

# Qihang Sun | Curriculum Vitae

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## RESEARCH INTEREST

Economics of Transportation, Traffic Modeling, Optimization, Pedestrian Dynamics

## EDUCATION

<b>Beihang University</b> <i>Ph.D. Student in Management Science and Engineering</i>	<b>Beijing, CHN</b> 2023.09 - Present
<b>Beihang University</b> <i>B.S. in Biomedical Engineering (Minor)</i>	<b>Beijing, CHN</b> 2020.09 - 2023.06
<b>Beihang University</b> <i>B.S. in Information Management and Information System</i>	<b>Beijing, CHN</b> 2019.09 - 2023.06

## AWARDS & HONORS

- Best Paper Award, The 5th Frontier Symposium on Travel Behavior and Transportation Science, 2024
- Freshmen Scholarship, Beihang University, 2023
- Outstanding Graduate Student, Beihang University, 2023
- Merit Student, Beihang University, 2022
- Model Student of Academic Records, Beihang University, 2022
- The Grand Price Academic Scholarship, Beihang University, 2022
- The First Prize Discipline Competition Scholarship, Beihang University, 2022
- The Second Prize Social Work Scholarship, Beihang University, 2022
- Honorable Mention Prize in Mathematical Contest In Modeling (MCM), COMAP, 2022
- The Second Prize in China Undergraduate Mathematical Contest in Modeling, CUMCM, 2021
- The Second Price Academic Scholarship, Beihang University, 2021
- Outstanding Volunteer, Beihang University, 2021

## RESEARCH EXPERIENCE

<b>Flexible traffic demand management strategy considering violations</b>	2023.11 – Present
<ul style="list-style-type: none"><li>Designed a flexible traffic demand management strategy to reduce traffic congestion of morning commuting system.</li><li>Introduced a scheme in consideration of violations to reduce the deadweight losses to the system.</li><li>Derived the total travel cost under the equilibrium condition to prove the effectiveness of the strategy.</li></ul>	
<b>Alleviation of vertical congestion based on elevator retrofit</b>	2023.09 – 2023.11
<ul style="list-style-type: none"><li>Developed a novel retrofit scheme of elevators which converted the passenger elevator into cargo elevator to alleviate vertical congestion in peak time.</li><li>Demonstrated the theoretical and practical feasibility of the retrofit scheme.</li></ul>	
<b>Pedestrian flow modeling and analysis considering velocity heterogeneity</b>	2022.10 – 2023.08
<ul style="list-style-type: none"><li>Constructed continuous social force model of pedestrian dynamics, to reveal the movement characteristics of pedestrians more accurately.</li><li>Verified the validity of model construction and parameter setting by real pedestrian movement data.</li><li>Investigated the dynamic evolution of the self-organized phenomenon.</li></ul>	
<b>Development of a novel medical data management system</b>	2021.03 - 2021.06

- Established a medical database management system which can realize ECG data collection, storage, query, EDF standardized input and output and ECG real-time rendering .
- Laid a foundation for the subsequent implementation of data analysis, data mining, deep learning and other functions

## INTERNSHIP EXPERIENCE

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### Ministry of Industry and Information Technology

2022.03-2022.09

Undergraduate Research Assistant

- Participated in the construction of national digital infrastructure, collected and obtained macroeconomic indicators, monitored the operation of the electronics industry, and redacted a complete digital economy industry analysis series report.
- Developed two information systems to ensure the efficient and orderly daily business of the department.

## SKILLS

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<b>Programming</b>	Python, R, Matlab, C, SQL, $\text{\LaTeX}$
<b>Languages</b>	Chinese ( <i>Native</i> ), English ( <i>Conversational</i> )
<b>Software</b>	MS Office, IBM SPSS
<b>Sports</b>	Football, Badminton, Table tennis

## PUBLICATIONS

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- **New insights into bi-directional pedestrian flows with heterogeneous speeds: modeling and analyses**  
*Accepted by The 14th Workshop on Computational Transportation Science*  
Qi-Hang Sun, Ren-Yong Guo
- **Morning Peak Reservation Scheme Incorporating Noncompliance Behaviors: Modeling and Analysis**  
*Accepted by The 5th Frontier Symposium on Travel Behavior and Transportation Science (TBTS 2024)*  
Qi-Hang Sun, Ren-Yong Guo

## CONFERENCE TALKS

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- **The 14th Workshop on Computational Transportation Science**, Shanghai, 2023.08  
*Oral Presentation*
- **The 5th Frontier Symposium on Travel Behavior and Transportation Science**, Yichang, 2024.08  
*Oral Presentation*

## SELECTED COURSES

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- **Ph.D. Student:**  
Advanced Microeconomics Theory (94), Advanced Mathematical Programming (93), Optimization Method (98), Advanced Optimization Theory and Algorithm (92), Urban Economics (95), Advanced Academic English Writing (95)
- **Undergraduate:**  
Information Systems Analysis and Design (95), Program Designing (92), Production and Operations Management (94), Logistics and Supply Chain Management (96), Artificial Intelligence and Deep Learning (97), Decision-Making and Business Intelligence Systems (96), Large-Scale Database Application Experiment (96)

## REFERENCES

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- **Dr. Renyong Guo**  
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Beihang University, Beijing, CHN  
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