Xia Jiang

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Experience

- **Southeast University (Supervisor: Jian Zhang)** — Nanjing, China
  Master of Engineering - Transportation Engineering; GPA: 87.78/100 — *September 2020 - now*
  Courses: *Transportation Planning, Transportation Management and Control, Advanced Numerical Analysis, Traffic Engineering*

- **Central South University** — Changsha, China
  Bachelor of Engineering - Transportation Engineering; GPA: 88.31/100 — *September 2016 - June 2020*
  Courses: *Scientific Calculation and Mathematical Modeling, Railway Traffic Organization, Operations Research, Intelligent Transportation Systems, Database Principles and Applications*

Skills Summary

- **Coding Languages**: Python, Java, Julia, C++, SQL, R
- **Algorithms**: Machine Learning, Advanced Reinforcement Learning, Evolutionary Computing, Basic Computer Vision
- **Computer Skills**: Latex, Docker, Web Crawler, Linux, MySQL, Java Web
- **Professional Tools**: SUMO, CARLA
- **Standard Language Test**: IELTS 7.0 (L-6.5, R-8.0, W-6.5, S-6.5)

Research Interests

- Application of reinforcement learning to traffic control
- Traffic control with connected and automated vehicles
- Traffic data mining and machine learning

Selected Projects

- **Research on Control of Intelligent Connected Electric Vehicles at Urban Intersections (2021-2022)**: (Working as Project Leader): *Supported by the Postgraduate Research&Practice Innovation Program of Jiangsu Province.* Detail: Modeling the electric vehicles as multi-agent system and controlling the vehicles in both signalized and unsignalzied intersections through cooperative vehicle-infrastructure system.
- **Evaluation and Improvement Strategies for Urban Buses Based on Multi-source Data (2019-2020)**: (Working as Project Leader):*Supported by the Innovation Training Program of College Students of Hunan Province.* Detail: Crawling and fusing the buses GPS data, weather data, and road condition data; analysing the bus bunching phenomenon and making improvement strategies; developing visualization platform for buses monitoring and bunching warning based on Java Web.
- **Eco-driving for Electric Vehicles at Urban Connected Intersections (2020-2022)**: *Supported in part by the the National Key R&D Program in China, Jiangsu Provincial Key R&D Program.* Detail: Designing the eco-driving strategies at signalized intersections through reinforcement learning theory; Implementing the adaptive control method of mixed platoon composed of connected vehicles and human-driven vehicles; carrying out microscopic traffic simulation through SUMO.
- **Research on the Development of Supporting Technology of Intelligent Connected Transportation System (2021)**: *Supported by Chinese Academy of Engineering.* Detail: Investigating the present development situation of supporting technologies, including: communication systems, HD maps, and navigation systems; writing proposal for Chinese Academy of Engineering and local governments.
- **Driving Behavior Analysis and Comprehensive Evaluation System of Road Transportation Drivers (2020-2021)**: *Supported by the Innovation Training Program of College Students of Hunan Province.* Detail: Analysing the driving behavior based on GPS data; Identifying the driving styles through clustering algorithm

Journal Publications

1. Zhang, J., **Jiang, X.**, Liu, Z., et al., "A study on autonomous intersection management: planning-based strategy improved by convolutional neural network". *KSCE Journal of Civil Engineering*, 25, 3995–4004 (2021)
2. **Jiang, X.**, Zhang, J., Li, Q., et al., "A multiobjective cooperative driving framework based on evolutionary algorithm and multitask learning". *Journal of Advanced Transportation* (2022)
3. Zhang, J., **Jiang, X.***, Cui, S., et al., "Navigating electric vehicle along signalized corridor via reinforcement learning: towards adaptive eco-driving control". *Transportation Research Record*, 2676(8), 657-669 (2022)
4. **Jiang, X.**, Zhang, J., Wang, B. "Energy efficient driving for adaptive traffic signal control environment via explainable reinforcement learning". *Applied Sciences* (2022)
5. Zhang, J., **Jiang, X.**, Shi, X., et al., "Offline reinforcement learning for Eco-driving control at signalized intersections". *Journal of Southeast University (Natural Science Edition)*, 52(4), 762-769 (2022) [in Chinese]

Reviewer

- IET Intelligent Transport Systems
- SAE Technical Paper

Working Papers

1. **Jiang X.**, Zhang, J., Li, D. "Learning-based Eco-driving for Electric Connected Vehicles at Signalized Intersections". (available at: https://arxiv.org/abs/2206.12065)
2. Zhang, J., **Jiang, X.***, Wu, K., et al., "Employing a dedicated lane for connected and automated vehicles in expressways: A simulation-based framework". submitted to *Journal of Intelligent Transportation Systems*
3. **Jiang, X.**, Zhang, J., Shi, X., et al. "Learning the policy for mixed electric platoon control of automated and human-driven vehicles at signalized intersection: a random search approach", submitted to *IEEE Transactions on Intelligent Transportation Systems* (second round review) (available at: https://arxiv.org/abs/2206.12052)

Conference Proceedings

1. **Jiang, X.**, Li, N., Yang Z., et al., "A merging control method for connected and automated vehicles based on state transition algorithm", *22nd COTA International Conference of Transportation Professionals (CICTP 2022)*, Changsha, China, 8-11 July 2022.
2. Zhang, J., **Jiang, X.***, Cui, S., et al. "Reinforcement learning-based eco-driving method of electric vehicles in signalized corridor environment", *101st Annual Meeting of the Transportation Research Board (TRB)*, Washington DC, USA, 9-13 January 2022.
3. Zhang, X., **Jiang, X.***, Li, N., et al. "Eco-driving for Intelligent Electric Vehicles at Signalized Intersection: A Proximal Policy Optimization Approach", *2021 6th International Conference on Information Science, Computer Technology and Transportation (ISCTT 2021)*, Xishuangbanna, China, 26-28 November, 2021.
4. Zhang, J., **Jiang, X.**, Zhou K., et al., "Reinforcement learning-based traffic signal control: a CAV as mobile sensor approach", *2021 Proceedings of the World Transport Convention*, Xian, China, 15-18 June 2021.

Awards and Scholarship

- Second Prize in Jiangsu Intelligent Transportation Innovation Competition for Postgraduates - August, 2020
- Best Project award and Best Paper award in Annual Conference on innovation and Entrepreneurship of Central South University - June, 2020
- Honorable Mention in 2019 American Mathematical Contest in Modeling - 2019
- Second Prize in 12nd Students' Competition of Transport Science and Technology of Central South University - May, 2019
- First Prize in Contemporary Undergraduate Mathematical Contest in Modeling (Hunan Division) - October, 2018
- Second Prize in Students' Mathematical Modeling Contest of Central South University - August, 2018
- Southeast University-Jiangsu Provincial Construction Group Scholarship - 2021
- Central South University-First Class Scholarship - 2017, 2018, 2019
- Central South University-BYD Scholarship - 2018

Honors

- Advanced individual in academic innovation of Southeast University - 2022
- Outstanding graduates of Hunan Province - 2020
- Outstanding graduates of Central South University - 2020
- Annual Outstanding Student of Central South University - 2017

Referees

- **Liang Zheng-Central South University** Email: zhengliang@csu.edu.cn
  Associate Professor *ResearchGate:https://www.researchgate.net/profile/Liang-Zheng-31*
- **Jian Zhang-Southeast University** Email: jianzhang@seu.edu.cn
  Professor *ResearchGate:https://www.researchgate.net/profile/Jian-Zhang-69*