

Meiyu (Melrose) Pan

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Website | GitHub | Google Scholar

EDUCATION

- 2019 – 2022 **University of Arizona**
Doctor of Philosophy in Civil Engineering
'Behavior Science Methods for Active Transportation Demand Management'
Chair: Dr. Alyssa Ryan
- 2018 – 2019 **University of Arizona**
Master of Engineering in Civil Engineering
- 2014 – 2018 **Tongji University**
Bachelor of Engineering in Transportation Engineering

RESEARCH INTERESTS

Transportation Data Analytics
Behavioral Science and Travel Demand Management
Geospatial Modeling
Cross-sector Energy Modeling

RESEARCH & WORK EXPERIENCE

- 2022 – **Oak Ridge National Laboratory** Knoxville, TN
PRESENT R&D Associate (2024-present), Transportation Analytics and Decision Sciences Group
Postdoctoral Research Associate (2022-2024)
- 2019 – 2022 **University of Arizona** Tucson, AZ
Graduate Assistant, Research, Center for Applied Transportation Sciences
Funded by Pima County Department of Transportation and Metropia, Inc.
- 2022 **WSP USA** San Diego, CA & Phoenix, AZ
Technical Service Intern, Systems Analysis Group
Assisted with the development and application of the City of San Diego travel demand models, focusing on policy optimization
- 2021 **Metropia, Inc.** Tucson, AZ
Transportation Engineer Intern
Assisted with traveler incentive design and behavioral response analysis

HONORS & AWARDS

- 2022 National Institute for Transportation and Communities Ph.D. Student of the Year Award
(Council of University Transportation Centers)
- 2024 Transportation Research Board Certificate of Appreciation (Strategic Planning Committee)
- 2023 Transportation Research Board Certificate of Appreciation (Transportation Demand Management Committee)
- 2021 3rd runner-up at Chinese Overseas Transportation Association Research Lightning Talk
- 2021 WTS Tucson Katie Dusenberry Scholarship
- 2019 WTS Metropolitan Phoenix AzTA Transit Planning Scholarship

- 2020 UArizona Jane Rider Scholarship
- 2018 Southern Arizona Logistics Education Organization Scholarship
- 2017 First Prize in Mathematical Modeling of Tongji University
- 2022 UArizona Graduate and Professional Student Council Travel Grant
- 2022 National Institute for Transportation and Communities Travel Support Award for the International Conference on Transport & Health 2022
- 2022 National Institute for Transportation and Communities Travel Support Award for Transportation and Development Conferences
- 2022 National Institute for Transportation and Communities Travel Support Award for Transportation Research Board 101st Annual Meeting
- 2020 National Institute for Transportation and Communities Travel Support Award for Transportation Research Board 99th Annual Meeting
- 2019 National Institute for Transportation and Communities Travel Support Award for Transportation Research Board 98th Annual Meeting

PUBLICATIONS

Refereed Journal Articles (*corresponding author)

11. **Pan, M.***, Wan, L., and Wang, CR. (2024) From roads to roofs: How urban and rural mobility influence building energy consumption. *Energy Research & Social Science*, 118:103800. <https://doi.org/10.1016/j.erss.2024.103800>
10. **Pan, M.*** and Ryan, A. (2024) A Systematic Review of Behavior Change Methods: Implications on Transportation Mode Shift. *Transportation Research Record*, 0(0). <https://doi.org/10.1177/03611981241274641>
9. **Pan, M.***, Uddin, M., and Lim, H. (2024) Understanding electric vehicle ownership using data fusion and spatial modeling. *Transportation Research Part D: Transport and Environment*, 127:104075. <https://doi.org/10.1016/j.trd.2024.104075>
8. **Pan, M.***, Wong, S., Tainter, F., Woelfel, S., and Ryan, A. (2024) Integrating equity in transportation scenario planning: A systematic review. *Transport Policy*, 145:85–95. <https://doi.org/10.1016/j.tranpol.2023.10.015>
7. **Pan, M.*** and Ryan, A. (2023) Developing a small participant framework: An investigation of mode choice influential factors. *Transportation Research Interdisciplinary Perspectives*, 22:100978. <https://doi.org/10.1016/j.trip.2023.100978>
6. Uddin, M., **Pan, M.***, and Hwang, HL. (2023) Factors influencing mode choice of adults with travel-limiting disability. *Journal of Transport & Health*, 33:101714. <https://doi.org/10.1016/j.jth.2023.101714>
5. **Pan, M.*** and Ryan, A. (2023) How to select distracted driving countermeasures evaluation metrics: A systematic review. *Journal of Transportation Safety & Security*, 1–31. <https://doi.org/10.1080/19439962.2023.2233104>
4. **Pan, M.*** and Ryan, A. (2023) Segmenting the Target Audience for Transportation Demand Management Programs: An Investigation between Mode Shift and Individual Characteristics. *International Journal of Sustainable Transportation*, 18(1):62–83. <https://doi.org/10.1080/15568318.2023.2201941>
3. **Pan, M.*** and Ryan, A. (2023) Equity in Active and Shared Transportation: An Investigation of Barriers and Individual and Contextual Factors. *Transportation Research Record*, 2677(5):1309–1329. <https://doi.org/10.1177/03611981221143106>
2. **Pan, M.*** and Ryan, A. (2022) Investigating Confirmation Bias in Transportation: An Analysis of Perceived Health Risk on Public Transit During the Pandemic. *Journal of Transport & Health*, 26:101485. <https://doi.org/10.1016/j.jth.2022.101485>

1. Arian, A., **Pan, M.***, and Chiu, Y-C. (2021) Personas: A Market Segmentation Approach for Transportation Behavior Change. *Transportation Research Record*, 2675(11):172-185. <https://doi.org/10.1177/03611981211028623>

Manuscripts Under Review (*corresponding author)

1. **Pan, M.*** and Ishamn, E. Interplay of Travel Time, Distance, and Speed Estimation in Transportation Mode Choice Decision-making. *Under Review by Transportation Research Record*.

Refereed Conference Papers (*corresponding author & presenter)

11. **Pan, M.***, Li, W., and Wang, CR. (2024) Modeling Electric Vehicle Charging Load Using Origin-Destination Data. Poster. *International Conference on Transportation & Development*, 15–18 June, Atlanta, Georgia. *International Conference on Transportation & Development Proceedings*, 265-275. <https://doi.org/10.1061/9780784485521.024>
10. **Pan, M.***, Brelsford, C., and Uddin, M. (2024) A Spatial-Temporal Analysis of Travel Time Gap and Inequality Between Transit and Personal Vehicles. Poster. *International Conference on Transportation & Development*, 15–18 June, Atlanta, Georgia. *International Conference on Transportation & Development Proceedings*, 554-564. <https://doi.org/10.1061/9780784485521.050>
9. Uddin, M.* and **Pan, M.** (2024) Unraveling Factors Influencing Mode Choice of Adults with Travel-Limiting Disabilities using Random Parameters Logit Modeling. Paper Number TRBAM-24-00134. Poster. *Transportation Research Board 103rd Annual Meeting*, 7–11 January, Washington, D.C.
8. **Pan, M.***, Uddin, M., and Lim, H. (2024) Evaluating Geospatial Patterns of Electric Vehicle Ownership Using Multi-Scale Geographically Weighted Method. Paper Number TRBAM-24-00807. Poster. *Transportation Research Board 103rd Annual Meeting*, 7–11 January, Washington, D.C.
7. **Pan, M.*** and Ryan, A. (2022) How likely will a mode shift occur? – Evaluating the demographic and location differences between potential and existing users of sustainable transportation modes. *Human Factors and Ergonomics Society Annual Meeting*, 10–14 October, Atlanta, Georgia. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 66(1):330–334. <https://doi.org/10.1177/1071181322661088>
6. **Pan, M.*** and Chiu, Y-C. (2022) How to Improve an Incentive Program's Lasting Effects? A perspective from an Early Exploration in Habit Forming. Paper Number TRBAM-22-04347. Poster. *Transportation Research Board 101st Annual Meeting*, 9–13 January, Washington, D.C. <https://doi.org/10.13140/RG.2.2.22934.83528>
5. **Pan, M.**, Huang, Z-R., and Chiu, Y-C.* (2021) Exploring the Opportunities of Using an Innovative Source of Origin-Destination Data in Regional Transportation Models. Paper Number 480. Presentation. *Pan-American Conference of Traffic and Transportation Engineering and Logistics*, 11–13 August, online.
4. **Pan, M.** and Chiu, Y-C.* (2021) Evaluating the Congestion Improvement Benefit of a Regional School Carpooling Program using Dynamic Traffic Assignment. Paper Number 469. Presentation. *Pan-American Conference of Traffic and Transportation Engineering and Logistics*, 11–13 August, online.
3. Arian, A., **Pan, M.***, and Chiu, Y-C. (2020) Inferring Individual's Activity And Trip Purpose From GPS Data Using Wavelet Decomposition And Kmeans. Paper Number 20-00600. Poster. *Transportation Research Board 99th Annual Meeting*, 12–16 January, Washington, D.C.
2. **Pan, M.**, Arian, A., and Chiu, Y-C.* (2019) Studying the Behavioral Transition of Navigation App Users Using Longitudinal Observation Data. Paper Number 19-03094. Poster. *Transportation Research Board 98th Annual Meeting*, 13–17 January, Washington, D.C. <https://doi.org/10.13140/RG.2.2.10771.35363>
1. **Pan, M.**, Li, X-F., Kluger, R.*, and Wu, Y-J. (2019) Red-Light Violation Identification Using GPS Trajectories. Paper Number 19-04471. Poster. *Transportation Research Board 98th Annual Meeting*, 13–17 January, Washington, D.C.

Project Reports

8. **Pan, M.**, Patwary, L., and Uddin, M. (2024) *Travel Patterns and Characteristics of Population in Rural Areas of New York State*. Oak Ridge National Laboratory (ORNL), Oak Ridge, TN.
7. **Pan, M.**, Uddin, M., Liu, Y., and Reuscher, T. (2024) *Travel Patterns and Characteristics of Low-Income Population in New York State: 2017 Update*. Oak Ridge National Laboratory (ORNL), Oak Ridge, TN. <https://doi.org/10.2172/2301664>
6. **Pan, M.** and Uddin, M. (2024) *The Utility of National Household Travel Survey Add-on Data for New York State*. Oak Ridge National Laboratory (ORNL), Oak Ridge, TN.
5. **Pan, M.** and Uddin, M. (2023) *A Comparison of Next-Generation National Household Travel Survey Origin-Destination Data and Replica Trip Data*. Oak Ridge National Laboratory (ORNL), Oak Ridge, TN.
4. **Pan, M.**, Uddin, M., Biehl, A., and Hwang, HL. (2023) *Alternative Fuel Vehicle Usage and Owner Demographics in New York State*. Oak Ridge National Laboratory (ORNL), Oak Ridge, TN. <https://doi.org/10.2172/1996693>
3. Litman, T. and **Pan, M.** (2023) *TDM Success Stories: Examples of Effective Transportation Demand Management Policies and Programs, and Keys to Their Success*. Victoria Transport Policy Institute. <https://www.vtpi.org/tdmss.pdf>
2. Chiu, Y-C., Åkesson, J., and **Pan, M.** (2022) *Incentivizing Active and Shared Travel Pilot Program Final Report*. Metropia, Inc. <https://mtc.ca.gov/digital-library/5030615-incentivizing-active-shared-travel-pilot-program-final-report>
1. Chiu, Y-C., **Pan, M.**, and Huang, Z-R. (2020) *Pima County Regional Dynamic Traffic Assignment Model*. The University of Arizona Department of Civil and Architectural Engineering and Mechanics.

RESEARCH GRANTS

Awarded

1. Ryan, A., Zhang, L., and **Pan, M. (Key Person)**. University of Arizona National Labs Partnerships Grants. “Bridging Gaps Towards a Sustainable Energy Future by Applying Human Factors in Transportation-Building Integration” 2024 – 2025, \$35,745.

Under Contract

1. Lim, H. and **Pan, M. (Co-PI)**. U.S. Department of Transportation, Office of Operations, Federal Highway Administration. “Freight Flow Evaluation Model” 2024 – 2029, \$997,593.

Under Review

1. Chow, J., Gao, J., Hu, XB., Di, Y., and **Pan, M. (Key Person)**. U.S. Department of Transportation, Mobility Equity Initiative. “Development of the National Equitable accEssibility Data Synthesis (NEEDS) Platform” 2024 – 2027, \$2,712,000.

Other Proposals Submitted

13. **Pan, M. (PI)**, Rodgers, M., and Uddin, M. U.S. Department of Transportation, Office of Clean Energy Demonstrations. “Real-Time Assessment Tool for Environmental and Health Impacts of OCED Projects” 2024 – 2027, \$1,125,000 .
12. Berlin, M., Adibhatla, V., and **Pan, M. (Key Person)**. U.S. Department of Transportation, Vehicle Technologies Office. “Resilient Electric School Bus Operations: A Smart Charge Management Tool for Optimized Charging, Discharging, Emergency Power Provision, and Battery Health Management” 2024 – 2027, \$3,029,000.

11. Kan, D., Wang, S., Levin, M., and **Pan, M. (Key Person)**. Joint Office of Energy and Transportation. "Towards more accessible charging infrastructure: Optimal and dynamic public destination charging network to accelerate EV adoption" 2024 – 2027, \$3,102,120.
10. **Pan, M. (PI)**, Liu, S., and Wang, Y. U.S. Department of Energy, Water Power Technologies Office. "Assessing the Feasibility of Small-Scale Hydropower for Resilient Disadvantaged Communities " 2024 – 2027, \$514,310.
9. Lewe, JH., Holloman-Hill, E., Potts, E., **Pan, M. (Primary Author)**, Grijalva, S., Duncan, S., Samadi, F., Carpenter, J., Ye, Y., Zhao, J., Wang, C., Pang, Z., and Hill, J. U.S. Department of Energy, Solar Energy Technologies Office. "Solar-Socio-Tech Dynamics Hub (SDH): A Comprehensive Approach to Large Scale Solar Siting Impact Assessment and Decision-Making" 2024 – 2027, \$3,192,000.
8. Sartipi, M., Li, W., **Pan, M. (Primary Author)**, Dubey, A., and Pugliese, P. U.S. Department of Energy, Vehicle Technologies Office. "Enhancing mobility and accessibility in rural areas: Design and operation of automated microtransit fleet" 2023 – 2026, \$3,234,000.
7. Uddin, M., **Pan, M. (Primary Author)**, Lim, H., Ou, S., Hasnine, S., and Ryan, A. U.S. Department of Energy, Vehicle Technologies Office. "A planning tool for equitable access to electric vehicle charging in multifamily dwellings" 2023 – 2025, \$3,000,000.
6. Ryan, A., Tainter, F., and **Pan, M. (Primary Author)**. AAA Foundation for Traffic Safety. "A comprehensive review on near-miss reporting: Key elements, challenges, and opportunities" 2022 – 2023, \$140,000.
5. Ryan, A. and **Pan, M. (Primary Author)**. The Economic and Business Research Center in the University of Arizona's Eller College of Management. "Evaluating the transportation equity of low-income housing in Southern Arizona" 2023, \$7,500.
4. Ryan, A. and **Pan, M. (Primary Author)**. U.S. DOT. "Reconnecting Rural Communities in Pima County through At-Grade Crossing Asset Management Collection and Plan Development" 2023 – 2025, \$200,000.
3. Ryan, A. and **Pan, M. (Primary Author)**. NCHRP Synthesis. "Practices to Promote Gender Equity in the DOT Workforce" 2022 – 2023, \$55,000.
2. Ryan, A. and **Pan, M. (Primary Author)**. NCHRP Synthesis. "DOT Practices on Road Safety Audits" 2022 – 2023, \$55,000.
1. Ryan, A. and **Pan, M. (Primary Author)**. AAA Foundation for Traffic Safety. "Distracted Driving Countermeasures that Work: A Comprehensive Analysis Considering Different Contexts" 2022 – 2023, \$100,000.

PRESENTATIONS

Invited Talks

9. **Pan, M.** (2023) Short Presentations: Efficient Information Summarization. *ORNL Career Forum*, 20 march, Knoxville, Tennessee.
8. **Pan, M.** (2023) Transportation Inequality Evaluation Method. *Vanderbilt University-Oak Ridge National Laboratory Climate Change and Environmental Justice Workshop*, Vanderbilt University, 9 October, Nashville, Tennessee.
7. **Pan, M.** (2023) Behavioral Science Research Gaps. *Transportation Demand Management Committee (AEP60) Workshop*, Transportation Research Board Annual Meeting, 9 January, Washington, D.C.
6. **Pan, M.** (2022) Understanding the Impact of Mental Biases in Transportation Decision-Making. *Center for Applied Transportation Sciences (CATS) Seminar*, Department of Civil & Architectural Engineering & Mechanics, University of Arizona, 16 November, Tucson, Arizona.

5. **Pan, M.** (2022) Systematic Behavior and Equity Analysis Framework. *Georgia Tech Doctoral Students Research Talk, Georgia Institute of Technology*, 10 October, Atlanta, Georgia.
4. **Pan, M.** (2022) The Relationship between Transportation Equity and Safety. *Arizona ITE-IMSA Annual Spring Conference*, 19 May, Phoenix, Arizona.
3. **Pan, M.** (2022) Segmenting the Target Audience for Travel Behavior Change Program. *Arizona Students' Transportation Summit, University of Arizona*, 30 April, online.
2. **Pan, M.** (2022) Persona Generation For Travel Demand Management Program. *Center for Applied Transportation Sciences (CATS) Seminar, Department of Civil & Architectural Engineering & Mechanics, University of Arizona*, 26 April, Tucson, Arizona.
1. **Pan, M.** (2021) Habit Formation Behavior Framework for Active Transportation Demand Management. *Center for Applied Transportation Sciences (CATS) Seminar, Department of Civil & Architectural Engineering & Mechanics, University of Arizona*, 26 October, Tucson, Arizona.

Conference & Annual Meeting Presentations Accepted by Abstract (*presenter(s))

9. **Pan, M.*** and Uddin, M. (2024) Temporal Evolution of Travel Time Gap Between Public Transit and Personal Vehicle and Their Inequality: An Analysis Using Census Transportation Planning Products Program Data. Poster. *Transportation Research Board 103rd Annual Meeting*, 9–13 January, Washington, D.C.
8. **Pan, M.** and Isham, E.* (2023) Estimated travel time, distance, and speed vary with mode of transportation. Poster. *Object Perception, Attention, & Memory (OPAM) Conference*, 16 November, San Francisco, California.
7. **Pan, M.*** and Ryan, A. (2023) Investigating the dynamic impact of the influencing factors on mode choice: A field application of transit use in Southern Arizona. Poster. *ASCE International Conference on Transportation & Development*, 16 June, Austin, Texas.
6. Bhandari, S.*, **Pan, M.**, and Ryan, A. (2023) Measuring Gender Equity: Best Practices Identified in Current Literature. Poster. *Presented at the Transportation Research Board 102nd Annual Meeting*, 8–12 January, Washington, D.C.
5. **Pan, M.*** and Ryan, A. (2023) Current Practices in Scenario Planning: What Works in Transportation and Adjacent Sectors. Poster. *Transportation Research Board 102nd Annual Meeting*, 8–12 January, Washington, D.C.
4. **Pan, M.*** (2023) Behavior Science Methods for Active Transportation Demand Management. Poster. *Transportation Research Board 102nd Annual Meeting*, 8–12 January, Washington, D.C.
3. **Pan, M.***, Ryan, A. (2022) Cutting Edge in Equity: Developing Equitable Practices in Transportation Engineering and Design. *Arizona Conference on Roads and Streets*, 29 September, Phoenix, Arizona
2. **Pan, M.*** and Ryan, A. (2022) The Impact of Confirmation Bias on Perceived Health Risk of Using Public Transit: An Evaluation during the Pandemic. Podium. *International Conference on Transport & Health (ICTH)*, 27–28 June, Denver, Colorado. [Link]
1. **Pan, M.*** and Ryan, A. (2022) Identifying the target audience: Exploring the characteristics of nudgeable people towards sustainable behavior change. Poster. *ASCE International Conference on Transportation & Development*, 2 June, Seattle, Washington.

TEACHING EXPERIENCE

Instructor

- FALL 2022 Guest Lecturer, Statistical Methods in Transportation Engineering (three lectures, in-person, 9 students total)
University of Arizona
This undergraduate and graduate course introduces students to using illustrations in draw.io and visualizing traffic data in R, Python, and QGIS
- FALL 2020 Instructor, DynusT Workshop (two sections, online, 10 staff total)
Pima County Department of Transportation
This training workshop introduces staff to use DynusT - a Dynamic Traffic Assignment software - to import, process and calibrate origin-destination data

SERVICE

Conference and Event Leadership

- 2024–2025 Lead Organizer, Career Forum, Oak Ridge National Laboratory
- 2025 Conference Session Chair, Transportation Research Board 104th Annual Meeting, *Leading Transportation Agencies to Improve Project Delivery*, 5–9 January, Washington, D.C.
- 2024 Conference Organizer, 32nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, *GIS-Cup Competition*, 29 October–1 November, Atlanta, Georgia
- 2024 Conference Session Chair, Transportation Research Board 103rd Annual Meeting, *Nontraditional Pathways to Leadership*, 7–11 January, Washington, D.C.
- 2023 Conference Session Chair, Association for Commuter Transportation (ACT) 37th Annual International Conference, *The premise of Behavioral Science in Transportation: A discussion of approaches, implementations, and future work*, 30 June–2 August, Seattle, Washington.
- 2019 Conference Session Chair, Student Challenge: Pima Association of Governments Teen Leadership Summit, 1 February, Tucson, Arizona

Professional Membership and Leadership

Transportation Research Board Standing Committee on Strategic Management (AJE10)

- 2023 – Committee Communications Coordinator
PRESENT

Transportation Research Board Standing Committee on Transportation Demand Management (AEP60)

- 2022 – Research Coordinator of the Behavioral Science Subcommittee
PRESENT

- 2022 – Annual Meeting Paper Handler
PRESENT

Transit Cooperative Research Program (TCRP)

- 2024 – Panel Member of TCRP Project B-56: Using Market Segmentation to Increase Transit Ridership:
PRESENT An Updated Handbook

National Cooperative Highway Research Program (NCHRP)

- 2024 – Panel Member of NCHRP Project 08-195: Developing a Guidebook on Use and Application
PRESENT of Demographic Data for Building Community Profiles
- 2023 – Panel Member of NCHRP Project 08-175: Understanding Travel Behavior Impacts of Trans-
PRESENT portation Systems Management and Operations

Journal Review Work

- 2023 – Statistical Editor, Transportation Research Record
PRESENT
- 2024 – Reviewer, Journal of Transport Geography
PRESENT
- 2024 – Reviewer, Energy Research and Social Science
PRESENT

Conference Referee Work

- 2023 International Workshop on Computational Transportation Science
- 2023 Transportation Research Board Innovations in Travel Analysis and Planning Conference
- 2022 International Conference on Transportation and Development
- 2022 Chinese Overseas Transportation Association (COTA) International Conference of Transportation Professionals
- 2021 – Transportation Research Board Annual Meeting
PRESENT
- Transportation Demand Management (AEP60)
- Effects of Information and Communication Technologies (ICT) on Travel Choices (AEP35)
- Urban Transportation Data and Information Systems (AED20)
- Road User Measurement and Evaluation (ACH50)
- Innovative Public Transportation Services and Technologies (AP020)

Public Service

- 2023 – 2024 Chair, Women in Science and Engineering Employee Resource Group, Oak Ridge National Laboratory
- 2023 Volunteer teaching assistant, Oak Ridge Computer Science Girls
- 2021 Volunteer, Research on Automated Analysis of Sustainable Development Goals, United Nations
- 2019 Volunteer, Traffic safety curriculum design for grades 2 – 5, Pima Association of Governments