

## ZHAO, ZHAN

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CONTACT INFORMATION	Rm 809, 8/F, Knowles Building The University of Hong Kong Pokfulam Road, Hong Kong	Tel: (852) 3917 6171 Mobile: (852) 9512 0322 Email: zhanzhao@hku.hk
RESEARCH INTERESTS	<ul style="list-style-type: none"><li>• Urban Computing and Spatiotemporal Data Mining</li><li>• Human Mobility and Travel Behavior</li><li>• Public Transit and Shared Mobility on Demand Systems</li><li>• Network Science and Graph Machine Learning</li></ul>	
EDUCATION	<p><b>Massachusetts Institute of Technology</b>, Cambridge, MA, USA Ph.D. Transportation, July 2018 Department of Civil and Environmental Engineering Thesis: <i>“Uncovering Individual Mobility Patterns from Transit Smart Card Data: Trip Prediction, Activity Inference, and Change Detection”</i> Committee: Jinhua Zhao, Haris Koutsopoulos, Nigel Wilson, Tamara Broderick</p> <p><b>University of British Columbia</b>, Vancouver, BC, Canada M.S. Civil Engineering, August 2013 Department of Civil Engineering</p> <p><b>Tongji University</b>, Shanghai, China B.E. Transportation Engineering, July 2011 College of Transportation Engineering</p>	
PROFESSIONAL EXPERIENCE	<p><b>The University of Hong Kong</b>, Hong Kong, China Assistant Professor Department of Urban Planning &amp; Design Faculty of Architecture</p> <p><b>Via Transportation, Inc.</b>, New York, NY, USA Senior Data Scientist</p> <p><b>SMART</b>, Singapore, Singapore Visiting Researcher</p> <p><b>IBM Research</b>, Dublin, Ireland Research Intern</p> <p><b>Transport for London</b>, London, UK Research Intern</p> <p><b>Translink</b>, Vancouver, BC, Canada Research Intern</p>	<p>07/2020-Present</p> <p>08/2018-06/2020</p> <p>06/2017-08/2017</p> <p>06/2016-09/2016</p> <p>06/2015-08/2015</p> <p>09/2012-11/2012</p>
JOURNAL PUBLICATIONS	<p>(* refers to the corresponding author)</p> <ul style="list-style-type: none"><li>• Liang, Y., and <b>Zhao, Z.*</b> (2021). NetTraj: A network-based vehicle trajectory prediction model with directional representation and spatiotemporal attention mechanisms. <i>IEEE Transactions on Intelligent Transportation Systems</i>.</li></ul>	

- Bi, W., Lu, W.\*, **Zhao, Z.**, and Webster, C. (2021). Combinatorial optimization of construction waste collection and transportation: A case study of Hong Kong. *Resources, Conservation & Recycling*
- Mo, B., **Zhao, Z.\***, Koutsopoulos, H. N., and Zhao, J. (2021). Individual mobility prediction in mass transit systems using smart card data: An interpretable activity-based hidden Markov approach. *IEEE Transactions on Intelligent Transportation Systems*.
- **Zhao, Z.\***, Koutsopoulos, H. N., and Zhao, J. (2020). Discovering latent activity patterns from transit smart card data: A spatiotemporal topic model. *Transportation Research Part C: Emerging Technologies*, 116, 102627.
- **Zhao, Z.**, and Zhao, J\*. (2020). Car pride and its behavioral implication: An exploration in Shanghai. *Transportation*, 47(2), 793-810.
- **Zhao, Z.**, Koutsopoulos, H. N., and Zhao, J\*. (2018). Detecting pattern changes in individual travel behavior: A Bayesian approach. *Transportation Research Part B: Methodological*, 112, 73-88.
- **Zhao, Z.**, Koutsopoulos, H. N., and Zhao, J\*. (2018). Individual mobility prediction using transit smart card data. *Transportation Research Part C: Emerging Technologies*, 89, 19-34.
- Goulet-Langlois, G., Koutsopoulos, H. N., **Zhao, Z.**, and Zhao, J\*. (2018). Measuring regularity of individual travel patterns. *IEEE Transactions on Intelligent Transportation Systems*, 19(5), 1583-1592.
- Zhao, J.\*, Frumin, M., Wilson, N. H., and **Zhao, Z.** (2013). Unified estimator for excess journey time under heterogeneous passenger incidence behavior using smartcard data. *Transportation Research Part C: Emerging Technologies*, 34, 70-88.
- Frumin, M., Zhao, J.\*, Wilson, N. H., and **Zhao, Z.** (2013). Automatic data for applied railway management: Case study on the London Overground. *Transportation Research Record: Journal of the Transportation Research Board*, 2353, 47-56.
- **Zhao, Z.**, Zhao, J.\*, and Shen, Q. (2013). Has transportation demand of Shanghai, China, passed its peak growth? *Transportation Research Record: Journal of the Transportation Research Board*, 2394, 85-92.

#### CONFERENCE PAPERS

- Liang, Y., and **Zhao, Z.** (2022). Unraveling spatial, temporal and behavioral factors affecting trip-level taxi cruising time using large-scale GPS trajectories. *Transportation Research Board 101st Annual Meeting*, Washington, DC.
- Li, J., and **Zhao, Z.** (2022). Impact of COVID-19 travel-restriction policies on road traffic accident patterns with emphasis on cyclists: A case study of New York City. *Transportation Research Board 101st Annual Meeting*, Washington, DC.
- **Zhao, Z.**, Koutsopoulos, H. N., and Zhao, J. (2018). Discovering latent activity patterns from human mobility. *The 7th ACM SIGKDD International Workshop on Urban Computing (UrbComp'18)*, London, UK.
- **Zhao, Z.**, Koutsopoulos, H. N., and Zhao, J. (2018). Detecting changes in individual travel behavior patterns. *Transportation Research Board 97th Annual Meeting*, Washington, DC.
- **Zhao, Z.**, Koutsopoulos, H. N., and Zhao, J. (2017). Mobility as a language: Predicting individual mobility in public transportation using n-gram models. *Transportation Research Board 96th Annual Meeting*, Washington, DC.
- **Zhao, Z.**, Zhao, J., and Koutsopoulos, H. N. (2016). Individual-level trip detection using sparse call detail record data based on supervised statistical learning. *Transportation Research Board 95th Annual Meeting*, Washington, DC.
- **Zhao, Z.**, and Zhao, J. (2015). Car pride: Psychological structure and behavioral implications. *Transportation Research Board 94th Annual Meeting*, Washington, DC.

	<ul style="list-style-type: none"> <li>• <b>Zhao, Z.</b>, Chua G., and Zhao, J. (2012). Evolution of trip chaining patterns in London from 1991 to 2010. <i>Innovations in Travel Modelling Conference</i>, Tampa, FL.</li> </ul>
BOOK CHAPTERS	<ul style="list-style-type: none"> <li>• <b>Zhao, Z.</b>, Koutsopoulos, H. N., and Zhao, J. (2019). Uncovering Spatiotemporal Structures from Transit Smart Card Data for Individual Mobility Modeling. Book chapter for <i>Demand for Emerging Transportation Systems</i>, 123-149.</li> </ul>
UNDER REVIEW	<ul style="list-style-type: none"> <li>• Liang, Y., Huang, G., and <b>Zhao, Z.*</b> (2021). Joint demand prediction for multi-modal systems: A multi-task multi-relational spatiotemporal graph neural network approach. <i>Transportation Research Part C: Emerging Technologies</i>. Submitted in December, 2021.</li> <li>• Liang, Y., <b>Zhao, Z.*</b>, and Zhang, X. (2021). Modeling taxi cruising time based on multi-source data: A case study in Shanghai. <i>Transportation</i>. Submitted in December, 2021.</li> <li>• Liang, Y., <b>Zhao, Z.*</b>, and Sun, L. (2021). Dynamic spatiotemporal graph convolutional neural networks for traffic data imputation with complex missing patterns. <i>Transportation Research Part C: Emerging Technologies</i>. Submitted in September, 2021.</li> <li>• Li, J., and <b>Zhao, Z.*</b> (2021). Impact of COVID-19 travel-restriction policies on road traffic accident patterns with emphasis on cyclists: A case study of New York City. <i>Accident Analysis &amp; Prevention</i>. Submitted in September, 2021.</li> </ul>
INVITED TALKS	<ul style="list-style-type: none"> <li>• Urban transport networks and trajectory data mining. <i>Peking University-HKU Sustainable Development and Smart Cities in the Greater Bay Area</i>. November 2021.</li> <li>• Trajectory Data Mining for Smart Urban Mobility. <i>University of Michigan-Shanghai Jiaotong University Joint Institute</i>. June 2021.</li> <li>• Uncovering Behavior Dynamics in Human Mobility using Transit Smart Card Data. <i>Hong Kong Polytechnic University</i>. September 2020.</li> </ul>
GRANTS	<ul style="list-style-type: none"> <li>• PI. “A Simulation-based Analytical Framework for the Design of an Integrated Autonomous Vehicle and Public Transit System and Evaluation of its Impact on Urban Form”. <i>Seed Funding for Strategic Interdisciplinary Research Scheme</i>. 2021-2024 (HK\$ 995,160)</li> <li>• PI. “Urban Embedding: Learning Spatial Representation from Urban Mobility Flows”. <i>Seed Fund for Basic Research for New Staff</i>. 2020-2022 (HK\$ 138,780)</li> </ul>
TEACHING EXPERIENCE	<p><b>The University of Hong Kong</b> Lecturer</p> <ul style="list-style-type: none"> <li>• <i>URBA6002 Urban Big Data Analytics</i>, Spring 2021-Present</li> <li>• <i>URBA6004 Spatial Mobilities Analytics</i>, Spring 2021-Present</li> <li>• <i>URBS2005 Research Methods in Urban Studies</i>, Fall 2021-Present</li> <li>• <i>GEOG7003 Transport Economics</i>, Spring 2022-Present</li> </ul> <p><b>Massachusetts Institute of Technology</b> Teaching Assistant</p> <ul style="list-style-type: none"> <li>• <i>11.478 Behavior and Policy</i>, Spring 2015</li> </ul> <p><b>University of British Columbia</b> Teaching Assistant</p>

- *CIVL 441 Transportation Planning and Analysis*, Spring 2013
- *CIVL 587 Urban Transportation Economics and Policy*, Fall 2012

#### HONORS AND AWARDS

- Fellow, Meeting of Minds@HKU Forum for Outstanding Young Scholars, 2019
- Mitacs-Accelerate Internship Award, 2012
- Tongji University Outstanding Graduate Award, 2011
- Second Prize, Competition of Transport Science and Technology of Tongji University, 2010
- Scholarships for Excellent Academic Performance, 2008-2010

#### SERVICE

Member/fellow for

- HKU Insititue of Transport Studies, 2021-Present

Organizer/co-organizer for

- University of Glasgow-HKU Symposium on Urban Analytics, June 2021

Reviewer for

- Transportation Research Part C: Emerging Technologies
- Transportation Research Part A: Policy and Practice
- IEEE Transactions on Intelligent Transportation Systems
- Journal of Transport Geography
- Travel Behaviour and Society
- PLOS ONE