

# Zhangcun YAN

✉ yanzc@tongji.edu.cn

📍 No.4800 Cao'an Rd, Shanghai 201804, China.

🌐 <https://github.com/zhangcun-yan>

🏠 <https://yanzhangcun.github.io/> (homepage)



## Education

- 2019.9 – recent    ■ **Ph.D. Candidate, Tongji University**, Transportation engineering.  
Thesis title: *Shared spaces mixed traffic flow trajectory reconstruction and modeling based on the driving behavior constraints.*
- 2023.9–2023.10    ■ **McGill university**, English Language and Culture, *Student*.
- 2023.1 – 2024.1    ■ **Visiting student, University of Montreal (Canada)**, Transportation engineering.  
Research topic: *Mechanistic modeling of motorized and non-motorized interaction behavior based on causal inference.*
- 2015.9 – 2018.6    ■ **M.S., Southwest Jiaotong University**, Transportation engineering.  
Thesis title: *Analysis of factors affecting traffic accident severity based on heteroskedasticity ordinal logit - A case study of fixed object accidents.*
- 2011.9 – 2015.6    ■ **B.S., Ningbo University of Technology**, Transportation .  
Thesis title: *Optimized design of signal intersections considering pedestrian violations in the VISSIM simulation environment.*

## Employment History

- 2018.7 — 2019.7    ■ **Traffic Engineer**, Shenzhen urban transportation planning center.

## Research Interests

### Trajectory data analysis and computer vision

- Shared space mixed traffic flow trajectory recognition and tracking based on computer vision.
- High-resolution trajectory reconstruction of mixed traffic flow in shared space.
- Driving behavior modeling and trajectory prediction for mixed traffic flows.

### Traffic behavior and safety analysis

- Travel behavior modeling and analysis.
- Analyzing accident data.

## Research Publications

Publications journal papers

- **Zhangcun Yan**, Lishengsa Yue, Jian Sun. "High-resolution reconstruction of non-motorized trajectory in shared space: A new approach integrating the social force model and particle filtering", *Expert Systems with Applications*, (2023),233,120753. doi = 10.1016/j.eswa.2023.120753.
- **Zhangcun Yan**, Duo Zhang, Xiaozhao Lu, Qiyuan Liu, Yin Hai Wang, Jian Sun. "Saturation Flow Rate at the Work-Zone-Straddled Intersections with Interweaving Movements: A Lane-Based Modeling Study", *Journal of Transportation Engineering, Part A: systems*, (2022),148(10),04022088-1-15. doi = 10.1061/JTEPBS.0000718.

- Ji Hu, **Zhangcun Yan**, Xiaozhao Lu, Peng Wang, Minjie Zhang, Wanxin Hu. "Analysis of Factors Affecting Traffic Accident Severity Based on Ordinal Logistic Model: A Case Study of Rollover Accidents", *Journal of Chongqing Jiaotong University (natural science) (In Chinese)*, (2017),37,28-34. doi = 10.3969/j.issn.1674-0696.2018.04.13.
- Ji Hu, **Zhangcun Yan**, Xiaozhao Lu, Wanxin Hu, Minjie Zhang."Analysis for the influential factors of the accident severity based on the ordinal Logit and Probit models", *Journal of Safety and Environment(In Chinese)*, (2018), 18(1009-6094),16-23. doi = 10.13637/j.issn.1009-6094.2018.03.003.
- Peng WANG, **Zhangcun Yan**, Xiaozhao Lu, Minjie Zhang."Analysis on influencing Factors of Rear-end Crash Severity Based on Ordered Probit Model", *Journal of Safety and Environment (In Chinese)*, (2018), 35(4), 39-45. doi = 10.3969/j.issn.1002-0268.2018.04.013.
- Xiaonan Dong, **Zhangcun Yan**, Huaiming Zhao, Ji Hu. "Analysis on Travel Mode Choice Behavior Based on Spatial-temporal Constraint", *Journal of Highway and Transportation Research and Development (In Chinese)*, (2020), 37(9),104-112. doi = 10.3969/j.issn.1002-0268.2020.09.014.

#### Conference papers

- **Zhangcun Yan**, Lishengsa Yue, Nicolas Saunier, Jian Sun. "Investigating and Modeling Motorized and Non-Motorized Interaction Behavior in Shared Spaces of Intersections", **Transportation Research Board**,(2024), TRBAM-24-06090.
- **Zhangcun Yan**, Qiyuan Liu, Guopeng Zhang, Yinhai Wang, Jian Sun. "Investigating the saturation flow rate of approach lanes at "X" shaped working zone of the signalized intersection", **Transportation Research Board**, (2022), TRBAM-22-04557.
- Duo Zhang, **Zhangcun Yan**, Junhua Wang, Yinhai Wang, Jian Sun. "Impacts of Driver Characteristics on Fuel Consumption Based on Naturalistic Driving Experiment", **Proceedings of the 21th COTA International Conference of Transportation Professionals**, (2022). doi=10.1061/9780784484265.119.
- Jiewen Xiao, Ji Hu, **Zhangcun Yan**, Weixin Chen, Gang Wang."Analysis of the Psychological Causes of Drivers' Cell-Phone-Use Behavior Based on Bayesian-SEM Model", **Proceedings of the 20th COTA International Conference of Transportation Professionals**, (2020). doi=10.1061/9780784483053.404.
- **Zhangcun, Yan**, Xiaozhao Lu, Wanxin Hu. "Analysis of Factors Affecting Traffic Accident Severity Based on Heteroskedasticity Ordinal Logit", **Proceedings of the 6th International Conference on Transportation Engineering**, (2019). doi = 10.1061/9780784482742.048.

## Skills

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|-------------------|---|
| Languages         | ■ Strong reading, writing, and speaking conversations in Mandarin Chinese, and English. |
| Coding            | ■ Matlab, R, Python.  |
| Traffic Software  | ■ VISSIM, TESS NG, Geroge, Arcgis.  |
| Statistical tools | ■ SAS, Stata, SPSS.   |
| Computer vision   | ■ OpenCV, Yolov3/4/5/7.   |

## Projects

2023-2024   ■ Visiting program at **University of Montreal**, supported by China Scholarship Council.

## Services




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- 2023-now     Reviewer for **IEEE Transactions on Intelligent Transportation Systems**.
- 2022-now     Reviewer for **Journal of Transportation engineering**



## Awards Experience

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### Awards and Achievements

- 2013     **National Application for Inspirational Scholarship**, Ningbo University of Technology.
- 2017     **Outstanding graduate students**, Southwest Jiaotong University.
-  **First class scholarship**, Southwest Jiaotong University.

### Certification

- 2019     **Third Prize in National Mathematical Modelling**. Awarded by the Chinese Society of Industrial and Applied Mathematics Insitute.
- 2017     **Huangshan Education Bursary**, Awarded by Southwest Jiaotong University.