AOPING WU

999 Xi-An Road, Pidu District, Chengdu, Sichuan Province, China, 611756
+86 15718051857(Wechat) ◇ wuaoping@my.swjtu.edu.cn ◇ Google Scholar ◇ ResearchGate

EDUCATION

Southwest Jiaotong University **Sep 2021 - Present**
***M.S.* in Transportation** **GPA: 3.43/4**

- **Faculty mentors: Prof. Lu Hu**
- **Key Modules: Analysis and Design of Congested Transportation Network (92); Optimal Theories and Methods (89.2); Traffic Data Analysis and Application (86.75).**
- **Dissertation: *Modeling the Stochastic Transmission Mechanism of COVID-19 in Urban Rail Transit Systems.***

Changsha University of Science & Technology **Sep 2017 - Jun 2021**
***B.S.* in Traffic Engineering** **GPA: 3.24/4**

- **Faculty mentors: Prof. Wang Xiang**
- **Key Modules: Operations Research (97); Road Survey and Design (91); Transportation Planning (92); Traffic Safety and Evaluation (90); Linear Algebra (89).**
- **Dissertation: *A Study on the Charging Behavior of Private Electric Vehicles in Changsha Based on Questionnaire Survey.***

RESEARCH INTERESTS

- **Emerging Transportation Technology (Electrification, Connectivity, and Sharing)**
- **Network Modeling (Equilibrium, Path)**
- **Queuing Theory, Linear Programming, and Optimization**

PUBLICATIONS

SELECTED PAPERS

1. **Wu, A., Hu, L*., Shang, P., & Zhu, J. (2023). A Queue-SEIAR Model: Revealing the Transmission Mechanism of Epidemics in a Metro Line from a Meso Level. First revision for *Transportation Research Part C: Emerging Technologies.* Available at: SSRN. [JCR Q1 IF:9.022]**
2. **Wu, A., Hu, L.*, An, W., et al. (2023). State-dependent Multi-agent Discrete Event Simulation for Urban Rail Transit Passenger Flow. (Intending to submit to *Physica A: Statistical Mechanics and its Applications*). Available at: SSRN.**

CONFERENCE PAPERS

1. **Wu, A., Chen, F, Hu, L*., et al. Uncovering the Transmission Mechanism of Epidemics in Metro Systems from Meso-Level: A Queue-Epidemic Model. (Accepted by *103rd Transportation Research Board (TRB) Annual Meeting*).**
2. **Li. D., Wu. A., Liu, H., Hu. Lu.*. Collaborative Passenger Flow Control in Metro Lines Considering Fundamental Diagram and Dynamic Congestion Propagation. (Accepted by *103rd Transportation Research Board (TRB) Annual Meeting*).**

PROFESSIONAL EXPERIENCE

Urban rail ventilation elimination and robust collaborative control of passenger flow in an uncertain COVID-19 environment. **Oct 2022 - Nov 2022**
Role: Research Assistant

· **Writing the original version of the project petition.**
· **Responsible for passenger flow modeling of urban rail transit.**

Traffic investigation and analysis of Changsha City **Dec 2019 - Jan 2020**
Role: Team Leader [A research report (68.8k words)]

· **Investigation of traffic flow characteristics.**
· **Investigation and analysis of regular bus passenger flow.**
· **Investigation and analysis of vehicle parking in public parking lots.**

CURRENT PROJECTS AND WORKS

Mechanism modeling and intelligent control of infection spread in Chengdu rail transit system under epidemic situation. **Jan 2022 - Present**
Role: Research Assistant (Queuing Theory Team) [A paper is under review]

· **Providing a novel meso-level Queue-SEIAR model for revealing the transmission mechanism of epidemics in metro systems.**
· **Developing a recursive algorithm for the proposed Queue-SEIAR model.**
· **Analysing the effects of common epidemic prevention measures based on the Queue-SEIAR model.**
· **The project belongs to Chengdu Science and Technology Project. Project Number: 2021-RK00-00057-ZF**

Urban Rail Transit Flow Simulation and Operation Control System. **Sep 2020 - Present**
Role: Research Assistant at Chengdu Jiaoda Big Data Technology Co., Ltd. [A paper is working]

· **Simulating the urban rail transit passenger flow with the discrete event simulation.**
· **The existing social force model is improved to capture the state dependence of pedestrian traffic behavior.**
· **Improving the precision of discrete event simulation by considering state dependence.**

Traffic organization optimization of the long-complex tunnels. **Feb 2021 - Present**
Role: Research Assistant [A paper is working]

· **Proposing a time-space network model to improve traffic organization.**
· **A improved ALNS algorithm is performed to solve the traffic organization.**
· **A mixed-integer linear programming model and its solve method are proposed.**

AWARDS AND FELLOWSHIPS

- **2022.10. Second Prize of 19-th National Postgraduate Mathematical Modeling Contest.** **Top 13%**
- **2022.10. First-class Scholarship of Southwest Jiaotong University.** **Top 5%**
- **2022.10. Ming Cheng Award of Southwest Jiaotong University.** **Top 10%**
- **2021.10. Second-class Scholarship of Southwest Jiaotong University.** **Top 20%**
- **2021.10. Second Prize of 18-th National Postgraduate Mathematical Modeling Contest.** **Top 13%**
- **2021.04. Second Place in the 2021 Postgraduate Entrance Examination for Transportation Engineering Major.** **Top 1%**
- **2019.12. Second-class Scholarship of Changsha University of Science & Technology.**
- **2018.12. Third-class Scholarship of Changsha University of Science & Technology.**

PATENTS

1. **Software Registration Certificate:** ***Urban Rail Transit Epidemic Infection Control Decision Support System V1.0.*** **Registration Number: 2023SR1154304**
2. ***A Method, Apparatus, Device, and Readable Storage Medium for Urban Rail Transit Epidemic Infection Control.*** **(Submitted)**

SKILLS

Programming: Python, MATLAB

Applications: Anylogic, vissim, LaTeX

Language: IELTS (6.5/9), Cantonese, Mandarin

Personal: Basketball, Hiking, Guitar.