Shen Zijian 申子健

Ph.D. Student | Department of Civil Engineering
The University of Hong Kong | Hong Kong, China
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Google Scholar | ResearchGate | GitHub | LinkedIn

RESEARCH INTERESTS

Reinforcement learning for multimodal routing; LLM-enhanced travel data generation; travel behavior and traffic simulation.

EDUCATION

09/2026 - Present
Ph.D. in Civil Engineering
The University of Hong Kong | Expected graduation 2029

09/2024 - 07/2026
M.Phil. in Civil Engineering
The University of Hong Kong | Graduated

09/2022 - 09/2023
M.Sc. in Computer Science
The University of Hong Kong | GPA 3.47

09/2017 - 06/2021
B.Eng. in Automation
Beijing Institute of Technology | GPA 3.60

RESEARCH EXPERIENCE

11/2023 - 08/2024
Research Assistant | The Chinese University of Hong Kong
Full-time

09/2022 - 08/2024
Research Assistant | The University of Hong Kong
Part-time

PUBLICATIONS

Journal Papers

J1 Chen, T., **Shen, Z.**, Zhou, B., Liu, Y., Wang, S., and Ke, J. (2026). Addressing the online incremental transport mode choice prediction problem with an LLM-augmented class-incremental learning approach.
Transportation Research Part C: Emerging Technologies, 188, 105709

J2 Chen, T., **Shen, Z.**, Feng, S., Yang, L., and Ke, J. (2025). Dynamic adjustment of matching radii under the broadcasting mode: a novel multi-task learning strategy and temporal modeling approach.
Transportation Research Part E: Logistics and Transportation Review, 193, 103822

Working Papers

W1 **Shen, Z.**, Chen, T., Zhou, B., Jiang, Z., and Ke, J. (2026). LAB-Tab: LLM-Augmented Bayesian Network Adaptation for Few-Shot Tabular Generation.
AAAI 2027 [Under review]
arXiv:2608.01879

W2 **Shen, Z.**, Zhou, B., Wang, J., Zhao, Y., and Ke, J. (2026). LEBGen: An LLM-Enhanced Bayesian Network Framework for Few-Shot Travel Survey Data Generation.
Artificial Intelligence for Transportation [Under review]

W3 **Shen, Z.**, Chen, T., Zhou, B., Wang, J., and Ke, J. (2026). A Deep Reinforcement Learning Model for Centralized Route Recommendation in Multi-modal Transit Networks.
Transportation Research Part E: Logistics and Transportation Review [Major revision]

W4 Wang, J., Chen, T., **Shen, Z.**, Liang, J., Zhou, B., and Ke, J. SmartSim: A Scalable and Multimodal Open-Source Mesoscopic Urban Traffic Simulator.
Frontiers of Engineering Management [Minor revision]

CONFERENCE PAPERS

C1 **Shen, Z.**, Chen, T., Zhou, B., Wang, J., and Ke, J. (2026). A temporally aware deep reinforcement learning framework for centralized multi-path recommendation in large-scale multimodal transit networks.
105th Transportation Research Board Annual Meeting [Conference presentation]
Washington, DC | January 11-15, 2026

C2 **Shen, Z.**, Chen, T., Zhou, B., Wang, J., and Ke, J. (2025). Multipath: Deep learning based multimodal route guidance with user preference integration.
29th HKSTS International Conference [Conference presentation]
Hong Kong | December 8-9, 2025

C3 **Shen, Z.**, Chen, T., Wang, J., and Ke, J. (2024). Personalized fair matching in peer-to-peer ridesharing platforms under broadcasting mode: a LLM-driven driver approach.
28th HKSTS International Conference [Conference presentation]
Hong Kong | December 9-10, 2024

C4 **Shen, Z.**, Mu, Z., and Li, X. (2023). Multi-strategy collaborative optimized YOLOv5s and its application in distance estimation.
AEECA 2023

RESEARCH PROJECTS

SmartSim: AI-assisted Simulation Software for Multimodal Transportation Operations
2024 - 2026 | Core Member | Smart Traffic Fund, Hong Kong SAR Government
Grant: STF / PSRI/78/2311/RA

Development of a Simulation Platform and Artificial Intelligent Algorithms for Optimising Operation and Management of Taxi E-hailing Services
2023 - 2024 | Core Member | Smart Traffic Fund, Hong Kong SAR Government
Grant: STF / PSRI/29/2201/PR

Estimating carbon emissions, assessing decarbonization strategies and managing green transportation in Hong Kong with a multifunctional simulation platform
2024 - 2026 | Core Member | Environment Conservation Fund
Grant: ECF / 102/2022

Multimodal traffic simulation, route recommendation and subsidy: Enhancing first and last mile connectivity for MTR
2026 - 2028 | Core Member | MTR Research Funding
Grant: MRF 2025 / HKU-25003

TEACHING

Teaching Assistant | Department of Civil Engineering, The University of Hong Kong

CIVL3120	**Transportation Infrastructure Engineering** Semester 2, 2026-2027 (Upcoming)
CIVL7018	**Data Science for Civil Engineering** Semester 2, 2026-2027 (Upcoming); Semester 2, 2025-2026
CIVL6047	**Traffic Management and Control** Semester 2, 2025-2026
CIVL7021	**NEC Contract Management** Semester 1, 2025-2026

HONORS & AWARDS

2024 - 2029	Postgraduate Scholarship, The University of Hong Kong
2019	First Prize, Contemporary Undergraduate Mathematical Contest in Modeling (Beijing)
2019	Third Prize, BIT Science Contest
2017 & 2018	Second-Class Scholarship for Academic Excellence, Beijing Institute of Technology