

# Xiaobai Angela Yao

Professor of Geography

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## ACADEMIC POSITIONS

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Professor Department of Geography, University of Georgia, USA. Aug. 2016 - present  
Associate Professor Department of Geography, University of Georgia, USA. Aug. 2008 – Jul. 2016  
Assistant Professor Department of Geography, University of Georgia, USA. Aug. 2002 – Jul. 2008

### Guest positions

Guest Professor, Department of Geography and Regional Research, University of Vienna, Austria. May -July 2017  
Visiting Professor, Department of Urban Planning and Design, Tsinghua University, China. July – December 2011

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## EDUCATION

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Ph.D. Geography, 2002. University at Buffalo, the State University of New York, USA  
M.S. GIS and urban analysis, 1997. Twente University (formerly ITC), the Netherlands  
B.S. GIS and urban planning, 1990. Wuhan University (formerly WTUSM), China

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## PUBLICATIONS

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### BOOK

Jiang, B. and **X. Yao**. (eds) 2010. *Geospatial Analysis and Modelling of Urban Structure and Dynamics*. In GeoJournal Library Book Series. Dordrecht, the Netherlands: Springer. ISBN: 9048185718.  
<https://link.springer.com/book/10.1007/978-90-481-8572-6>

### JOURNAL ARTICLES (graduate advisees underlined, \*corresponding author)

Tahmasbi, B., F. Roozkhosh, **X.A. Yao**. (2024). Encounter Network and its application to study epidemic spreading. *Transportation Research Record*. (Accepted)

Tian, Y., **Yao, X.A.\***, Madden, M. Grundstein, A. (2023). Synergic effects of meteorological factors on urban form-outdoor exercise relationship: A study with crowdsourced data. *Journal of Geographical System*. <https://doi.org/10.1007/s10109-023-00424-x>

**Yao, X.A.\***, A. Crooks, B Jiang., J. Krisp, X. Liu, H. Huang. (2023). An Overview of Urban Analytical Approaches to Combating the Covid-19 Pandemic. *Environment and Planning B: Urban Analytics and City Science*. 50(5):1133-1143. <https://doi.org/10.1177/23998083231174748>

Yang, H., **X.A. Yao\***, R. Liu, C. Whalen. (2023). Developing a place-time-specific transmissibility index to measure and examine the spatiotemporally varying transmissibility of COVID-19. *Annals of the American Association of Geographers*. 113(6):1419-1443. <https://doi.org/10.1080/24694452.2023.2182758>. (Received *The Globe Award for Methodological Advancement* from the Department of Geography, University of Georgia).

- Tian, Y., Wang, A., Mora, S., deSouza, P., **Yao, X.**, Duarte, F., Lin, H., & Ratti, C. (2023). Improving NO<sub>2</sub> prediction by integrating tree diversity, urban form, and scale sensitivity through mobile monitoring. *Applied Geography*. 154:102943. <https://doi.org/10.1016/j.apgeog.2023.102943>
- Wei, X., & **Yao, X.** (2022). A GIS representation framework for location-based social media activities. *Transactions in GIS*. 26(3) : 1444 -1464. <https://doi.org/10.1111/tgis.12929>
- Tian, Y., deSouza, P., Mora, S., **Yao, X.**, Duarte, F., Norford, L. K., Lin, H., Ratti, C. (2022). Evaluating the Meteorological Effects on the Urban Form–Air Quality Relationship Using Mobile Monitoring. *Environmental Science & Technology*. 56(11):7328-7336. <http://doi:10.1021/acs.est.1c04854>
- Tian, Y., & **Yao, X.\***. (2022). Urban form, traffic volume, and air quality: A spatiotemporal stratified approach. *Environment and Planning B: Urban Analytics and City Science*, 49(1), 92–113. <https://doi.org/10.1177/2399808321995822>
- Oh, D., **Yao, XA\*** (2021). Geo-Information Assessing Place Type Similarities Based on Functional Signatures Extracted from Social Media Data. *ISPRS International Journal of Geo-Information* 10 (9), 626. <https://doi.org/10.3390/ijgi10090626>
- Huang, H., **Yao, X. A.**, Krisp, J. M., & Jiang, B. (2021). Analytics of location-based big data for smart cities: Opportunities, challenges, and future directions. *Computers, Environment and Urban Systems*, 90, 101712. <https://doi.org/10.1016/J.COMPENVURBSYS.2021.101712>
- Fan Q., X.A. **Yao XA**, X. Han. 2021 Spatial variation and disparity in female breast cancer relative survival in the United States. *Cancer*. doi: <http://doi.org/10.1002/cncr.33801>.
- Wei, X., **X. Yao\***. 2021. Constructing and analyzing spatial-social networks from location-based social media data. *Cartography and Geographic Information Science* 48(3):258-274. <https://doi.org/10.1080/15230406.2021.1891974>
- Liu, R., **X.Yao**, C. Guo & X. Wei. 2021. Can we forecast presidential election using twitter data? An integrative modelling approach, *Annals of GIS*, 27(1):43-56. DOI: [10.1080/19475683.2020.1829704](https://doi.org/10.1080/19475683.2020.1829704). (Received the 1<sup>st</sup> place *Most Downloaded Paper Award* and 3<sup>rd</sup> Place *Best Paper Award* of the journal in 2021).
- Mertzlufft, C. E., M. Madden, N. Gottdenker, J. Runk, A. Saldana, S. Tanner, J. Calzada, **X. Yao**. 2020. Landscape disturbance impacts on *Attalea butyracea* palm distribution in central Panama. *International Journal Of Health Geographics* 19, 58(2020). doi:[10.1186/s12942-020-00244-y](https://doi.org/10.1186/s12942-020-00244-y)
- Tian, Y. **X.Yao\***, L .Mu. Q. Fan. Y. Liu. 2020. Integrating meteorological factors for a better understanding of the urban form-air quality relationship. *Landscape Ecology*. 35(10): 2357-2373. <https://doi.org/10.1007/s10980-020-01094-6>
- Liu, G., **X Yao**, Q. Fan. 2020. Agglomeration centrality examination of cities: an urban transport perspective. *Sustainable Cities and Society*. 61:102273. <https://doi.org/10.1016/j.scs.2020.102273>
- Rickless, D. **Yao, X\***. Orland, B. Welch-Devine, M. 2020. Assessing social vulnerability through a local lens: An integrated geovisual approach. *Annals of the American Association of Geographers*. 110(1): 36-66. <https://doi.org/10.1080/24694452.2019.1625750>
- Pei, Y. **X.Yao**, A.Dang. 2019. Child-friendliness of urban neighborhood from a Healthy-City perspective. *Urban Development Studies*. ISSN: 1006-3862. 2019 (4):69-78.
- Mutembo, S., Mutanga, J.N., Musokotwane, K., Kanene, C., Dobbin, K. **X. Yao**, Li, C., Marconi, V.C., Whalen, C. 2019. Urban-rural disparities in treatment outcomes among recurrent TB cases in Southern Province, Zambia. *BMC Infectious Disease* 19, 1087. doi:10.1186/s12879-019-4709-5

- Liu, G\*. **X. Yao\***, Z. Luo, S. Kang, W. Long, Q. Fan, P. Gao. 2019. Agglomeration Centrality to examine spatial scaling law in cities. *Computers, Environment and Urban Systems*. 77:101357. <https://doi.org/10.1016/j.compenvurbsys.2019.101357>
- Yao, X\***, Huang, H., Jiang, B., & Krisp, J. M. 2019. Representation and analytical models for location-based big data. *International Journal of Geographical Information Science*, 33(4): 707-713. doi: [10.1080/13658816.2018.1562068](https://doi.org/10.1080/13658816.2018.1562068)
- Tian, Y\*, **X. Yao\***, L. Chen\*. 2019. Analysis of spatial and seasonal distributions of air pollutants by incorporating urban morphological characteristics. *Computers, Environment and Urban Systems*. 75:35-48. <https://doi.org/10.1016/j.compenvurbsys.2019.01.003>
- Xi, D\*. Q. Fan\*, **X. Yao\***, W. Jiang\*, D. Duan\*. 2016. A visual salience model for wayfinding in 3D virtual urban environments. *Applied Geography*. 75: 176-187. <http://dx.doi.org/10.1016/j.apgeog.2016.08.014>
- Sahoo K, G.L. Hawkins, **X.A.Yao**, K.Samples, S. Mani. 2016. GIS-based biomass assessment and supply logistics system for a sustainable biorefinery: A case study with cotton stalks in the Southeastern US. *Applied Energy*. 182:260-273. <http://dx.doi.org/10.1016/j.apenergy.2016.08.114>
- Wei, X\*, and **X.Yao**. 2015. 3D model construction in an urban environment from sparse LiDAR points and aerial photos – a statistical approach. *Geomatica*. 69(3): 271-284. DOI:10.5623/cig2015-302
- Chen, A\*., **X.A.Yao**, R.Sun, & L. Chen. 2014. Effect of urban green patterns on surface urban cool islands and its seasonal variations. *Urban Forestry & Urban Greening*. 13(4):646-654. DOI:10.1016/j.ufug.2014.07.006
- Wei, X. and **X.Yao**. 2014. A Hybrid GWR-Based Height Estimation Method for Building Detection in Urban Environments. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 2(2):23-29. DOI: 10.5194/isprsannals-II-2-23-2014
- Wei, X. and **X.Yao**. 2014. Random Walking Value for Ranking Spatial Characteristics in Road Networks. *Geographical Analysis* 46(4):411-434. DOI: 10.1111/gean.12064
- Yao, X.** and S. Zhang. Social-spatial structure of Beijing: a spatial-temporal analysis. 2014. *International Journal of Society System Science* 6(1):18-33. DOI: 10.1504/IJSSS.2014.059923
- Jang, W. and **X.Yao**. 2014. Track Ethnically Divided Commuting Patterns Over Time – Method and a Case Study of Metropolitan Atlanta. *Professional Geographer*. 66(2):274-283. DOI: 10.1080/00330124.2013.784952
- Jang, W. and **X. Yao**. 2011. Interpolating Spatial Interaction Data. *Transactions in GIS*. 15(4):541-555. DOI: 10.1111/j.1467-9671.2011.01273.x (received **Best Student Paper award** at the 2010 UCGIS Symposium)
- Coleman, J.B. **X. Yao**, T. Jordan, and M. Madden. 2011. Holes in the Ocean: Filling Voids in Bathymetric Lidar Data. *Computers and Geosciences*. 37 (4):474-484. doi:10.1016/j.cageo.2010.11.008
- Shen, Z., **X.A.Yao**, M. Kawakami, P.Chen. 2011. Simulating spatial market share patterns for impacts analysis of large-scale shopping center on downtown revitalization. *Environment and Planning B: Planning and Design* 38(1):142-162. DOI: 10.1068/b35138
- Kim, H. and **X. Yao**. 2010. Pycnophylactic interpolation revisited: integration with dasymetric method. *International Journal of Remote Sensing*. 31(21):5657-5671. DOI:10.1080/01431161.2010.496805
- Yao, X.** and Jiang, B. 2009. Geospatial Modeling of Urban Environments. Editorial. *Environment and Planning B: Planning and Design*. 36(5):769-771. doi:10.1068/b3605ged
- Yao, X.** and L. Zou. 2008. Interoperable Internet Mapping - An Open Source Approach. *Cartography and Geographic Information Science*. 35(4):279-293. DOI:10.1559/152304008786140560

- Yao, X.** 2007. Where are public transit needed? - Examining potential demand for public transit for commuting trips. *Computers, Environment, and Urban Systems*. 31(5):535-550. doi:10.1016/j.compenvurbsys.2007.08.005. (Note: The journal article has been invited for reprint in one edited book)
- Yao, X.** and J.C. Thill. 2007. Neuro-Fuzzy Modeling of Context-Contingent Proximity Relations. *Geographical Analysis: An International Journal of Theoretical Geography*. 39(2):169-194. DOI: 10.1111/j.1538-4632.2007.00700.x
- Jiang, B. and **Yao, X.** 2006. Location-Based Services and GIS in Perspective. *Computers, Environment and Urban Systems*. 30(6): 712-725. doi:10.1016/j.compenvurbsys.2006.02.003 (Note: The journal article has been invited for reprints in two edited books).
- Yao, X.** and Thill, J.C. 2006. Spatial Queries With Qualitative Locations In Spatial Information Systems. *Computers, Environment and Urban Systems*. 30(4):485-502. doi:10.1016/j.compenvurbsys.2004.08.001
- Yao, X.** and Thill, J.C. 2005. How Far Is Too Far – A Statistical Approach To Proximity Modeling. *Transactions in GIS*. Vol. 9(2): 157-178. DOI: 10.1111/j.1467-9671.2005.00211.x
- Yao, X.** and B. Jiang. 2005. Visualization of Qualitative Locations. *Cartography and Geographic Information Science*. 32(4):219-229. DOI:10.1559/152304005775194683
- Yao, X.** 1993. Analyzing the GIS Data Structures for Urban Planning, *Shanghai Urban Planning* (in Chinese).

## PREPRINT

- Dai, H., Li, Y., Liu, Z., ... Yao, X., ... & Liu, T. (2023). AD-AutoGPT: An Autonomous GPT for Alzheimer's Disease Infodemiology. [10.48550/ARXIV.2306.10095](https://doi.org/10.48550/ARXIV.2306.10095)

## PEER-REVIEWED BOOK CHAPTERS and CONFERENCE PAPERS (graduate advisees underlined)

- Tahmasbi, B., Roozkhosh, F., & **Yao, X. A.\*** (2023). Assessing Epidemic Spreading Potential with Encounter Network (Short Paper). In *12th International Conference on Geographic Information Science (GIScience 2023)*. Schloss Dagstuhl-Leibniz-Zentrum für Informatik. <https://doi.org/10.4230/LIPIcs.GIScience.2023.70>
- Yao, X.** 2021. Spatial Queries. Geographic Information Science & Technology Body of Knowledge (BoK). (gisbok.ucgis.org).
- Fan, Q., **X.Yao**. A. Dang. 2020. Spatio-temporal Analysis and Data Mining of the 2014-2016 Ebola Virus Disease Outbreak in West Africa. In Y. Lu., & E. Delmelle (Eds.), *Geospatial Technologies for Urban Health*. Springer. pp.181-208.
- Wei, X. and **X. Yao\***. 2018. A Conceptual Framework for Representation of Location-based Social Media Activities. In Winter, S., Sester, M., Griffin, A. (Eds.), *Proceedings 10th International Conference on Geographic Information Science (GIScience 2018)*, LIPICs Vol. 114. ISBN 978-3-95977-083-5. DOI: [10.4230/LIPIcs.GISCIENCE.2018.62](https://doi.org/10.4230/LIPIcs.GISCIENCE.2018.62)
- Brown, C. and **X. Yao**. 2015. Development of a Nationwide Road Change Database for the U.S. in the Post-Recession Years (2008–2012). Chapter 10. In Francis Harvey and Yee Leung (eds) *Advances in Spatial Data Handling and Analysis*. 2015. Springer. pp.163-181.
- Shen, Z., **X.Yao**, M. Kawakami, P. Chen, M. Koujin. 2012. Integration of MAS and GIS using Netlogo. In Z.Shen (eds) *Geospatial Techniques in Urban Planning*, *Advances in Geographic Information Science*. Berlin: Springer-Verlag. pp.369-388.
- Yao, X.** 2010. Modeling and analyzing cities as spatio-temporal places. In B.Jiang and X.Yao (eds) *Geospatial Analysis and Modelling of Urban Structure and Dynamics*. Dordrecht, the Netherlands: Springer. pp.311-328.

Jiang, B, and **X.Yao**. 2010. Geospatial Analysis and Modeling of Urban Structure and Dynamics: An Overview. In B.Jiang and X.Yao (eds) *Geospatial Analysis and Modelling of Urban Structure and Dynamics*. Dordrecht, the Netherlands: Springer.pp.3-11.

**Yao, X.** Qualitative Spatial Reasoning and GIS. 2009. In M. Madden (ed) *Manual of Geographic Information Systems*. 1<sup>st</sup> edition. ASPRS publisher. pp.71-86.

**Yao X.** 2009. Georeferencing, Geocoding. In Kitchin R, Thrift N (eds) *International Encyclopedia of Human Geography*, Volume 1, Oxford: Elsevier. pp. 458-465.

Shen, Z., **X.Yao**, M. Kawakami, M.Kojin. 2009. Simulating the impact of large-scale center location on downtown revitalization. *Proceedings of the 11<sup>th</sup> International Conference on Computers in Urban Planning and Urban Management*. Hongkong. June 16-18, 2009. Ed by A.G.O. Yeh and F. Zhang. Hong Kong : University of Hong Kong, 2009. ISBN 978-962-7589-0

Thill, J.C. Kretschmar, W.A., Casas, I. and **Yao, X.** 2007. Detecting geographic and socio-economic associations in English dialect features with self-organising maps. In Agarwal, P. and Skupin, A. (Eds) *Self-Organising Maps: Applications in Geographic Information Science*, West Sussex, UK: Wiley. pp87-106.

Thill, J.C. and **Yao, X.** 1999. Urban Land Management in Transitional Countries: A Decision Support Prototype for Shanghai. In J.C. Thill (ed) *Spatial Multicriteria Decision Making and Analysis: A Geographic Information Sciences Approach*, Brookfield, VT: Ashgate. pp. 175-197.

## GUEST-EDITED JOURNAL VOLUMES

**Yao, X.**, X. Liu, H. Huang, J. Krisp, B. Jiang. 2023. Urban analytical approaches to combatting Covid-19. Special Issue in *Environment and Planning B: Urban Analytics and City Science*. 50(5).

Huang, H. **Yao, X.** J. Krisp, B. Jiang. 2021. Geospatial big data for smart cities. Special issue in *Computers, Environment and Urban Systems*. Vol. 90

**Yao, X.** H. Huang, J. Krisp, B. Jiang. 2019. Representation and Analytical Models for Location-based Social Media Data and Tracking Data. Special Issue in *International Journal of Geographical Information Science*.

**Yao, X.** and B. Jiang, M. Madden, Y. Liu. 2016. New Insights Gained from Location-based Social Media Data. Special Issue in *Computers, Environment, and Urban Systems*.

**Yao, X.** and B. Jiang. 2009. Geospatial Modeling of Urban Environments. Special Issue in *Environment and Planning B: Planning and Design*. 36(5).

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## DISCIPLINARY SERVICES

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### SERVICE at PROFESSIONAL ASSOCIATIONS

**President (2023), President-Elect (2022), Vice-President (2021)**, Cartography and Geographic Information Society  
**Commission Chair (2015-2023)**, International Cartographic Association (ICA) Commission on Geospatial Analysis and Modeling

**UCGIS Board of Directors (2020 - 2023)**, University Consortium of Geographic Information Science

**UCGIS Delegate (2013- 2020)**, University Consortium of Geographic Information Science

### ORGANIZED/CO-ORGANIZED NATIONAL AND INTERNATIONAL CONFERENCES AND WORKSHOPS

- International Symposium on Location-Based Big Data and GeoAI. Aug. 12, 2023. Cape Town, South Africa.
- AutoCarto 2022. Nov.1-4, Redlands, USA. (Program co-chair)

- International Symposium, Geospatial Approaches to Combatting Covid-19, Dec. 13-14, 2021. Florence, Italy
- International Symposium on Location-based Big Data, July 15, 2019. Tokyo, Japan.
- Developing Georgia's Women Leaders in GIS – a one-day workshop. Sept. 30, 2018. Georgia Center of Continuing Education. Athens, GA, USA.
- International Symposium on Location-based Social Media and Tracking Data. July 1-2, 2017. Washington DC
- International Conference on Location-based Social Media Data. Athens, GA. Mar. 13-14, 2015.
- A Hands-on Workshop on Data Acquisition and Visual Analytics for Social Media Data. Pre-conference Workshop of ICLSM. March 12, 2015.
- Workshop on Spatial Analysis and Modeling 2007. Athens, GA, July 12-13. 2007.
- University Consortium of Geographical Information Science (UCGIS) Homeland Security Workshop. Dawsonville, GA. Nov. 6-7. 2003.

## **UGA COMMITTEES**

- University Council (2020-2023)
- University Program Review Committee (2022- 2024)
- Accelerate Faculty Mentoring Committee (2022-2023)
- Geography Department Curriculum Committee (2023-2024)
- Geography Department Technology Committee Chair (2020-2022)
- Geography Department Graduate Studies Committee Member (2020-2023)
- Geography Department Graduate Studies Committee Chair (2015-2018)