# Yuzhuang Pian

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## Education

**South China University of Technology (SCUT)** Guangzhou, China
*Master of Transportation Engineering* *Sep. 2019 – Jun. 2022*

- Advisors: Prof. Lunhui Xu
- GPA : 3.68/4.0; Ranking : 3/59
- Related courses: Road Traffic control theory(93), Basic and application of artificial neural network(91), Theoretical methods of traffic information processing(86), Advanced Operations Research(83)

**Chongqing Jiaotong University (CQJTU)** Chongqing, China
*Bachelor of Traffic and Transportation* *Sep. 2015 – Jun. 2019*

- Advisors: Prof. Jinshuan Peng
- GPA : 3.52/4.0; Ranking : 6/112
- A Pilot Class in Distinguished Engineer Training Program
- Outstanding Graduates of CQJTU

## Publication & Working Papers

1. **Analysis and Simulation Optimization of Passenger Flow in Urban Rail Transit Station**
   Yuzhuang Pian, Jinshuan Peng, Lunhui Xu*, Pan Wu, and Jinlong Li
   *5th International Conference on Traffic Engineering and Transportation System. (EI Conference)*

2. **A Combined Deep Learning Method with Attention-Based LSTM Model for Short-Term Traffic Speed Forecasting**
   Pan Wu, Zilin Huang*, Yuzhuang Pian, Lunhui Xu, Jinlong Li, and Kaixun Chen
   *Journal of Advanced Transportation. 2020. DOI: 10.1155/2020/8863724. (SCI/EI, IF: 1.67, JCR: Q3)*

3. **Bus Travel Time Prediction Based on Exterme Learning Machine Optimized by Artificial Bee Colony Algorithm**
   Lunhui Xu*, Nan Su, Yuzhuang Pian, and Peiqun Lin
   *Journal of Guangxi Normal University(Natural Science Edition). 2021. DOI: 10.16088/j.issn.1001-6600.2020073102*

4. **Game Analysis of Traffic Conflict between Pedestrian and Vehicles on Unsignalized Road Section Based on Cumulative Prospect Theory**
   Lunhui Xu*, Yuzhuang Pian, Yongjie Lin, and Zilin Huang
   *China Journal of Highway and Transport, Minor Revision for the 2st Round Review*

## Professional Experience

**Big Data and Transportation Network Analysis Lab** Sep. 2019 – Jun.2022
*Graduate student researcher with Prof. Lunhui Xu*

- Prepare Master's Thesis: Game Analysis and Decision Making research on pedestrian and Vehicle Traffic Conflict in Unsignalized Road Sections
- To proposes a game model of pedestrian-vehicle interaction decision-making on unsignalized road sections, which is used to formulate the decision-making behavior of pedestrians with vehicles obstacle avoidance at macro level.
- The cumulative prospect theory and conformity effect are introduced to simulate the psychological influence of drivers and pedestrians in the decision-making process.
- Evolutionary game theory was used to solve the model and analyze its stability, and the stability points and four evolution trends of pedestrians-vehicle interaction system were found.

**Chongqing Key Lab of Traffic System & Safety in Mountain Cities** Sep. 2018 – Jun. 2019
*Graduate student researcher with Prof. Jinshuan Peng*

- Undergraduate's Thesis: Simulation and Optimization Design of Passenger Distribution Behavior of Road Passenger Stations

- A simulation method of passenger gathering and distributing behavior in passenger terminals is proposed to verify the rationality of facility layout and pedestrian circulation design in passenger terminals.
- Quantitative analysis of the characteristics of passenger gathering and evacuation phenomenon and traffic characteristics of road passenger stations provides parameter support for pedestrian simulation
- In the Massmotion simulation model, by analyzing pedestrian indicators such as flow of people, speed and per capita density, the bottleneck point of traffic flow in the station is found and the countermeasures are put forward.

## Patents

1. **A Parking Lot Vehicle Guided Parking System**
   Yuzhuang Pian, Jinshuan Peng, Wangqing Liu, Yanshi Cao, Xuyang Jian and Lei Tang
   *Chinese Invention Patent; Application Number: CN201710721572.2; Legal Status: Grant of Patent*

2. **A Kind of Rssi-based Early Warning Device for Dangerous Vehicles**
   Yuzhuang Pian, Zilin Huang, Yongjie Lin, Yuqing Zhan, and Pan Wu
   *Chinese Utility Model Patent; Application Number: CN202021751321.2; Legal Status: Grant of Patent*

3. **An Rssi-based Road Traffic Congestion Detection and Diversion Device**
   Zilin Huang, Yuzhuang Pian, Yongjie Lin, Pan Wu, and Yuqing Zhan
   *Chinese Utility Model Patent; Application Number: CN202021751310.4; Legal Status: Grant of Patent*

4. **A Kind of RSSI-based for Smart City Pedestrian Traffic Collection Device**
   Chao He, Han Wang, Guoqing Wu, Yuzhuang Pian, Zilin Huang, and Jianhong Chen
   *Chinese Invention Patent; Application Number: CN202021782535.6; Status: Substantive Examination*

5. **A RSSI-based Real-time Traffic Accident Detection and Warning System in Tunnel**
   Binrao, Zhihong Ye, Yongjie Lin, Haochuan Zhong, Yuqing Zhan, Jiajun Wu, Yuzhuang Pian, and Zilin Huang
   *Chinese Invention Patent; Application Number: CN202120982224.2; Status: Substantive Examination*

## Scholarships & Fellowships (selected)

**2st Prize Scholarship for Excellent Student, SCUT** 2019 – 2021
*Awarded to graduate students with excellent academic record, winner of the award three times*

**Grant Graduate Research Funding (RMB ¥60,000), Guangdong Province, SCUT** 2020
*Design of holographic sensing system for urban road Traffic based on RSSI, Project number: pdjh2020a0030*

**Innovation Training Program for College students (RMB ¥3,000), Chongqing Province** 2018
*Design of waste vehicle recycling platform based on crowdsourcing mode, Project number: 201810618017*

**Innovation Training Program for College students (RMB ¥3,000), CQJTU** 2017
*Study on free parking Space Guidance System based on water flow, Project number: 201710618074*

## Academic Competiton Awards & Honors (selected)

**Outstanding part-time instructor of South China University of Technology, SCUT** 2020
*To reward part-time counselors with excellent work skills*

**Outstanding Graduates of CQJTU** 2019
*Awarded to students with excellent comprehensive abilities*

**Interdisciplinary Mathematical Modeling Competition** 2018
*Honorable Mention Prize*

**10st National College Mathematics Competition** 2018
*Provincial 2st Prize*

**Merit Student of CQJTU** 2018
*Awarded to students with excellent comprehensive abilities*

**National College Students Mathematical Contest in Modeling** 2017
*Provincial 2st Prize*

## Technical Skills

**Language**: Python, SQL, LaTeX
**Tools**: Visual Studio Code, SUMO, ArcGIS, MATLAB, Massmotion, SPSS, Origin, PhotoShop
**Foreign Language**: CET4 (442), TOEFL (63)