TAO TAO

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EDUCATION

Ph.D. candidate Urban and Regional Planning, University of Minnesota, 2022

Dissertation: Nonlinear and threshold relationships between built environment attributes and travel behavior.

Committee: Jason Cao (advisor), Greg Lindsey (co-advisor), Yingling Fan (chair), Petter Næss

M.S. candidate Statistics, University of Minnesota, 2022

M.E. Transportation Planning and Management, Southeast University, China, 2017

B.E. Traffic and Transportation, Southeast University, China, 2012

PROFESSIONAL APPOINTMENT

Graduate research assistant, University of Minnesota, 2017-2022

Graduate instructor, University of Minnesota, 2019, 2021, 2022

Planning intern, Minnesota Department of Transportation, 2019

AWARDS AND HONORS

IACP Karen R. Polenske Best Student Paper Award, 2022

Doctoral Dissertation Fellowship, University of Minnesota, 2021

Summer Fellowship, Humphrey School of Public Affairs, 2021

John S. Adams Award for Excellence in Transportation Research and Education, Center for Transportation Studies, 2021

Outstanding Reviewer for Transportation Research Part D: Transport and Environment, 2021

TRB Annual Meeting Travel Award, Center for Transportation Studies, 2018,2019,2020,2021

IACP Annual Meeting Travel Award, International Association for China Planning, 2018

Jiangsu Daqin Alumni Fellowship, Southeast University, 2015

China Road and Bridge Corporation Alumni Fellowship, Southeast University, 2011

PUBLICATIONS

(* indicates corresponding author)

Journal Articles

1. **Tao, T.***, Cao, J., 2022. Examining motivations for owning autonomous vehicles: Implications for land use and transportation. *Journal of Transport Geography* 102, 103361. [Link]
2. **Tao, T.***, Cao, J., 2021. Exploring the interaction effect of poverty concentration and transit service on highway traffic during the COVID-19 lockdown. *Journal of Transport and Land Use* 14(1), 1149–1164. [Link]
3. **Tao, T.**, Lindsey, G.*, Cao, J., Wang, J., 2021. The effects of pedestrian and bicycle exposure on crash risk in Minneapolis. *Journal of Transport and Land Use*. [Link]
4. **Tao, T.**, Cao, J.*, Wu, X., 2021. The road less traveled: Does rail transit matter? *Journal of Planning Education and Research*. [Link]

5. **Tao, T.**, Wu, X., Cao, J.*, Fan, Y., Das, K., Ramaswami, A., 2020. Exploring the non-linear relationship between the built environment and active travel in the Twin Cities. *Journal of Planning Education and Research*. [Link]
6. **Tao, T.***, Wang, J., Cao, X., 2020. Exploring the non-linear associations between spatial attributes and walking distance to transit. *Journal of Transport Geography* 82, 102560. [Link]
7. Wu, X., **Tao, T.**, Cao, J.*, Fan, Y., Ramaswami, A., 2019. Examining threshold effects of built environment elements on travel-related carbon-dioxide emissions. *Transportation Research Part D: Transport and Environment* 75, 1–12. [Link]
8. Dou, X., Gong, X., Guo, X.*, **Tao, T.**, 2017. Coordination of feeder bus schedule with train service at integrated transport hubs. *Transportation Research Record: Journal of the Transportation Research Board* 2648, 103–110. [Link]

Under Review

1. **Tao, T.***, Cao, J., 2022. Collective influences of regional and local built environment characteristics on mode-specific distances. [1st-round]
2. **Tao, T.***, Næss, P., 2022. Exploring nonlinear built environment effects on driving in a small-city context. [Revise & resubmit]

Research Reports

1. Webb, A., **Tao, T.**, Khani, A., Cao, J., Wu, X., 2021. Impact of transitways on travel on parallel and adjacent roads and park-and-ride facilities. [Link]
2. Lindsey, G., **Tao, T.**, Wang, J., Cao, J., 2019. Pedestrian and bicycle crash risk and equity: implications for street improvement projects. [Link]
3. Tomhave, B., Zhang, Y., Khani, A., Hourdos, J., Dirks, P., Olsson, J., **Tao, T.**, Wu, X., Cao, J., 2018. After study of the bus rapid transit A Line impacts. Center for Transportation Studies, University of Minnesota. [Link]

RESEARCH EXPERIENCE

1. The values of dedicated right of way to transit ridership and carbon emissions, 2022-2021 (PI: Jason Cao; Investigator: **Tao Tao**), Sponsored by Metropolitan Council and Hennepin County, $75,000
2. Mobile-device data, non-motorized traffic monitoring, and estimation of annual average daily bicyclist and pedestrian flows, sponsored by Road Safety Institution, 2021
3. Connecting the smart-city paradigm with a sustainable urban infrastructure systems framework to advance equity in communities, sponsored by National Science Foundation, 2020
4. Impact of transitways on travel on parallel and adjacent roads and park-and-ride facilities, sponsored by Minnesota Department of Transportation, 2019-2020
5. Exploring the pedestrian and bicycle crash risk in highway intersections: systemic approach applied in the Twin Cities metro area, sponsored by Minnesota Department of Transportation, 2019
6. Pedestrian and bicycle crash risk and equity: implications for street improvement projects, sponsored by Minnesota Department of Transportation, 2018
7. Integrated urban infrastructure solutions for environmentally sustainable, healthy and livable cities, sponsored by National Science Foundation, 2018

8. After study of the bus rapid transit A Line impacts, sponsored by Minnesota Department of Transportation, 2017

TEACHING EXPERIENCE

Independent Instructor

1. PA 5234 Urban Transportation Planning and Policy, Spring 2021
2. PA 5928 Data Management and Visualization with R, Fall 2019, Spring 2021, Spring 2022

Guest Speaker

3. PA 5290 Topics in Planning: Transportation Engineering Principles for Planners, Spring 2022
4. PA 5234 Urban Transportation Planning and Policy, Spring 2022
5. PA 5231 Transit Planning and Management, Fall 2020
6. PA 5205 Statistics for Planning, Spring 2020
7. PA 5234 Urban Transportation Planning and Policy, Spring 2020
8. PA 8202 Networks and Places: Transportation, Land Use, Design, Spring 2019

PRESENTATIONS AND TALKS

Conference Presentations

1. Nonlinear and threshold associations of built environment attributes with travel behavior. In: 2022 TRB Annual Conference.
2. Collective influences of regional and local built environment characteristics on mode-specific distances. In: 2022 TRB Annual Conference.
3. Examining motivations for owning autonomous vehicles: Implications for land use and transportation. In: 2022 TRB Annual Conference.
4. Exploring the nonlinear and threshold effects of the built environment on driving behavior with a mixed-method approach. In: 2022 TRB Annual Conference.
5. Examining the motivations for the willingness to own autonomous vehicles in the Twin Cities. In: 2021 Annual CTS Transportation Research Conference.
6. Exploring nonlinear relationships with machine learning. Roundtable panelist. In: 2021 ACSP Annual Conference.
7. Examining the motivations for the willingness to own autonomous vehicles in the Twin Cities. In: 2021 ACSP Annual Conference.
8. Exploring nonlinear relationships with machine learning. Roundtable panelist. In: 2021 IACP Annual Conference.
9. Exploring the heterogeneous nonlinear effects of built environment attributes on driving, transit use, and active travel. In: 2021 IACP Annual Conference.
10. Examining the motivations for the willingness to own autonomous vehicles in the Twin Cities. In: 2021 IACP Annual Conference.
11. Exploring the interaction effect of poverty concentration and transit service on highway traffic during the COVID-19 lockdown. In: 2021 WSTLUR Annual Conference.
12. The road less traveled: Does rail transit matter? In: 2020 ACSP Annual Conference.
13. The road less traveled: Does rail transit matter? In: 2020 Bridging Transportation Researchers Conference.

14. Exploring the pedestrian and bicycle crash risk in highway intersections: systemic approach applied in the Twin Cities metro area. In: 2020 TRB Annual Conference.
15. Exposure, crash risk, and equity: models of pedestrian and bicycle crashes in Minneapolis. In: 2020 TRB Annual Conference.
16. How does built environment affect activity space of people living in different income level areas? In: 2019 Annual CTS Transportation Research Conference.
17. New methods for accessing pedestrian and bicycle exposure to risk, crash risk, and equity. In: 2019 ACSP Annual Conference.
18. Pedestrian and bicycle crashes in Minneapolis: an equity perspective. In: 2019 Minnesota Transportation Conference.
19. Exploring the non-linear relationship between built environment characteristics and people's active travel. In: 2019 TRB Annual Conference.
20. Methods and measures for assessing pedestrian exposure to risk, crash risk, and equity. In: 2018 Annual CTS Transportation Research Conference.
21. Exploring nonlinear influences of built environment characteristics on carbon emissions of daily travel in Minneapolis. In: 2018 ACSP Annual Conference.
22. Exploring built environment correlates of walking distance of transit access in the Twin Cities: A Machine Learning Approach. In: 2018 IACP Annual Conference.
23. Analysis of operating patterns of the public bicycling sharing system in the Twin Cities. In: 2018 Sharing Economy Research Forum.
24. Operating characteristics of a public bicycle sharing system based on the status of stations: a case study in Nanning City, China. In: 2017 TRB Annual Conference.
25. Path to success: investment and public opinions are reforming the taxi industry in China. In: 2017 TRB Annual Conference.

Invited Talks

1. Exploring nonlinear built environment effects on driving with a mixed-methods approach. By: Southwest Jiaotong University, 2022.
2. Examining threshold effects of built environment elements on travel-related carbon-dioxide emissions. By: Kunming University of Science and Technology, 2022.
3. Examining threshold effects of built environment elements on travel-related carbon-dioxide emissions. By: Chang'an University, 2021.
4. Threshold effects of urban form on travel and associated carbon emissions. By: Climate Change AI, 2021.
5. Exploring the nonlinear relationship between the built environment and active travel in the Twin Cities. By: Southeast University, 2021.
6. Non-linear and threshold effects in land use and transportation research. By: Beijing Jiaotong University, 2020.
7. The road less traveled: Does rail transit matter? By: Peking University, 2020.

PROFESSIONAL ORGANIZATIONS

International Association for China Planning: Board of Directors, 2021-2023

Association of Collegiate Schools of Planning: Student Member, 2017-present

Transportation Research Board Standing Committee on Economic Development and Land Use, Standing Committee on Bicycle Transportation, Standing Committee on Traveler Behavior and Values: Friend

PROFESSIONAL SERVICES

Journal Referee

- Transportation Research Part D
- Journal of Transport and Geography
- Transportation
- Journal of Public Transportation
- Urban Studies
- Journal of Transport and Land Use
- Sustainable Cities and Society
- Energy for Sustainable Development
- Journal of Asian Architecture and Building Engineering

Conference Referee

- Transportation Research Board Annual Meeting
- COTA International Conference of Transportation Professionals
- World Symposium on Transport and Land Use Research
- Bridging Transportation Researchers Conference

Grant Referee

- Climate Change AI Innovation Grants Program

SKILLS

Data analysis, modeling, and visualization: R, Python, STATA

Spatial data analysis and visualization: sf (R), geopandes (Python), ArcGIS

Transportation modeling: AimSun

Web application development: PHP, MySQL