Editors Panel Discussion: How to Publish in International Journals”, *Western Regional Science Association 60<sup>th</sup> Annual Meeting*, February 22-25, 2021.

“The future of regional and urban economics in China and the world”, *The 8<sup>th</sup> RUSE (Regional, Urban, and Spatial Economics in China) International Workshop*, Shanghai, China, May 31-June 1, 2019.

“A Globe-Shaped Crystal Ball: The Next Fifty Years of Geographical Analysis”, *2018 Annual Meeting of the Association of American Geographers*, New Orleans, Louisiana, USA, April 10-14, 2018.

“Special Session to Honor Manfred M. Fischer’s Contributions to Geography: Spatial Analysis and Modeling 2”, *104<sup>th</sup> Annual Meeting of the Association of American Geographers*, Boston, Massachusetts, USA, April 15-19, 2008.

“Honoring Atsuyuki Okabe: Applications, Developments, and Future Research on Spatial Analysis and GIScience 1”, *103<sup>rd</sup> Annual Meeting of the Association of American Geographers*, San Francisco, California, USA, April 17-21, 2007.

“Meet the Journal Editors II”, *Centennial Meeting of the Association of American Geographers*, Philadelphia, Pennsylvania, USA, March 14-19, 2004.



(iv) Book Proposal Reviewer

W.H. Freeman and Company (2000)  
Springer (2007)

(v) Journal Reviewer (176 different journals)

*4OR - A Quarterly Journal of Operations Research*  
*ACM Transactions on Spatial Algorithms and Systems*  
*Advances in Data Analysis and Classification*  
*Annals, Association of American Geographers*  
*Annals of Operations Research*  
*Annals of Regional Science*  
*Applied Geography*  
*Applied Mathematical Modelling*  
*Applied Network Science*  
*Applied Soft Computing*  
*Applied Spatial Analysis and Policy*  
*Arabian Journal of Chemistry*  
*Asia-Pacific Journal of Operational Research*  
*Asia-Pacific Journal of Regional Science*  
*Australasian Journal of Regional Studies*  
*Automation in Construction*  
*BMC Public Health*  
*Biodiversity and Conservation*  
*Biosafety and Health*  
*Canadian Journal of Criminology and Criminal Justice*  
*Canadian Journal of Earth Systems*  
*Canadian Journal of Forest Research*  
*Cartographica*  
*Cartography and Geographic Information Science*  
*Case Studies on Transport Policy*  
*Chemical Engineering Science*  
*Cities*  
*Conflict Management and Peace Science*  
*Computational and Applied Mathematics*  
*Computational Optimization and Applications*  
*Computational Statistics and Data Analysis*  
*Computer-Aided Civil and Infrastructure Engineering*  
*Computers & Geosciences*  
*Computers & Operations Research*  
*Computers, Environment and Urban Systems*  
*Crime, Law and Social Change*  
*Crime Mapping: A Journal of Research and Practice*  
*Decision Support Systems*  
*Defence & Peace Economics*  
*Discrete Optimization*  
*Earth Interactions*  
*Ecological Applications*  
*Ecological Informatics*  
*Economic Systems Research*  
*Electronics and Telecommunications Research Institute Journal*  
*Energy Strategy Reviews*  
*Environment and Planning A*  
*Environment and Planning B: Urban Analytics and City Science*  
*Environment and Planning C: Government and Policy*  
*Environmental Engineering Science*  
*Environmental Science & Technology*  
*European Journal of Operational Research*  
*Expert Systems with Applications*  
*Forest Policy and Economics*  
*Forest Science*  
*Geografiska Annaler B: Human Geography*  
*Geographical Analysis*  
*Geographical Journal*  
*Geographical and Environmental Modelling*  
*Geography Compass*  
*GeoJournal*  
*Geoscience and Remote Sensing Letters*

*Geo-spatial Information Science*  
*Global Food Security*  
*Growth and Change*  
*Health and Place*  
*IEEE Access*  
*IEEE Transactions on Intelligent Transportation Systems*  
*INFOR*  
*INFORMS Journal on Computing*  
*INFORMS Journal on Optimization*  
*ISPRS Journal of Photogrammetry and Remote Sensing*  
*International Forestry Review*  
*International Journal of Applied Earth Observation and Geoinformation*  
*International Journal of Critical Infrastructure Protection*  
*International Journal of Digital Earth*  
*International Journal of Disaster Risk Reduction*  
*International Journal of Environmental Research and Public Health*  
*International Journal of Geographical Information Science*  
*International Journal of Health Geographics*  
*International Journal of Critical Infrastructure Protection*  
*International Journal of Mathematical and Computational Forestry and Natural-Resource Sciences*  
*International Journal of Production Economics*  
*International Journal of Remote Sensing*  
*International Journal of Sustainable Transportation*  
*International Journal of Systems Science*  
*International Transactions in Operational Research*  
*Journal of Advanced Transportation*  
*Journal of Asian Architecture and Building Engineering*  
*Journal of Cleaner Production*  
*Journal of Environmental Management*  
*Journal of Forest Research*  
*Journal of Geographical Systems*  
*Journal of Hydrology*  
*Journal of Infrastructure Systems*  
*Journal of King Saud University - Science*  
*Journal of Parallel and Distributed Computing*  
*Journal of Regional Science*  
*Journal of Simulation*  
*Journal of Spatial Science*  
*Journal of Sustainable Transportation*  
*Journal of the Operational Research Society*  
*Journal of the Operations Research Society of Japan*  
*Journal of Transport Geography*  
*Journal of Water Resources Planning and Management*  
*Journal of Urban Management*  
*Journal of Urban Technology*  
*Journal of Urbanism*  
*Justice Quarterly*  
*Land Use Policy*  
*Landscape Ecology*  
*Landscape and Urban Planning*  
*Location Science*  
*LEUKOS*  
*Manufacturing and Service Operations Management*  
*Natural Resource Modeling*  
*Naval Research Logistics*  
*Networks*  
*Networks and Spatial Economics*  
*Omega, The International Journal of Management Science*  
*One Earth*  
*Operational Research*  
*Operations Research*  
*Optics and Laser Technology*  
*OR Spectrum*  
*Papers in Regional Science*  
*Photogrammetric Engineering and Remote Sensing*  
*Physica A*  
*Physics and Chemistry of the Earth*  
*PLOS ONE*  
*Planning Practice and Research*  
*Population Research and Policy Review*  
*Preventing Chronic Disease*  
*Professional Geographer*

*Proceedings of the National Academy  
of Sciences of the United State of  
America*  
*Public Health Reports*  
*Reliability Engineering and System  
Safety*  
*Remote Sensing*  
*Review of Regional Studies*  
*Risk Analysis*  
*Safety and Health at Work*  
*SAGE Open*  
*Science of the Total Environment*  
*Scientific Reports*  
*Social and Cultural Geography*  
*Social Psychological and Personality  
Science*  
*Social Science Journal*  
*Socio-Economic Planning Sciences*  
*Southern Journal of Applied Forestry*  
*Spatial Cognition and Computation:  
An Interdisciplinary Journal*  
*Spatial Economic Analysis*  
*Spatial Statistics*  
*Stat*  
*Sustainable Cities and Society*  
*Swarm and Evolutionary Computation*  
*Technology | Architecture + Design*  
*The Geographical Journal*

*The Southwestern Geographer*  
*TOP*  
*Transport Findings*  
*Transportation*  
*Transportation Letters: The  
International Journal of  
Transportation Research*  
*Transactions in GIS*  
*Transactions of the Institute of British  
Geographers*  
*Transactions on Spatial Algorithms  
and Systems*  
*Transportation Research A: Policy and  
Practice*  
*Transportation Research B:  
Methodological*  
*Transportation Research C: Transport  
and Environment*  
*Transportation Research Record*  
*Travel Behaviour and Society*  
*Transportation Science*  
*Urban Climate*  
*Urban Geography*  
*Visual Computing for Industry,  
Biomedicine, and Art*  
*Water Resources Management*  
*Water Resources Research*

## 2. Grant Review Panel

National Institutes of Health (1) - 2009  
 National Science Foundation (9) - 2004-2005 Geography and Regional Science, 2009 Data Mining, 2019 Geography and Spatial Sciences, 2022 Human-Environment and Geographical Sciences, 2023 Human-Environment and Geographical Sciences, 2024 Social, Behavioral and Economic Sciences

## 3. Grant Proposal Assessor

AgreenSkills (EU)  
 Australian Research Council  
 Czech Science Foundation  
 Criminology Research Council  
 Critical Infrastructure Resilience Institute (University of Illinois / US Department of Homeland Security)  
 Eidgenossische Technische Hochschule Zurich (Swiss Federal Institute of Technology Zurich) - Competence Center Environment and Sustainability  
 European Research Council

Israel Science Foundation  
 Medical Research Council  
 National Center of Science and Technology Evaluation (Kazakhstan)  
 National Commission for Scientific and Technological Development (CONICYT) /  
 Superior Council of the National Fund for Scientific & Technological Development  
 (FONDECYT) (Chile)  
 National Institutes of Health  
 National Institute of Justice  
 National Science Center (Poland)  
 National Science Foundation  
 Natural Sciences and Engineering Research Council of Canada  
 Netherlands Organisation for Scientific Research  
 Qatar National Research Fund  
 Research Grants Council of Hong Kong  
 Regional Research Institute (West Virginia University)  
 Royal Society (UK)  
 Science Fund of the Republic of Serbia  
 Swiss National Science Foundation  
 U.S. Census Bureau  
 U.S. Department of Homeland Security / Science & Technology Critical Infrastructure  
 Resilience Center of Excellence

#### 4. External Promotion and Tenure Review

Arizona State University	University of Cincinnati
Boston University	University of Colorado
Brigham Young University	University of Denver
Dartmouth College	University of Georgia
George Mason University	University of Hong Kong
Griffith University	University of Illinois, Urbana-Champaign
Indiana University - Purdue University	University of Kent
Louisiana State University	University of Louisville
McMaster University	University of Maryland
National Cheng Kung University	University of Miami
Northeastern University	University of Minnesota
Seoul National University	University of Nevada, Reno
State University of New York, Buffalo	University of North Carolina, Charlotte
Temple University	University of Queensland
Texas A&M University	University of South Florida
Universiti Sains Malaysia	University of Tennessee
University of California, Irvine	University of Texas, Dallas
University of California, Riverside	University of Toronto
University of Chinese Academy of Sciences	

#### 5. External Program Review

2018	Department of Earth & Environment, College of Arts & Sciences, Boston University
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## 6. Advisory Panels

2008-2014	GeoDA Center for Geospatial Analysis and Computation, Arizona State University (oversight committee member)
2005-2008	Initiative in Population Research, The Ohio State University (executive committee member)
2005-2008	Regents Advisory Committee on the Urban University Program, Ohio Board of Regents
2005-2008	Community Research Partners System Policy Group
2004-2005	Center for Urban and Regional Analysis, The Ohio State University (oversight and advisory committee member)

## 7. Professional Society Service

### (i) Boards

2005-2015	Western Regional Science Association, Board of Directors
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### (ii) Offices

2017-2018	President, Western Regional Science Association
2015-2016	Vice President, Western Regional Science Association
2014-2015	Vice President, Section on Location Analysis, INFORMS
2012-2013	Secretary, Section on Location Analysis, INFORMS
2011-2012	Treasurer, Section on Location Analysis, INFORMS
2009-2011	Councilor-at-Large, North American Regional Science Council
2000-2003	Chair, Spatial Analysis and Modeling Specialty Group of the Association of American Geographers
1999-2000	Newsletter Editor, Mathematical Models and Quantitative Methods Specialty Group of the Association of American Geographers

### (iii) Committees

2022-present	Committee member, Getis-Ord Lecture in Spatial Analysis (Western Regional Science Association)
2022-2025	Honors Committee (Regional Science Association International)
2020-2023	Steering committee member, Research Activities Panel (Channel Islands National Marine Sanctuary, National Oceanic and Atmospheric Administration, US Department of Commerce)
2018-2022	Committee member, Tiebout Prize (Western Regional Science Association) (Chair, 2019-2020)
2017	Committee member, ReVelle Rising Star Award Committee (Section on Location Analysis, INFORMS)
2015	Committee member, North American Regional Science Council, Graduate Paper Award

- 2013 Committee member, North American Regional Science Council, Graduate Student Led Paper Competition
- 2011 Chair, SOLA-Air Products Dissertation Committee (Section on Location Analysis, INFORMS)
- 2010 Committee member, INFORMS, Energy and Natural Resources and the Environment Section Student Paper Competition
- 2005 Chair, UPS-SOLA Dissertation Committee (Section on Location Analysis, INFORMS)
- 2003 UPS-SOLA Dissertation Committee (Section on Location Analysis, INFORMS)
- 2003-2006 Census Advisory Committee, Association of American Geographers (Chair, 2006)
- 2002-2005 Standards for Geographic Data Committee, Association of American Geographers

(iv) International Conference Organization

- 2025 GIScience 2025: Thirteenth International Conference on Geographic Information Science (Program Committee), Christchurch, New Zealand, August 26-29, 2025.
- 2024 UCSB@Spatial Specialist Meeting: Advancing the Geographic Approach to Conservation (Organizing Committee), Santa Barbara, California, USA, December 5-6, 2024.
- 2023 UCSB@Spatial Specialist Meeting: Spatial Data Science in an Age of Scientific Disruption (Organizing Committee), Santa Barbara, California, USA, December 8-9, 2023.
- 2023 GIScience 2023 Twelfth International Conference on Geographic Information Science (Program Committee), Leeds, United Kingdom, September 13-15, 2023.
- 2023 3<sup>rd</sup> International Conference on Urban Informatics (Advisory Committee Member), Hong Kong, China, August 21-23, 2023.
- 2023 International Symposium on Locational Decisions (ISOLDE) XVI (Program Committee), Kaiserslautern and Baden-Baden, Germany, June 25-30, 2023.
- 2022 Western Regional Science Association 61<sup>st</sup> Annual Meeting (Program Committee). Scottsdale, Arizona, USA, February 17-20, 2022.
- 2021 GIScience 2021: 11<sup>th</sup> International Conference on Geographic Information Science (Program Committee), Poznan, Poland, September 27-30, 2021.
- 2021 International Symposium on Locational Decisions (ISOLDE) XV (Program Committee), June 13-18, 2021.
- 2021 Western Regional Science Association 60<sup>th</sup> Annual Meeting (Program Committee). February 22-25, 2021.
- 2019 The 8<sup>th</sup> RUSE (Regional, Urban, and Spatial Economics in China) International Workshop (Scientific Committee), Shanghai, China, May 31-June 1, 2019.

- 2019 Western Regional Science Association 58<sup>th</sup> Annual Meeting (Program Committee). Napa, California, USA, February 10–13, 2019.
- 2018 International Conference on Spatial Analysis and Modeling (Organizing Committee), Tokyo, Japan September 8-9, 2018.
- 2018 GIScience 2018: Tenth International Conference on Geographic Information Science (Program Committee), Melbourne Australia, August 28-31, 2018.
- 2018 The 7<sup>th</sup> International Workshop on Regional, Urban, and Spatial Economics in China (Scientific Committee), Changsha, Hunan, China, June 8-9, 2018.
- 2017 International Symposium on Locational Decisions (ISOLDE) XIV (Scientific Committee), Toronto and Huntsville, Ontario, Canada, July 10-14, 2017.
- 2016 GIScience 2016: Ninth International Conference on Geographic Information Science (Program Committee), Montreal, Canada, September 27-30, 2016.
- 2016 EURO Working Group on Locational Analysis XXIII (Scientific Committee), Malaga, Spain, September 14-16, 2016
- 2015 13<sup>th</sup> International Conference on GeoComputation (GeoComputation 2015) (Scientific Advisory Board), Richardson, Texas, USA, May 21-23, 2015.
- 2015 International Geospatial Health Research Symposium: Creating Synergies (Committee Member), Chicago, Illinois, USA, April 21-25, 2015.
- 2014 GIScience 2014: Eighth International Conference on Geographic Information Science (Program Committee), Vienna, Austria, September 23-26, 2014.
- 2014 International Symposium on Locational Decisions (ISOLDE) XIII (Scientific Committee), Naples and Capri, Italy, June 16-21, 2014.
- 2013 1<sup>st</sup> International Conference on Geo-Informatics in Green Ecology & Environment (Program Committee), Wuhan, China, November 8-10, 2013.
- 2013 12<sup>th</sup> International Conference on GeoComputation (GeoComputation 2013) (Program Committee), Wuhan University, China, May 23-25, 2013.
- 2012 GIScience 2012 (Program Committee), Columbus, Ohio, USA, September 18-21, 2012.
- 2011 LAND-TRANSLOG II (Program Committee), Puerto Varas, Chile, December, 12-15, 2011.
- 2008 International Symposium on Locational Decisions (ISOLDE) XI (Program Committee), Santa Barbara, California, USA, June 23-28, 2008.
- 2002 Symposium on Models and Systems in Forestry (with A. Weintraub, R. Haight, M. Bevers, D. Martell and M. Ronnqvist), Punta de Tralca, Chile, March 4-7, 2002.

(v) International Conference Session Organization

- 2023 Location and Spatial Analysis sessions (with R. Wei) – 70<sup>th</sup> North American Meetings of the Regional Science Association International, San Diego, California, USA, November 15-18, 2023.
- 2022 Honoring and Celebrating Arthur Getis, A LEGEND in Spatial Analysis sessions (with L. Anselin and S. Rey) – 69<sup>th</sup> North American Meetings of the Regional

- Science Association International, Montreal, Quebec, Canada, November 9-12, 2022.
- 2022 Location and Spatial Analysis sessions (with R. Wei) – 69<sup>th</sup> North American Meetings of the Regional Science Association International, Montreal, Quebec, Canada, November 9-12, 2022.
- 2021 The New Data Revolution in Regional Science and the Dilemma of More, and Better Measurement: A Tribute to Stan Czamanski (with D. Broitman, K. Kourtit, D. Czamanski, P. Nijkamp and P. Batey) – 68<sup>th</sup> North American Meeting of the Regional Science Association International, Denver, Colorado, USA, November 10-13, 2021.
- 2021 Location and Spatial Analysis sessions (with R. Wei) – 68<sup>th</sup> North American Meeting of the Regional Science Association International, Denver, Colorado, USA, November 10-13, 2021.
- 2020 Location and Spatial Analysis sessions (with R. Wei) – 67<sup>th</sup> North American Meeting of the Regional Science Association International, November 9-13, 2020.
- 2019 Location and Spatial Analysis sessions (with R. Wei) – 66<sup>th</sup> North American Meeting of the Regional Science Association International, Pittsburgh, Pennsylvania, USA, November 13-16, 2019.
- 2018 Location and Spatial Analysis sessions (with R. Wei) – 65<sup>th</sup> North American Meeting of the Regional Science Association International, San Antonio, Texas, USA, November 7-10, 2018.
- 2017 Location and Spatial Analysis sessions (with R. Wei) – 64<sup>th</sup> North American Meeting of the Regional Science Association International, Vancouver, British Columbia, Canada, November 8-11, 2017.
- 2016 Location and Spatial Analysis sessions (with R. Wei) – 63<sup>rd</sup> North American Meeting of the Regional Science Association International, Minneapolis, Minnesota, USA, November 9-12, 2016.
- 2015 Location and Spatial Analysis sessions (with R. Wei) – 62<sup>nd</sup> North American Meeting of the Regional Science Association International, Portland, Oregon, USA, November 11-14, 2015.
- 2015 Section on Location Analysis cluster – INFORMS, Philadelphia, Pennsylvania, USA, November 1-4, 2015.
- 2014 Location and Spatial Analysis sessions (with T. Grubestic) – 61<sup>st</sup> North American Meeting of the Regional Science Association International, Washington, D.C., USA, November 13-15, 2014.
- 2014 Section on Location Analysis cluster – INFORMS, San Francisco, California, USA, November 9-12, 2014.
- 2013 Location and Spatial Analysis: 40 years of Maximal Coverage sessions (with R. Church) – 60<sup>th</sup> North American Meeting of the Regional Science Association International, Atlanta, Georgia, USA, November 13-16, 2013.
- 2013 Location and Spatial Analysis sessions (with R. Wei and T. Grubestic) – 60<sup>th</sup> North American Meeting of the Regional Science Association International, Atlanta, Georgia, USA, November 13-16, 2013.



- 2013 Optimization, Spatial Analysis and GIS cluster (with R. Church) – INFORMS, Minneapolis, Minneapolis, USA, October 6-9, 2013.
- 2005 Charles S. ReVelle Sessions in Location Modeling and Spatial Analysis (with T. Matisziw) – 52<sup>nd</sup> North American Meeting of the Regional Science Association International, Las Vegas, Nevada, USA, November 10-12, 2005.
- 2004 Location and Spatial Modeling sessions – 51<sup>st</sup> North American Meetings of the Regional Science Association International, Seattle, Washington, USA, November 11-13, 2004.
- 2003 Location and Spatial Modeling sessions – 50<sup>th</sup> North American Meetings of the Regional Science Association International, Philadelphia, Pennsylvania, USA, November 20-22, 2003.
- 2003 Spatial Analysis and Modeling sessions (sponsored by Spatial Analysis and Modeling specialty group) – 99<sup>th</sup> Annual Meeting of the Association of American Geographers, New Orleans, Louisiana, USA, March 5-8, 2003.
- 2002 Location and Spatial Modeling sessions – 49<sup>th</sup> North American Meetings of the Regional Science Association International, San Juan, Puerto Rico, USA, November 14-17, 2002.
- 2002 Spatial Analysis and Modeling sessions (sponsored by Spatial Analysis and Modeling specialty group) – 98<sup>th</sup> Annual Meeting of the Association of American Geographers, Los Angeles, California, USA, March 12-23, 2002.
- 2001 Location and Spatial Modeling sessions – 48<sup>th</sup> North American Meetings of the Regional Science Association International, Charleston, South Carolina, USA, November 15-17, 2001.
- 2001 Spatial Analysis and Modeling, Population Analysis and Modeling, and Plenary Lecture (sponsored by Spatial Analysis and Modeling specialty group) – 97<sup>th</sup> Annual Meeting of the Association of American Geographers, New York, New York, USA, February 27 – March 3, 2001.
- 2000 Location Modeling sessions – 47<sup>th</sup> North American Meetings of the Regional Science Association International, Chicago, Illinois, USA, November 9-12, 2000.
- 2000 GIS and Modeling in the Analysis of Crime session and Plenary Lecture (sponsored by Mathematical Models and Quantitative Methods specialty group) – 96<sup>th</sup> Annual Meeting of the Association of American Geographers, Pittsburgh, Pennsylvania, USA, April 4-8, 2000.
- 1999 Location Modeling sessions – 46<sup>th</sup> North American Meetings of the Regional Science Association International, Montreal, Quebec, Canada, November 11-14, 1999.
- 1999 Transportation and Location Modeling session (co-sponsored by Mathematical Models and Quantitative Methods, Transportation Geography and Geographic Information System specialty groups) – 95<sup>th</sup> Annual Meeting of the Association of American Geographers, Honolulu, Hawaii, USA, March 23-27, 1999.
- 1998 Location Modeling sessions – 45<sup>th</sup> North American Meetings of the Regional Science Association International, Santa Fe, New Mexico, USA, November 11-14, 1998.

## 8. University and Department Committees

### University of California at Santa Barbara

- University Committee on Research Policy – UC Office of the President (2023-24)
- Council on Research and Instructional Resources – University (Academic Senate) (2022-25, vice chair 2023-24)
- Committee on Research Policy and Procedures – University (Academic Senate) (2022-25, chair 2023-24)
- Committee on Faculty Grants– University (Academic Senate) (2022-25, co-chair 2023-24)
- GIScience Search Committee – Department of Geography (2022-23, 2023-24)
- Events and Outreach Committee – Department of Geography (2022-23)
- Awards and Nominations Committee – Department of Geography (chair 2021-22, 2022-23, 2023-24)
- Space Committee – Department of Geography (2021-22)
- Dangermond Student Travel Grants Committee – Department of Geography (2020-present)
- Dangermond Chair in Conservation Science Search Committee – University (2019-20)
- Committee on Courses and General Education – University (Academic Senate) (2019-20)
- Graduate Committee (chair) – Department of Geography (2017-21)
- GIS Dangermond Endowed Chair Search Committee – Department of Geography (2019-20)
- Spatial Data Science Search Committee (chair) – Department of Geography (2017-18, 2018-19)
- UCGIS delegate – University / Department of Geography (2017-present)
- Central Recruitment Fellowship Committee – University (Graduate Division) (2016-17)
- Web subcommittee – Department of Geography (chair 2016-18, 2018-19)
- Chair’s Advisory Committee – Department of Geography (2016-17)
- Graduate Core Curriculum – Department of Geography (2016-17)
- Strategic and FTE Planning – Department of Geography (2016-17)
- Strategic Planning – Department of Geography (2018-19)
- Computing & Information Systems – Department of Geography (2016)
- Visibility/Outreach/Diversity/Development – Department of Geography (2016)
- Curriculum – Department of Geography (2016)
- Colloquia – Department of Geography (1994-95)

### Drexel University

- Data Science Faculty Search Committee (chair) – Department of Information Science (2015)
- Undergraduate Curriculum Committee – Department of Information Science (2015)

Strategic Planning Committee – College of Computing and Informatics (2015)

Finance Committee – College of Computing and Informatics (2015)

#### Arizona State University

UCGIS representative – University / School of Geographical Sciences and Urban Planning (2014)

Scholarships/Awards Committee – School of Geographical Sciences and Urban Planning (2014)

Executive Committee – School of Geographical Sciences and Urban Planning (2010-2011)

GIS and Spatial Analysis Faculty Search Committee (chair) – School of Geographical Sciences and Urban Planning (2010, 2011)

Ad hoc Bylaws Committee – School of Geographical Sciences and Urban Planning (2009)

Graduate Studies Committee – School of Geographical Sciences and Urban Planning (2009-2014)

Colloquia Committee (chair) – School of Geographical Sciences and Urban Planning (2008-2014)

#### The Ohio State University

Senate Government Affairs Committee – University (2007-2008)

Personnel Committee – Department of Geography (2006-2008)

Spatial Analysis and Modeling Faculty Search Committee (chair) – Department of Geography (2005)

GIS Faculty Search Committee – Department of Geography (2004)

College of Social and Behavioral Sciences ad hoc Clinical Faculty Committee – University (2004)

University Scholar Maximus Competition – University (2003, 2004)

Office of International Affairs Graduate Student Travel Grants – University (2002, 2003)

Infrastructure Committee (chair) – Department of Geography (2002-2008)

GIScience Faculty Search Committee – Department of Geography (2002)

Graduate Studies Committee – Department of Geography (2001-2004)

Denman Undergraduate Research Forum – University (2001, 2002)

Speakers Committee – Department of Geography (1999-2002)

## 9. Workshops

2015 National Academies of Science, Committee on National Statistics. Rationalizing Rural Area Classifications (sponsored by Economic Research Service, U.S. Department of Agriculture). Washington, D.C., USA. April 16-17, 2015.

2010 Santa Fe Institute. Emergent Properties and Resilience of Interacting Networks. Santa Fe, New Mexico, USA. June 21-23, 2010.

2010 National Research Council. Workshop on New Research Directions for the National Geospatial-Intelligence Agency. Washington, D.C., USA. May 17-19, 2010.

## **10. Outreach, Extension and Continuing Education**

Association for Women in Math (UCSB chapter), February 24, 2021.

Laguna Blanca School (high school), Santa Barbara, California. September 2019-June 2020. Introduced GIS and spatial analysis as part of independent study at this local high school.

Brophy College Preparatory (high school), Phoenix Arizona. September 2011-May 2012. Lectures, workshop and tutorials with teachers and students introducing GIS in mathematics, statistics and science courses at this local high school.

Instructor, Geographical methods in public transit planning (sponsored by United Arab Emirates Department of Transport. Abu Dhabi, United Arab Emirates. April 30 – May 1, 2009. The workshop had approximately 40 attendees.

Instructor, Spatial optimization and GIS (sponsored by Università degli Studi di Milano, University of Milan, and Politecnico of Milan). Milan, Italy. January 29 – February 2, 2007. The seminar had approximately 25 researchers and students.

Instructor, Spatial Perspectives on Analysis for Curriculum Enhancement (SPACE) program through Center for Spatially Integrated Social Science (CSISS) - “GIS & Spatial Modeling for Use in Undergraduate Education.” Columbus, Ohio, USA (June 28 - July 2, 2004; July 10-15, 2005; June 18-23, 2006; June 18-23, 2007). SPACE and CSISS are funded by NSF and the workshop had approximately 30 U.S. and international participants each year.

Instructor, Center for Spatially Integrated Social Science (CSISS) Workshop - “Accessibility in Space and Time: A GIS Approach.” Columbus, Ohio, USA (July 16-20, 2001; July 22-26, 2002; July 7-11, 2003). CSISS is funded by NSF and the workshops had approximately 30 U.S. and international participants each year.

## **11. Professional Society Membership**

American Association for the Advancement of Science  
American Association of Geographers  
American Planning Association  
Association of Collegiate Schools of Planning  
Institute for Operations Research and the Management Sciences  
North American Regional Science Association  
Regional Science Association International  
Society of American Foresters  
Western Regional Science Association