SHEN YIFAN

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EDUCATION

University of Washington, Seattle, United States *Sep. 2022 –*
- *Ph.D.* in Industrial Engineering, **Advisor**: Prof. Chiwei Yan

Shanghai Jiao Tong University, Shanghai, China *Sep. 2019 – Jun. 2022*
- *M.Eng.* in Logistics Engineering, **Advisor**: Prof. Jun Xia

Shanghai Jiao Tong University, Shanghai, China *Sep. 2015 – Jun. 2019*
- *B.Eng.* in Transportation (International Shipping), **Advisor**: Prof. Jiangang Jin

PUBLICATIONS

- **Optimizing Underground Shelter Location and Mass Pedestrian Evacuation in Urban Community Areas: A Case Study of Shanghai** (2021).
  Jian Gang Jin, Yifan Shen, Hao Hu, Yiqun Fan, & Mingjian Yu.
  Transportation Research: Part A. (*SCI Impact Factor: 5.594*)
  DOI: 10.1016/j.tra.2021.04.009 [Article Here]
- **Safety and Efficiency Analysis of Turbo Roundabout with Simulations Based on the Lujiazui Roundabout in Shanghai** (2020).
  Qiujia Liu, Jiali Deng, Yifan Shen, Wenxin Wang, Zhan Zhang, & Linjun Lu.
  Sustainability. (*SCI Impact Factor: 3.251*)
  DOI: 10.3390/su12187479 [Article Here]
- **Understanding the bike sharing travel demand and cycle lane network: The case of Shanghai** (2019).
  Dingyi Zhuang, Jian Gang Jin, Yifan Shen, & Wei Jiang.
  International Journal of Sustainable Transportation. (*SSCI Impact Factor: 3.929*)
  DOI: 10.1080/15568318.2019.1699209 [Article Here]

RESEARCH EXPERIENCE

Research on Intermodal Container Routing Problem *Sep. 2020 – Present*
Advisor: Prof. Jun Xia *Shanghai, China*
- Formulated the intermodal container routing problem considering practical service requirements as network flow models, and solved the problem under a Benders Decomposition framework, with Column Generation algorithm for the Benders Subproblem including a large scale of variables
- Designed speed-up techniques: Pareto-optimal cuts for degeneration, Farkas pricing for infeasibility of Benders Subproblems, and rounding heuristics for good initial solutions
- Conducted computational experiments to prove the effectiveness and efficiency of the speed-up techniques in all scales of instances

Research on Emergency Shelter location & Pedestrian Evacuation *Sep. 2018 – Jan. 2021*
Advisor: Prof. Jiangang Jin *Shanghai, China*
- Formulated the problem of location selection of underground emergency shelters and pedestrian evacuation as a network flow model, and solved it with a minimum-cost-maximum-flow approach designed based on Busacker-Gowen algorithm
- Identified the bottlenecks of the pedestrian evacuation network, proposed three recourse measures and testified their effectiveness in improving the utilization of infrastructure

Research on Bike-sharing Data and Riding Patterns *Sep. 2017 – Jun. 2019*
Advisor: Prof. Jiangang Jin *Shanghai, China*
- Analyzed the bike-sharing data to identify the gap between the increasing cycling mobility demand and the supply of infrastructure

- Implemented a graphic clustering algorithm to identify typical patterns of cycling in spatial and temporal dimensions, and their relationships with geography and Point of Interests data
- Identified factors effecting the construction of cycling infrastructure, and proposed managerial insights for improving the cycle lane network

Research on Traffic Safety and Efficiency of Turbo Roundabouts *Sep. 2017 – Jun. 2018*
Advisor: Prof. Linjun Lu *Shanghai, China*

- Collected the traffic data of a typical five-leg roundabout in the field
- Simulated the normal roundabout and the novel turbo roundabout with PTV VISSIM
- Analyzed the safety and efficiency improvement of turbo roundabouts with proposed evaluation indices under different traffic volumes and turbo radii, and concluded suggestions on roundabout design

Conferences

Intermodal Container Routing Optimization with Service Requirements

- The 22nd Conference of the International Federation of Operations Research Societies (INFORS 2021), presentation, *Aug. 2021*
- The 10th International Conference on Logistics and Maritime Systems (LOGMS 2021), presentation, *Oct. 2021*

An empirical study on cycle lane network using bike sharing data: the case of Shanghai

- The 6th International Conference on Transportation and Space-time Economics (TSTE 2018), presentation, *Oct. 2018*

Languages and Skills

- **Languages:** English, Mandarin, German
- **Programming Languages:** Python, R, Matlab, LaTeX
- **Softwares:** CPLEX, Gurobi, Arena, TransCAD, ArcGIS, PTV VISSIM

Honors and Awards

- National Scholarship (0.2%) *2020*
- First Class Scholarship, SJTU *2021/2020*
- Excellent Student Cadre, SJTU *2020/2016*
- Outstanding Graduate, SJTU *2019*