Jiawei Zhang

Department of Automation, Tsinghua University
E-mail: zhangjw20@mails.tsinghua.edu.cn ◇ Homepage: Jiawei Zhang, Google Scholar

EDUCATION

Tsinghua University *September 2020 - Present*
Department of Automation
Ph.D student in Control Science and Engineering

Tsinghua University *September 2016 - June 2020*
Department of Automation
B.S. of Engineering (Graduate with honor)

AREAS OF INTERESTS

Research Interests Artificial Intelligence, Autonomous Driving, Complex System, Intelligent Vehicle, Intelligent Transportation System, Deep Reinforcement Learning

RESEARCH PUBLICATION

1. **Jiawei Zhang**, Cheng Chang, Xianlin Zeng, Li Li. (2022). Multi-agent DRL-based lane change with right-of-way collaboration awareness. *IEEE Transactions on Intelligent Transportation Systems (TITS)*.
doi: 10.1109/TITS.2022.3216288 (**SCI, IF: 9.551**)

2. **Jiawei Zhang**, Shen Li, Li Li. (2023). Coordinating CAV swarms at intersections with a deep learning model. *IEEE Transactions on Intelligent Transportation Systems (TITS)*.
doi: 10.1109/TITS.2023.3250704 (**SCI, IF: 9.551**)

3. **Jiawei Zhang**, Cheng Chang, Zimin He, Wenqin Zhong, Danya Yao, Shen Li, Li Li. (2023). CAVSim: A microscopic traffic simulator for evaluation of connected and automated vehicles. *IEEE Transactions on Intelligent Transportation Systems (TITS)*.
doi: 10.1109/TITS.2023.3273565 (**SCI, IF: 9.551**)

4. **Jiawei Zhang**, Zhiheng Li, Li Li, Yidong Li, Hairong Dong. (2021). A bi-level cooperative operation approach for AGV based automated valet parking. *Transportation Research Part C: Emerging Technologies (TRC)*, 128, 103140. doi: 10.1016/j.trc.2021.103140 (**SCI, IF: 9.002**)

5. **Jiawei Zhang**, Huaxin Pei, Xuegang(Jeff) Ban, Li Li. (2022). Analysis of cooperative driving strategies at road network level with macroscopic fundamental diagram. *Transportation Research Part C: Emerging Technologies (TRC)*, 135, 103503. doi: 10.1016/j.trc.2021.103503 (**SCI, IF: 9.002**)

6. **Jiawei Zhang**, Cheng Chang, Shen Li, Xuegang(Jeff) Ban, Li Li. (2024). AUnleashing the two-dimensional benefits of connected and automated vehicles via dedicated intersections in mixed traffic. *Transportation Research Part C: Emerging Technologies (TRC)*, 160, 104501. doi: 10.1016/j.trc.2024.104501 (**SCI, IF: 9.002**)

7. **Jiawei Zhang**, Jingwei Ge, Shu Li, Shen Li, Li Li. (2023). A Bi-level Network-wide Cooperative Driving Approach Including Deep Reinforcement Learning-based Routing. *IEEE Transactions on Intelligent Vehicles (TIV)*.
doi: 10.1109/TIV.2023.3305818 (**SCI, IF: 8.2**)

8. **Jiawei Zhang**, Cheng Chang, Huaxin Pei, Xinyu Peng, Yuqing Guo, Renzong Lian, Zhenwu Chen, and Li Li. (2022) CAVSim: A microscope traffic simulator for connected and automated vehicles Environment. In *2022 IEEE Intelligent Transportation Systems Conference (ITSC)*. pp. 3719-3724.
doi: 10.1109/ITSC55140.2022.9922267 (**EI**)

9. Xinyu Peng, **Jiawei Zhang**, Fei-Yue Wang, Li Li. (2021). Drill the cork of information bottleneck by inputting the most important data. *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*. pp. 6360-6372. doi: 10.1109/TNNLS.2021.3079112 (**SCI, IF: 14.255**)

10. Qiyuan Liu, **Jiawei Zhang**, Wenqin Zhong, Zhiheng Li, Xuegang (Jeff) Ban, Shen Li, Li Li. (2023). Fault-Tolerant cooperative driving at highway on-ramps considering communication failure. *Transportation Research Part C: Emerging Technologies (TRC)*. doi: 10.1016/j.trc.2023.104227 (**SCI, IF: 9.002**)

11. Jingwei Ge, **Jiawei Zhang**, Cheng Chang, Yi Zhang, Danya Yao, Li Li. (2024). Task-driven controllable scenario generation framework based on AOG. *IEEE Transactions on Intelligent Transportation Systems (TITS)*. doi: 10.1109/TITS.2023.3347535 (**SCI, IF: 9.551**)

12. Huaxin Pei, **Jiawei Zhang**, Yi Zhang, Huile Xu, Li Li. (2023). Self-Organized Routing for Autonomous Vehicles via Deep Reinforcement Learning. *IEEE Transactions on Vehicular Technology (TVT)*. doi: 10.1109/TVT.2023.3311198 (**SCI, IF: 6.8**)

13. Cheng Chang, **Jiawei Zhang**, Kunpeng Zhang, Wenqin Zhong, Xinyu Peng, Shen Li, Li Li. (2023). BEV-V2X: Cooperative Birds-Eye-View Fusion and Grid Occupancy Prediction via V2X-Based Data Sharing. *IEEE Transactions on Intelligent Vehicles (TIV)*. doi: 10.1109/TIV.2023.3293954 (**SCI, IF: 8.2**)

14. Jingwei Ge, **Jiawei Zhang**, Cheng Chang, Yi Zhang, Danya Yao, Yonglin Tian, Li Li. (2024). Dynamic Testing for Autonomous Vehicles Using Random Quasi Monte Carlo. *IEEE Transactions on Intelligent Vehicles (TIV)*. doi: 10.1109/TIV.2024.3358329 (**SCI, IF: 8.2**)

15. Cheng Chang, **Jiawei Zhang**, Kunpeng Zhang, Yichen Zheng, Mengkai Shi, Jianming Hu, Shen Li, Li Li. (2024). CAV driving safety monitoring and warning via V2X-based edge computing system. *Frontiers of Engineering Management*. doi: 10.1007/s42524-023-0293-x (**SCI, IF: 8.2**)

16. Shen Li, **Jiawei Zhang**, Zhenwu Chen, Li Li (2023). A Theoretical Analysis for Cooperative Driving at Idealized Non-Signalized Intersections. *Tsinghua Science and Technology*. doi: 10.26599/TST.2022.9010069 (**SCI, IF: 6.6**)

17. Huaxin Pei, **Jiawei Zhang**, Yi Zhang, Xin Pei, Shuo Feng, Li Li. (2022). Fault-tolerant cooperative driving at signal-free intersections. *IEEE Transactions on Intelligent Vehicles (TIV)*. doi: 10.1109/TIV.2022.3159088 (**SCI, IF: 5.009**)

18. Jingwei Ge, **Jiawei Zhang**, Yi Zhang, Danya Yao, Zuo Zhang, Rui Zhou (2023). Autonomous vehicles testing considering utility-based operable tasks. *Tsinghua Science and Technology*. doi: 10.26599/TST.2022.9010037 (**SCI, IF: 6.6**)

19. Zimin He, **Jiawei Zhang**, Danya Yao, Yi Zhang, Huaxin Pei (2024) Adversarial Generation of Safety-Critical Lane-Change Scenarios for Autonomous Vehicles. In *2023 IEEE 26th International Conference on Intelligent Transportation Systems (ITSC)*. pp. 6096-6101. doi: 10.1109/ITSC57777.2023.10422684 (**EI**)

20. Cheng Chang, Kunpeng Zhang, **Jiawei Zhang**, Shen Li, Li Li (2022) Driving safety monitoring and warning for connected and automated vehicles via edge computing. In *2022 IEEE Intelligent Transportation Systems Conference (ITSC)*. pp. 3940-3947. doi: 10.1109/ITSC55140.2022.9922076 (**EI, Best Student Paper Award**)

21. Jingwei Ge, Huile Xu, **Jiawei Zhang**, Yi Zhang, Danya Yao, Li Li. (2022). Heterogeneous driver modeling and corner scenarios sampling for automated vehicles testing. *Journal of Advanced Transportation (JAT)*. doi: 10.1155/2022/8655514 (**SCI, IF: 2.249**)

22. Renzong Lian, Zhiheng Li, Boxuan Wen, Junqing Wei, **Jiawei Zhang**, Li Li. (2022). Multiagent deep reinforcement learning for automated truck platooning control. *IEEE Intelligent Transportation Systems Magazine (ITSM)*. doi: 10.1109/MITS.2023.3319091 (**SCI, IF: 3.6**)

HONORS & AWARDS

- National Scholarship (Ph.D) *2023*
- Outstanding Graduate Student (BEIJING ASSOCIATION OF AUTOMATION) *2022*
- Excellent Comprehensive Scholarship of Tsinghua University (Tsinghua-Xuancheng Scholarship) *2022*
- Best Student Paper Award (IEEE ITSC 2022) *2022*
- Excellent Comprehensive Scholarship of Tsinghua University (Tsinghua-Weihai Scholarship) *2021*
- Outstanding Graduates of Dept. Automation *2020*
- National Encouragement Scholarship *2019*
- HAGE Encouragement Scholarship *2018*
- National Encouragement Scholarship *2018*
- HAGE Encouragement Scholarship *2017*
- National Encouragement Scholarship *2017*
- The Top Scorer of Science in Wuwei City *2016*

TECHNICAL STRENGTHS

Computer Languages C/C++, Python, MATLAB
Deep Learning Framework Pytorch, Tensorflow, Keras

OTHERS

Reviewer Service IEEE Transactions on Intelligent Transportation Systems, Transportation Research Part C-Emerging Technologies, IEEE Transactions on Intelligent Vehicles, EEE Transactions on Automation Science and Engineering, IEEE Antennas and Wireless Propagation Letters, International Journal of Human-Computer Interaction, IEEE Transactions on Vehicular Technology, IEEE International Conference on Intelligent Transportation Systems 2022/2023, International Conference on Computer Big Data and Artificial Intelligence 2023, et al.

Teaching Assistant Convex Optimization (2020-2021; 2021-2022; 2023-2024)

Blue Book Annual Report On The Development Of Autonomous Driving Industry In China (2020)