817 Sherbrooke Street West
Montreal, QC H3A 0C3, Canada
(+1) 4387257048
dingyi.zhuang@mail.mcgill.ca
https://zhuangdingyi.github.io/
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Dingyi Zhuang

Research Interests

Urban Computing
- Spatiotemporal data mining
- Graph neural network on traffic network
- Bayesian probabilistic models

Intelligent transportation system
- Reinforcement learning based traffic control

Education

2019– Now **McGill University**
- Master (Thesis) in Transportation Engineering
- Advisor: Lijun Sun
- GPA: **3.8**/**4.0**

2015– 2019 **Shanghai Jiao Tong University**
- Bachelor of Science in Mechanical Engineering (Tsien Hsue-Shen Class)
- Advisor: Jiangang Jin
- GPA: **3.55**/**4.0**; Ranking: **3**/**8**
- Graduate with Outstanding Honor (Top 5%)

Journal Publications

2020 **From compound word to metropolitan station: Semantic similarity analysis using smart card data**.
Dingyi Zhuang, Siyu Hao, Lee Der-Horng*, Jiangang Jin
Transportation Research Part C: Emerging Technologies, Volume 114, May 2020, Pages 322-337

2019 **Understanding the bike sharing travel demand and cycle lane network: the case of Shanghai**.
Dingyi Zhuang, Jiangang Jin*, Yifan Shen, Wei Jiang
International Journal of Sustainable Transportation, 2019: 1-13

Conference Proceedings

2020 **Inductive graph neural networks for spatiotemporal kriging**.
Yuankai Wu, Dingyi Zhuang, Lijun Sun*
The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21)

2020 **A Pseudo-3D Convolutional Neural Network based Framework for Short-term Mixed Passenger Flow Prediction in Large-scale Public Transit**.
Siyu Hao, Dingyi Zhuang, De Zhao, Lee Der-Horng*
Transportation Research Board 2020

2018 **An empirical study on cycle lane network using bike sharing data: the case of Shanghai**.
Dingyi Zhuang, Jiangang Jin*, Yifan Shen, Wei Jiang
2018 International Conference on Transportation and Space-time Economics

Working Papers

2020 **Reinforcement Learning-based Traffic Signal Control in Special Scenario** .
Dingyi Zhuang, Zhenyuan Ma, Lijun Sun*
Working paper

2020 **Modeling Paratransit Demand with Hankel-structured Poisson Tensor Factorization**.
Dingyi Zhuang, Lijun Sun*
Submitted to Transportation Research Board 2021

2019 **A spatial-temporal Deep Learning Framework for Network-wide Bus Passenger Flow prediction**.
Siyu Hao, Dingyi Zhuang, Lee Der-Horng*
Provisionally accepted by IET Intelligent Transport Systems

2019 **A General Framework Based on Temporally Dynamic Adjacency Matrix for Long-Term Traffic Prediction**.
Fuqiang Liu, Jiawei Wang, Dingyi Zhuang, Jingbo Tian, Luis Miranda-Moreno, Lijun Sun*
Working paper

Work & Research Experience

Aug 2020–Dec 2020 **Mitacs Accelerate with ExPretio**
Winter Intern
- Combination of multi-horizon models for demand forecasting

2019 **Interuniversity Research Centre on Enterprise Networks, Logistics and Transportation (CIRRELT)**
Master's Student
Advisor: Lijun Sun

Jul 2018–Sep 2018 **Civil and Environmental Engineering, National University of Singapore**
Research Assistant
Advisor: Lee Der-Horng

Oct 2017–Nov 2017 **Institute of Refrigeration and Cryogenic Engineering, Shanghai Jiao Tong Univ.**
Research Assistant

Mar 2017–Jun 2018 **Chuntsung Program, Shanghai Jiao Tong Univ.**
Research Assistant

Aug 2016–Sep 2015 **Robotics Institute, Shanghai Jiao Tong Univ.**
Research Assistant

Honors & Awards

2020 **CIRRELT Excellence Scholarships (Master's), CIRRELT**

2019 **Graduate Excellence Fellowship, McGill University**

2019 **Hsue-shen Tsien Class, Shanghai Jiao Tong University**
Top 5%, Honor Program in School of Mechanical Engineering

2017 **Chungtsung Scholarship, Shanghai Jiao Tong University**
10% in selected excellent research students

2017 **Chinese University Students Big Data Innovation Application and Modeling Contest**
First Prize (1/135)

2016 & 2017 **Eleme Scholarship, Shanghai Jiao Tong University**

2017 **2017 Mathematical Contest in Modeling**
Honorable Mention

2016 **Excellent Student, Shanghai Jiao Tong University**
Top 5%

2015 **Freshmen Scholarship, Shanghai Jiao Tong University**

Position of Responsibility

Oct 2015– Sep 2017 **Center of Quality Development, Shanghai Jiao Tong University**
Vice president

Technical skills

Languages `Python`, `MATLAB`, `R`, LaTeX

Tools Adobe PhotoShop, Premier, Lightroom