

Zhangcun YAN

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🌐 <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.
- 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, (main directions)

- 📌 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, (other directions)

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

Research Publications

Publications

- **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, Yinhai 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.
- Peng WANG, **Zhangcun YAN**, Xiaozhao LU, Minjie ZHANG."Analysis on influencing Factors of Rear-end Crash Severity Based on Ordered Probit Model". 2018,35(4), 39-45.doi = 10.3969/j.issn.1002-0268.2018.04.013
- HU Ji, **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,
- Xiaonan DONG, **Zhangcun YAN**, Huaiming ZHAO, HU Ji. "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

- **Zhangcun YAN**, Lishengsa Yue, Nicolas Saunier, Jian SUN. "Investigating and Modeling Motorized and Non-Motorized Interaction Behavior in Shared Spaces of Intersections", (2024), *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*. 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

Languages	■ Strong reading, writing, and speaking competencies 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



- 2023-now  **Reviewer for IEEE Trans ITS.**
- 2022-now  **Reviewer for Journal of Transportation engineering**

Awards Experience

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.