Junjie Hu

No. 22 Shaoshan South Road, Changsha Hunan 410075 P.R. China |
Email:Junjie_Hu@csu.edu.cn; junjiehuits@gmail.com
Phone: +86 19021494271 | Date of Birth: October, 2001
Research Topics: Traffic Spatio-Temporal Data Analysis;
Vehicular Decision-Making & Control; Advanced Traffic Safety Methodologies
Website: https://junjiehu-creater.github.io/
Google Scholar | Research Gate | ORCID

EDUCATION

09/2023-6/2026 **Central South University, Changsha, China**
M.Sc., Traffic Engineering
Advisor: Prof. Dr. Jaeyoung Lee

09/2019-6/2023 **Central South University, Changsha, China**
B.Sc. Logistics Engineering
Advisor: Prof. Dr. Guohua Wu

PEER-REVIEWED JOURNAL PUBLICATIONS

#1 **Hu, J**., Hu, C., Yang, J., Bai, J., & Lee, J. J. (2024). Do traffic flow states follow Markov properties? A high-order spatiotemporal traffic state reconstruction approach for traffic prediction and imputation. Chaos, Solitons, and Fractals, 183(114965), 11,2024

#2 **J. Hu**, J. Bai, J. Yang, and J. Lee, Crash Risk Prediction Using Sparse Collision Data: Causal Inference and Graph Convolutional Networks Approaches, Expert Systems with Applications, 125315,2025.

#3 **Hu J**, Lee J J. Car following dynamics in mixed traffic flow of autonomous and human-driven vehicles: Complex networks approach[J]. Physica A: Statistical Mechanics and its Applications, 2025, 665(C).

#4 Yang, J., Lee, J., Mao, S., & **Hu, J**. (2023). Dynamic safety estimation of airport pick-up area based on video trajectory data. IEEE Transactions on Intelligent Transportation Systems, 25(2), 1774-1786.

SUBMISSION TO PEER-REVIEWED JOURNAL & CONFERENCES

#1 **J. Hu**, Zhang, J. Bai, & J. Lee, Unraveling the Dynamic Rules of Urban Traffic Crashes: Tucker-Net Based SIRS Model, Available at SSRN: https://ssrn.com/abstract=4697054 or http://dx.doi.org/10.2139/ssrn.4697054.

#2 **J. Hu**, D. Gao, C. Hu, H. zhou & J. Lee, Rethinking driving style recognition: A prediction error-based driving behavior modeling, Under review.

#3 **J. Hu**, J. Bai, & J. Lee, Simplified and Efficient KNN-Based Method for High-Resolution Traffic Time Space Diagram Imputation, Under review.

#4 **J. Hu**, D. Gao, J. Lee, & L. Wang. Vehicle dynamics analytics based on complex network techniques: a trajectory-based visibility graph approach. Under review.

#5 **J. Hu**, J J. Lee. Re-examining the Explanatory Boundaries of Car-Following Models: From a Systematic Decomposition of Fitting Errors to the Revelation of Adaptive Feedback Mechanisms. Under review.

#6 Wang, **J. Hu**, Y. Yang & J. Lee , Analysis of injury severity of single-vehicle and two-vehicle crashes with lightweight vehicles (kei cars) in Japan: A random parameters approach with heterogeneity in means, Under review.

#7 C. Hu, J. Tang, Z. Li, Y. Han, Y. Wang, J. Zeng, & **J. Hu**, Dynamic partitioning of heterogeneously loaded road networks: A two-level regionalization scheme with Monte Carlo tree search, Under review.

2023 **World Transport Convention, Wuhan, China**
Presented a paper titled “Prediction of Traffic Risk based on Domain Transfer Graph Neural Network under Causal Inference”

AWARDS AND SCHOLARSHIPS

2024	2024 National Scholarship for Graduate Students
2023	China Graduate Student Mathematical Modelling Competition **(Second Prize)**
2022	The Mathematical Contest in Modeling Competition **(H Prize)**
2022	National College Students' Energy Conservation and Emission Reduction Competition **(Third Prize)**
2021	National College Student Logistics Simulation Competition **(Third Priz)**
2021	Asia and Pacific Mathematical Contest in Modeling **(Third Prize)**
2021	Chinese College Student Mathematical Modeling Competition **(Second Prize)**
2020-2022	Academic Scholarship for Central South University **(Third Prize)**
2023-2024	Academic Scholarship for Central South University **(First Prize)**

PROJECTS PARTICIPATED

2022-Present **Safety \& Planning Investigation and Research in Transportation (SPIRIT) Team**

Mentor: Prof. Jaeyoung Jay Lee

My major responsibilities have encompassed proposing innovative ideas, designing and conducting research, composing research articles for publication, collaborating with fellow team members, and preparing to present research findings.

2023 **Driving Path Guidance System Based on City-Level Trajectory With Safety Considerations**

Mentor: Prof. Ye Li

I have completed the Classification of Unsafe Driving Behaviors and Constructing a Road Risk Assessment Model Based on Trajectory Data, the project was approved as an innovative industry project for college students in Hunan Province.

2023 **Research on Collaborative Optimization and Incentive Mechanisms of Agricultural Waste Supply Chain Networks under the Rural Revitalization Strateg**

Mentor: Prof. Dezhi Zhang

I have completed the investigation of biomass recycling in some areas of Hunan Province, and designed the collection and transportation network structure, and obtained the Third Prize in the National College Students' Energy Conservation and Emission Reduction Competition as the Project Leader.

2021 **Intelligent Optimization Methods Personnel**

Mentor: Prof. Guohua Wu

I am systematically trained in intelligent optimization methods and deep learning.

EXPERTISE

Programming Language: Proficient in: Python; Familiar with: Matlab,SPSS,Latex.
Software: SPSS,GIS tools, Auto CAD, Mendeley.
Languages: English (IELTS 6.5/Chinese College English Test-6 495), Chinese