# YIXUE ZHANG

Data Scientist | Travel Behaviour Analyst | Machine Learning in Mobility
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## SUMMARY

I am a data scientist specializing in travel behaviour, accessibility analysis, and transport equity. Experienced in applying machine learning, spatial analysis, and statistical modelling to multi-million record transportation datasets. Passionate about leveraging data-driven insights to improve mobility systems and user experience, especially for underserved populations. Skilled communicator with a strong academic publication record and cross-disciplinary collaboration experience.

## TECHNICAL SKILLS

Programming & Data Analysis: Python, R (machine learning, statistical modelling, data visualization), SQL
GIS & Spatial Analysis: ArcGIS Pro, ArcGIS Online, QGIS
Machine Learning: scikit-learn, clustering, regression, structural equation models
Office Suite (Excel, Powerpoint, Word)

## EDUCATION

**University of Toronto (Department of Geography & Planning)** Toronto, Canada
Ph.D. in Planning 2019.09-2023.11

**Peking University (College of Urban and Environmental Science)** Beijing, China
M.S. in Urban and Regional Planning 2016.09-2019.07

**Peking University (School of Economics)** Beijing, China
B.A. in Economics, majored in Public Finance 2012.09-2016.07

## WORK AND RESEARCH EXPERIENCE

**Data & Analytics Unit, Transportation Services, City of Toronto** 2023.11-present
Research Analyst – Permanent full time

Conducted analyses of the impacts of the vehicle-for-hire industry on the City of Toronto's Transportation Network. Analyzed more than 300 million vehicle-for-hire (Uber/Lyft) trip records from 2021-2024 to identify user travel patterns using machine learning techniques (e.g., clustering, regression modelling). I also applied spatial analysis tools to explore the accessibility and equity impacts of vehicle-for-hire services in Toronto.
Conducted spatial accessibility and equity analysis to inform transportation policy interventions targeting underserved neighbourhoods.
Developed machine learning models to predict areas with higher safety risks based on trip patterns and spatial characteristics.

**Doctoral Trainee, EPIC Lab, Holland Bloorview Kids Rehabilitation Hospital** 2021.02-2023.07
Analyzed operational data from an accessible taxi company (about 1 million trips) to understand the travel behaviour of people with disabilities in Toronto.
Applied multilevel regression models, cluster analysis, and spatial analysis to identify trip patterns, user characteristics, and COVID-19 pandemic impacts on mobility.
Generated actionable insights to inform policies aimed at improving transportation accessibility for people with disabilities.

**Research Assistant, Department of Geography & Planning, University of Toronto** 2019.09-2023.11
Designed a survey to explore the social impacts of Belleville's on-demand transit, which included 300 responses. Applied multiple imputations to address the missing values and employed structural equation models to analyze the factors influencing activity participation.

## PUBLICATIONS

Google Scholar

*Refereed Journal Articles*

1. **Zhang, Yixue**, Steven Farber, Mischa Young, Ignacio T. Aitken, and Timothy Ross. "Travel behaviour differences among people with disabilities: A cluster analysis of accessible taxi users before and during the COVID-19 pandemic." Journal of Transport & Health 35 (2024): 101753.
2. Alsaleh, Nael, Bilal Farooq, **Yixue Zhang**, and Steven Farber. " On-demand transit user preference analysis using hybrid choice models." Journal of choice modelling 49 (2023): 100451.
3. **Zhang, Yixue**, Steven Farber, Mischa Young, Ignacio T. Aitken, and Timothy Ross. "Exploring travel patterns of people with disabilities: a multilevel analysis of accessible taxi trips in Toronto, Canada." Travel Behaviour and Society 32 (2023): 100575.
4. Ledsham, Trudy, **Yixue Zhang**, Steven Farber, and Paul Hess. "Beyond downtown: factors influencing utilitarian and recreational cycling in a low-income suburb." International Journal of Sustainable Transportation (2022): 1-22.
5. Palm, Matthew, Jeff Allen, **Yixue Zhang**, Ignacio Tiznado-Aitken, Brice Batomen, Steven Farber, and Michael Widener. "Facing the future of transit ridership: shifting attitudes towards public transit and auto ownership among transit riders during COVID-19." Transportation (2022): 1-27.
6. Zhao, Pengjun, Dandan Yuan, and **Yixue Zhang**. "The Public Bicycle as a Feeder Mode for Metro Commuters in the Megacity Beijing: Travel Behavior, Route Environment, and Socioeconomic Factors." Journal of Urban Planning and Development 148, no. 1 (2022): 04021064.
7. **Zhang, Yixue**, Steven Farber, and Mischa Young. "Eliminating barriers to nighttime activity participation: the case of on-demand transit in Belleville, Canada." Transportation 49, no. 5 (2022): 1385-1408.
8. Palm, Matthew, Jeff Allen, Bochu Liu, **Yixue Zhang**, Michael Widener, and Steven Farber. "Riders who avoided public transit during COVID-19: Personal burdens and implications for social equity." Journal of the American Planning Association 87, no. 4 (2021): 455-469.
9. **Zhang, Yixue**, Pengjun Zhao, and Jen-Jia Lin. "Exploring shopping travel behavior of millennials in Beijing: Impacts of built environment, life stages, and subjective preferences." Transportation Research Part A: Policy and Practice 147 (2021): 49-60.
10. **Zhang, Yixue**, Matthew Palm, Jonathan Scheff, Steven Farber, and Michael Widener. "Travel survey recruitment through Facebook and Transit app: Lessons from COVID-19." Transport Findings (2020).
11. Zhao, Pengjun, and **Yixue Zhang**. "The effects of metro fare increase on transport equity: New evidence from Beijing." Transport Policy 74 (2019): 73-83.
12. Zhao, Pengjun, and **Yixue Zhang**. "Travel behaviour and life course: Examining changes in car use after residential relocation in Beijing." Journal of Transport Geography 73 (2018): 41-53.

*Academic Reports*

1. **Zhang, Yixue**, Steven Farber, and Mischa Young. "The Benefits Of On-Demand Transit In Belleville: Findings From A User Survey." (2020). https://hdl.handle.net/1807/100570

## CONFERENCE PRESENTATIONS

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| The American Collegiate Schools of Planning (ACSP) Annual Conference | 2018, 2020, 2022 |
| Transportation Research Board (TRB) Annual Meeting | 2021, 2023 |
| Conference on Sustainability and Emerging Transportation Technology (SETT) | 2022 |
| World Conference on Transport Research (WCTR) | 2023 |