

EDUCATION

McGill University

Ph.D. student in Transportation

Montreal, Canada

Jan 2019–Current

- Advisor: Prof. Lijun Sun (McGill) & Prof. Martin Trépanier (PolyMtl)
- Thesis: “Travel Behavior-Based Forecasting Method in Metro System”

Harbin Institute of Technology

M.S. in Transportation Planning and Management

Harbin, China

Sep 2016–Jul 2018

- Advisor: Prof. Jia Yao
- Thesis: “An Analysis of Two Hybrid Route Choice Models in Stochastic Assignment Paradox”

Harbin Institute of Technology

B.Eng. in Traffic Engineering

Weihai, China

Aug 2012–Jul 2016

- Thesis: “Design of a Traffic Data Management and Analysis Software”

RESEARCH INTERESTS

- Travel behavior pattern mining
- Spatiotemporal data forecasting
- Machine learning in transportation
- Sustainable transportation

EXPERIENCE

Exo

Intern

Montreal, Canada

Feb 2019–Current

- Mitacs project: “spatiotemporal travel behavior modeling and analysis for better public transport systems”

Wenzhou Urban Planning and Design Institution

Intern

Wenzhou, China

Summer 2016

- Residential area parking spaces renovation project

Weihai Traffic Engineering Research Institute

Research Assistant

Weihai, China

May 2015–Jun 2016

- Weihai traffic signal system optimization project
- Traffic impact analysis

SCHOLARSHIPS AND AWARDS

- CIRRELT Excellence Scholarships (Doctoral Rédaction) 2020–2021
- McGill Engineering Doctoral Award (International) 2019–Current
- Excellent Graduate Thesis of HIT 2018
- First Level Scholarship of HIT 2016, 2017
- Excellent Graduate of Shandong Province 2016

- Third Prize of National Competition of Transport Science and Technology 2015
- First Prize of China Undergraduate Mathematical Contest in Modeling 2014

JOURNAL PUBLICATIONS

- [1] **Z. Cheng**, M. Trépanier, and L. Sun, “Probabilistic model for destination inference and travel pattern mining from smart card data”, *Transportation*, pp. 1–19, 2020. DOI: 10.1007/s11116-020-10120-0.
- [2] J. Yao, **Z. Cheng**, J. Dai, A. Chen, and S. An, “Traffic assignment paradox incorporating congestion and stochastic perceived error simultaneously”, *Transportmetrica A: Transport Science*, vol. 15, no. 2, pp. 307–325, 2019. DOI: 10.1080/23249935.2018.1474962.
- [3] J. Yao, W. Huang, A. Chen, **Z. Cheng**, S. An, and G. Xu, “Paradox links can improve system efficiency: An illustration in traffic assignment problem”, *Transportation Research Part B: Methodological*, vol. 129, pp. 35–49, 2019. DOI: 10.1016/j.trb.2019.07.018.
- [4] J. Yao, **Z. Cheng**, F. Shi, S. An, and J. Wang, “Evaluation of exclusive bus lanes in a tri-modal road network incorporating carpooling behavior”, *Transport Policy*, vol. 68, pp. 130–141, 2018. DOI: 10.1016/j.tranpol.2018.05.001.

WORKING PAPERS

- [1] **Z. Cheng**, M. Trepanier, and L. Sun, *Incorporating travel behavior regularity into passenger flow forecasting*, 2020. arXiv: 2004.00992 [stat.AP].
- [2] **Z. Cheng**, M. Trépanier, and L. Sun, “Real-time metro origin-destination flow forecasting by high-dimensional dynamic mode decomposition”, 2020.
- [3] X. Wang, **Z. Cheng**, M. Trépanier, and L. Sun, “Modeling bike-sharing demand using a regression model with spatially varying coefficients”, Available at ResearchGate, 2020.

CONFERENCES

- [1] X. Wang, **Z. Cheng**, M. Trépanier, and L. Sun, “Modeling bike-sharing demand using a regression model with spatially varying coefficients”, in *Transportation Research Board 100th Annual Meeting*, Washington, D.C., 2021.
- [2] **Z. Cheng**, H. Alizadeh, M. Nazem, M. Trépanier, and L. Sun, “Long-term ridership forecast using heuristic, sarima and random forest methods”, in *TransitData 2020*, Toronto (online), 2020.
- [3] **Z. Cheng**, M. Trépanier, and L. Sun, “Integrating travel behavior regularity into passenger flow prediction”, in *TransitData 2020*, Toronto (online), 2020.
- [4] **Z. Cheng**, M. Trépanier, and L. Sun, “Inferring trip destinations in transit smart card data using a probabilistic topic model”, in *TransitData 2019*, Paris, 2019.
- [5] Z. Zhuang, **Z. Cheng**, J. Yao, J. Wang, and S. An, “Bus travel time reliability incorporating in-stop waiting time and in-vehicle travel time with AVL data”, in *Transportation Research Board 98th Annual Meeting*, Washington, D.C., 2019. [Online]. Available: <https://trid.trb.org/view/1572692>.
- [6] J. Yao, **Z. Cheng**, S. An, and A. Chen, “Analysis of a multiplicative hybrid route choice model in stochastic assignment paradox”, in *Transportation Research Board 97th Annual Meeting*, Washington, D.C., 2018. [Online]. Available: <https://trid.trb.org/view/1495040>.

- [7] J. Yao, J. Dai, A. Chen, **Z. Cheng**, and S. An, “Traffic assignment paradox incorporating congestion and stochastic perceived error simultaneously”, in *Transportation Research Board 97th Annual Meeting*, Washington, D.C., 2018. [Online]. Available: <https://trid.trb.org/view/1496658>.