Taijie Chen

Room 207, Haking Wong Building, the University of Hong Kong, Hong Kong, China | ctj21@connect.hku.hk

+86-156-4770-8518

EDUCATION

The University of Hong Kong — Hong Kong, CN
Ph.D. in Transportation Engineering, supervised by Prof. Jintao Ke — Apr 2023–Apr 2027 (expected)

École Polytechnique Fédérale de Lausanne (EPFL) — Lausanne, Switzerland
Visiting Ph.D. Student, supervised by Prof. Nicolas Geroliminis — Mar 2026–Sept 2026

The University of Hong Kong — Hong Kong, CN
M.S. in Computer Science — Sept 2021–Dec 2022

Nankai University — Tianjin, CN
B.E. in Software Engineering — Sept 2017–Jun 2021

RESEARCH INTERESTS

Artificial Intelligence for Transportation Systems; Learning-based Sequential Decision Making; Human Mobility Intelligence and Foundation Models; Transportation Digital Twins and Simulation.

RESEARCH OVERVIEW

My research focuses on developing **artificial intelligence methodologies for next-generation mobility systems**. Specifically, I investigate: (1) **learning-based decision-making** approaches for large-scale transportation platforms, (2) **human mobility intelligence** through machine learning and foundation models, and (3) **AI-enabled simulation and digital twins** for transportation system analysis and optimization.

SELECTED PUBLICATIONS AND MANUSCRIPTS

Learning-based Decision Making and Optimization for Mobility Systems

[1] **Chen, T.**, Su, R., Feng, S., Zhang, L., Zhang, H., Wang, H., Ma, Z., Ke, J., & Ma, L. D^3-Subsidy: Online and Sequential Driver Subsidy Decision-Making for Large-Scale Ride-Hailing Market. In *Proceedings of the 32nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Vol. 2 (KDD '26)*, pp. 7094–7105, 2026. doi:10.1145/3770855.3818350. (CCF-A)

[2] **Chen, T.**, Liu, J., Feng, S.*, Qiu, J., & Ke, J. T2BR: A Hierarchical Repositioning Approach for Autonomous Mobility-on-Demand Systems. *IEEE Transactions on Intelligent Transportation Systems*, 26(12), 23139–23150, 2025. (SCI-Q1 Top, JCR-Q1, CCF-B, IF 8.5)

[3] **Chen, T.**, Su, R., Feng, S.*, Zhang, L., Wang, H., Liu, X., Zhang, H., Ma, Z., Ma, L., & Ke, J.* Sequential Driver Subsidy Control for Large-Scale Ride-Hailing Platforms under Budget Constraints. Manuscript submitted to *IEEE Transactions on Intelligent Transportation Systems*.

[4] **Chen, T.**, Shen, Z., Feng, S.*, Yang, L., & Ke, J. Dynamic Matching Radius Decision Model for On-Demand Ride Services: A Deep Multi-Task Learning Approach. *Transportation Research Part E: Logistics and Transportation Review*, 193, 103822, 2025. (SCI-Q1 Top, JCR-Q1, IF 8.3)

[5] Shen, Z., **Chen, T.**, Zhou, B., & Ke, J.* Multipath: Deep Learning-Based Multimodal Route Guidance with User Preference Integration. Major revision at *Transportation Research Part E: Logistics and Transportation Review*.

Foundation Models and LLM for Urban Computing

[6] **Chen, T.**, Shen, Z., Zhou, B., Liu, Y., Wang, S., & Ke, J. 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, 2026. (SCI-Q1 Top, JCR-Q1, IF 7.9)

[7] **Chen, T.**†, Su, R.†, Zhao, Y.*, & Ke, J. Assisting Feature Discovery for Travel-Behaviour Regression with Iterative Large Language Model Agents. Manuscript submitted to *Travel Behaviour and Society*.

[8] Tan, W., Chen, D., Xue, J., Wang, Z., & **Chen, T.*** Teaching-Inspired Integrated Prompting Framework: A Novel

Approach for Enhancing Reasoning in Large Language Models. In *Proceedings of the 31st International Conference on Computational Linguistics: Industry Track*, pp. 827–839. (CCF-B)

[9] Jiang, Z., **Chen, T.**, Xu, J., Shen, Z., Zhou, B., & Ke, J. VISTA: Vision-Language Integrated Spatiotemporal Station Recommendation for Autonomous Taxi Fleets. Manuscript submitted to *AAAI 2027*.

[10] Shen, Z., **Chen, T.**, Zhou, B., Jiang, Z., & Ke, J.* LAB-Tab: LLM-Augmented Bayesian Network Adaptation for Few-Shot Tabular Generation. Manuscript submitted to *AAAI 2027*; arXiv preprint arXiv:2608.01879.

Human Mobility Intelligence and Behavioral Modeling

[11] **Chen, T.**, Liang, J., Zhao, Y.*, & Ke, J. To Grab or Not to Grab? Revealing Determinants of Drivers' Willingness to Grab Orders under the Broadcasting Mode. *Travel Behaviour and Society*, 41, 101093, 2025. (SCI-Q1 Top, JCR-Q1, IF 5.1)

AI-enabled Transportation Simulation and Digital Twins

[12] Feng, S., **Chen, T.**, Zhang, Y., Ke, J.*, Zheng, Z., & Yang, H. A Multi-Functional Simulation Platform for On-Demand Ride Service Operations. *Communications in Transportation Research*, 4, 100141, 2024. (SCI-Q1 Top, JCR-Q1, IF 12.5)

[13] Wang, J., **Chen, T.**, & Ke, J.* SMARTSim: Scalable Multimodal AI-Friendly Rapid Transportation Simulator. Major revision at *ENGINEERING Management*.

** Corresponding author; † Equal contribution.*

PATENTS

[1] Ke, J., **Chen, T.**, Wang, J. An AI-based System for Simulating a Transportation Network. Hong Kong Standard Patent (Original Grant), Application No. 22025109703.0, filed on 10 Jul 2025, claiming priority to U.S. Patent Application No. 63/669,387.

[2] Ke, J., **Chen, T.** 基于类别增量的可扩充出行选择预测系统. China Patent, Application No. 2026105953942, filed on 30 April 2026.

[3] **Chen, T.**, Zhang, L., Ma, L., Ma, Z., Wang, H., Feng, S., Su, R. 一种用于管理出行服务的方法和装置. China Patent Application, Application No. 202610230692.1, filed on 26 February 2026.

[4] Su, R., Zhang, L., Ma, L., Ma, Z., Wang, H., Feng, S., **Chen, T.** 一种用于管理出行服务的方法和装置. China Patent Application, Application No. 202610230690.2, filed on 26 February 2026.

[5] Ke, J., **Chen, T.**, Wang, J. 基于行为感知的混合自动驾驶共享出行司乘匹配方法. China Patent Application, Application No. 202511647569.1, filed on 11 November 2025.

INTERNSHIP

Research Intern, Noah's Ark Lab, Huawei Co., Ltd — Sep 2026–Current

- LLM agent design for specific domain and LLM post-training.

Research Intern, Didi Chuxing Co., Ltd — July 2025–Feb 2026

- Model dynamic pricing as a CMDP problem and then design a reinforcement learning algorithm to solve it.

Research Intern, Didi Chuxing Co., Ltd — Nov 2022–Jul 2023

- Use time series models to detect electric vehicle anomaly detection.

Research Assistant, The Hong Kong University of Science and Technology — Aug 2022–Mar 2023

- Research and develop reinforcement learning methods for vehicle dispatching and vehicle repositioning.

PROJECTS

[1] Tianjin Innovation and Entrepreneurship Training Project, 201910055373, "Digital inheritance of intangible cultural heritage based on VR technology—taking Tianjin's "Clay Figure Zhang" culture as an example". Sep 2019–Sep 2024, RMB$ 10,000., PI.

[2] Smart Traffic Fund, PSRI/78/2311/RA, "SmartSim: AI-assisted Simulation Software for Multimodal Transportation Operations", 1 Sep 2024 –31 August 2026, Core Member.

[3] Smart Traffic Fund of Hong Kong SAR Government, PSRI/29/2201/PR, "Development of a Simulation Platform and

Artificial Intelligent Algorithms for Optimising Operation and Management of Taxi E-hailing Services" , 31 Mar 2023 –30 Sep 2024, Project Manager.

[4] CCF-DiDi GAIA 202410. "A Study on Spatiotemporal Supply-Demand Regulation in the Ride-Hailing Scenario". Sep 2024–Sep 2025, RMB$ 250,000, Core Member.

AWARDS & HONORS

Zhungeer Banner Rising Star Scholarship	2025
Postgraduate Scholarship	2023–2027
Third Prize of China Internet + Tianjin Competition	2020
Social Welfare Scholarship, Nankai University	2020
Innovation and Entrepreneurship Scholarship, Nankai University	2020
Academic Excellence Scholarship, Nankai University	2019