

Jintao KE

CONTACT INFORMATION	Room M624, 6/F, Li Ka Shing Tower, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, China	Phone: 852-68762150 E-mail: jintao.ke@polyu.edu.hk
PERSONAL INFORMATION	Personal website: https://sites.google.com/view/kejintao [Google Scholar] [Research Gate]	
EDUCATION	Ph.D. Civil Engineering , Hong Kong University of Science and Technology, China Supervisor: (Prof. Hai Yang) Thesis Title: supply and demand management in ride-sourcing markets 2016-2020	
	B.S. Civil Engineering , Zhejiang University, China GPA: 3.89/4.0(89.06/100), Rank 1 st of 189 students.	2012-2016
ACADEMIC POSITION	Hong Kong Polytechnic University , Research Assistant Professor, Department of Logistic and Maritime Studies	Aug 2020 - present
EXPERIENCE	Exchange Student , University of Michigan Supervised by Prof. Yafeng Yin Feb 2020 - July 2020	
	Research Intern , Didi Research Institute Supervised by Prof. Jieping Ye Jun 2017 - Dec 2017	
	Research Assistant , HKUST-Didi Joint Lab Supervised by Prof. Hai Yang Jan 2018 - Aug 2020	
RESEARCH INTERESTS	<ul style="list-style-type: none">• Smart transportation and smart city• Urban computing• Shared mobility (ride-sharing, ride-sourcing, taxi industry)• Operations and management in transportation• Machine learning and deep learning in transportation• Electric vehicles and autonomous vehicles	
WORKING PAPERS	<ol style="list-style-type: none">1. Ke J.*, Yang H. and Zheng Z. (2020) Equilibrium properties of on-demand ride-splitting markets in the presence of congestion effects. Under review in <i>Transportation Research Part B: Methodological</i> (major revision in the 2nd round review). (SSCI & SCI, impact factor 4.796, JCR Q1)2. Ke J., Zhu Z.*, Yang H., and He Q. (2020). Substitutive and complementary on-demand ride-sourcing services to public transit. Under review in <i>Transportation Research Part E: Logistics and Transportation Review</i>. (SSCI & SCI, impact factor 4.690, JCR Q1)3. Ke J., Qin X.*, Yang H., Zheng Z., Zhu Z., and Ye J. (2020). Predicting origin-destination ride-sourcing demand with a spatio-temporal encoder-decoder residual multi-graph convolutional network. Under review in <i>Transportation Research Part C: Emerging Technologies</i> (major revision in the 1st round review). (SCI, impact factor 6.077, JCR Q1)4. Ke J., Feng S., Zhu Z.*, Yang H., and Ye J. (2020). Joint predictions of ride-hailing demands for multiple service modes with a deep multi-task multi-graph learning framework. Under review in <i>Transportation Research Part C: Emerging Technologies</i>. (SCI, impact factor 6.077, JCR Q1)	

5. **Ke J.**, Zheng Z.*, Yang H., and Ye J. (2020). Data-Driven analysis of matching probability, routing Distance and detour distance in on-demand ride-pooling services. Under review in *Transportation Research Part C: Emerging Technologies*. (SCI, impact factor 6.077, JCR Q1)
6. **Ke J.**, Yang H., Chen X.*, and Li S. (2020). Managing on-demand ridesplitting and non-ridesplitting services in the presence of traffic congestion. Under review in *Transportation Research Part B: Methodological*. (SSCI & SCI, impact factor 4.796, JCR Q1)
7. Urata J., **Ke J.**, Xu Z., Wu G., Yin Y., Yang H., and Ye J. (2020). Understanding ride-sourcing drivers' customer searching behaviors. Under review in *Transportation Research Part C: Emerging Technologies*. (SCI, impact factor 6.077, JCR Q1)
8. Zhu Z., **Ke J.*** and Wang H. (2020). A mean-field markov decision process for ride-sourcing modeling: optimization of spatial subsidy and idle vehicle relocation. Under review in *the 24th International Symposium on Transportation and Traffic Theory (ISTTT24)*, scheduled for July 24 to 26, 2021 at Beihang University, Beijing, China.
9. **Ke J.**, Wang H.*, Zheng Z. (2020). Optimal demand allocation in ride-sourcing markets with a bundled service option. Under review in *the 24th International Symposium on Transportation and Traffic Theory (ISTTT24)*, scheduled for July 24 to 26, 2021 at Beihang University, Beijing, China.
10. Qin X., **Ke J.***, Liu, W. (2020). Upgrading in ride-sourcing services with multiple vehicle classes. Under review in *the 24th International Symposium on Transportation and Traffic Theory (ISTTT24)*, scheduled for July 24 to 26, 2021 at Beihang University, Beijing, China.

JOURNAL
PUBLICATIONS

1. **Ke J.**, Yang H., Li X., Wang H.*, and Ye J. (2020) Pricing and equilibrium in on-demand ride-pooling markets. *Transportation Research Part B: Methodological*, 139, 411-431. (SSCI & SCI, impact factor 4.796, JCR Q1)
2. **Ke J.**, Xiao F.*, Yang H. and Ye J. (2020) "Learning to delay in ride-sourcing systems: a multi-agent deep reinforcement learning framework," in *IEEE Transactions on Knowledge and Data Engineering*. In press. doi: 10.1109/TKDE.2020.3006084.
3. Chen X., Zheng H., **Ke J.**, and Yang H.* (2020). Dynamic optimization strategies for on-demand ride services platform: surge pricing, commission rate, and incentives. *Transportation Research Part B: Methodological*, 138, 23-45. (SSCI & SCI, impact factor 4.796, JCR Q1)
4. Zhu Z., Qin X.*, **Ke J.**, Zheng Z. and Yang H. (2020). Analyzing the Impact of Ridesplitting Programs on Multi-Modal Commute Behavior based on a Network Model. *Transportation Research Part A: Policy and Practice*, 132, 713-727. (SSCI & SCI, impact factor 3.992, JCR Q1)
5. Yang H. Qin X., **Ke J.*** and Ye J. (2020). Optimizing matching time interval and matching radius in on-demand ride-sourcing markets. *Transportation Research Part B: Methodological*, 131, 84-105. (SSCI & SCI, impact factor 4.796, JCR Q1)
6. **Ke, J.**, Cen, X., Yang, H., Chen, X.*, and Ye, J. (2019). Modelling drivers' working and recharging schedules in a ride-sourcing market with electric vehicles and gasoline vehicles. *Transportation Research Part E: Logistics and Transportation Review*, 125, 160-180. (SSCI & SCI, impact factor 4.690, JCR Q1)
7. **Ke J.**, Yang H., Zheng H., Chen X.*, Jia Y., Gong P., Ye J. (2019). Hexagon-based convolutional neural network for supply-demand forecasting of ride-sourcing services. *IEEE Transactions on Intelligent Transportation Systems*, 20(11), 4160 - 4173. (SCI, impact factor 6.319, JCR Q1)

8. **Ke J.**, Zhang S., Yang H. and Chen X.* (2018). PCA-based missing information imputation for real-time crash likelihood prediction under imbalanced data. *Transportmetrica A: Transport Science*, 15(2), 872-895. (SSCI & SCI, impact factor 1.988, JCR Q3)
9. Yang, H., **Ke, J.***, and Ye, J. (2018). A universal distribution law of network detour ratios. *Transportation Research Part C: Emerging Technologies*, 96, 22-37. (SCI, impact factor 6.077, JCR Q1)
10. **Ke J.**, Zheng H., Yang H. and Chen X.* (2017) Short-term forecasting of passenger demand under On-demand ride services: A spatio-temporal deep learning approach. *Transportation Research Part C: Emerging*, 85, 591-608. (SCI, impact factor 6.077, JCR Q1) [**ESI Highly Cited paper (1%) and Hot paper (0.1%)**]
11. Shao, C.*, Yang, H., Zhang, Y., and **Ke, J.** (2016). A simple reservation and allocation model of shared parking lots. *Transportation Research Part C: Emerging Technologies*, 71, 303-312. (SCI, impact factor 6.077, JCR Q1)

(* refers to the corresponding author)

CONFERENCE PAPERS

1. Zheng Z., Yang H., Wang H. and **Ke, J.** (2019) The effect of bundle option in ride-sourcing markets on travel behavior. *Proceedings of the 24th International Conference of Hong Kong Society for Transportation Studies*, HKSTS 2019: Transport and Smart Cities.
2. **Ke J.**, Yang H. and Zheng Z. (2019) Equilibrium properties of on-demand ride-splitting markets in the presence of congestion effects. *Proceedings of the 24th International Conference of Hong Kong Society for Transportation Studies*, HKSTS 2019: Transport and Smart Cities. (**Speaker**)
3. Yang H., Hassan R. and **Ke J.** (2019) meeting points in ridesharing system. *Proceedings of the 24th International Conference of Hong Kong Society for Transportation Studies*, HKSTS 2019: Transport and Smart Cities.
4. **Ke J.***, Yang H., Zheng Z. (2019). Modelling a ride-sharing market with congestion externality. *The 3rd International Symposium on Multimodal Transportation (ISMT): Automation, Sharing, and Electrification in Transportation*, National University of Singapore, December 6 to 7, 2019. (**Speaker**)
5. **Ke J.**, Cen X., Yang H., Chen X.* (2019). Modelling the Working and Recharging Schedules of Electric-vehicle Drivers in a Ride-sourcing Market. *The 97th Annual Meeting of Transportation Research Board, Washington DC, United States*, January, 2019. (**Speaker**)
6. **Ke J.***, Yang H., Li X., Wang H. (2019). Pricing, matching probability, and detour cost in a ride-sharing market. *The 97th Annual Meeting of Transportation Research Board, Washington DC, United States*, January, 2019. (**Speaker**)
7. Yao, H., Wu, F., **Ke, J.**, Tang, X., Jia, Y., Lu, S., Gong P., and Ye, J. (2018). Deep multi-view spatial temporal network for taxi demand prediction. In *Thirty-Second AAAI Conference on Artificial Intelligence*, (AAAI 2018), New Orleans, LA, Feb. 2018.
8. **Ke J.**, Yang H., Li X., Wang H.*, and Ye J. (2019) Pricing and matching frictions in ride-sourcing markets. *The 19th COTA International Conference of Transportation and Professionals*, Nanjing, China, July. (**Speaker**)
9. **Ke J.***, Yang H. and Zheng Z. (2019) Can ride-splitting reduce traffic congestion? *The 7th Informatics Transportation Science & Logistic (TSL) Society Workshop*, University of Vienna, Vienna, Austria, July 15 - July 18, 2019. (**Speaker**)

10. Yang H., Qin X., **Ke J.*** (2018) Modelling and optimizing the real-time matching processes in a ride-sourcing market. *Proceedings of the 23rd International Conference of Hong Kong Society for Transportation Studies*, HKSTS 2018: Transportation Systems in the Connected Era. (**Speaker**)
11. **Ke J.**, Cen, X., Yang H. and Chen, X. (2018) Modelling the working and recharging schedules of electric-vehicle drivers in a ride-sourcing market. *Proceedings of the 23rd International Conference of Hong Kong Society for Transportation Studies*, HKSTS 2018: Transportation Systems in the Connected Era. (**Speaker**)

PATENTS

1. Jintao, K. E., et al. "System and method for determining passenger-seeking ride-sourcing vehicle navigation." U.S. Patent Application No. 16/703,945.
2. Ke Jintao et al. "A regional approach for predicting ride-hailing supply-demand gap". China patent, No. CN109948822A.

HONORS AND AWARDS

1. Best poster paper award in the 19th COTA International Conference of Transportation and Professionals, Nanjing, China. 2019
2. Best paper award in the 9th International Workshop on Computational Transportation Science (CTS), Lanzhou, China. 2017
3. My first-authored paper "Short-term forecasting of passenger demand under on-demand ride services: A spatio-temporal deep learning approach" is the ESI hot paper (top 0.1%) and highly cited paper (top 1%). It has been cited by 200 times in google scholar and 100 times in web of science since 2017. [[Link](#)]
4. Hong Kong PhD Fellowship Scheme (HKPFS). A very competitive scholarship with around 200 awardee for all disciplines all over the world each year. 2016
5. National scholarship, awarded by Ministry of Education of China. 2014
6. Rank 1st among 189 undergraduate students in Department of Civil Engineering, Zhejiang University. 2016

RESEARCH PROJECTS

1. 2018-2019, **Didi Chuxing (the largest shared mobility platform in China)**. *Project title*: Understanding behaviors of drivers and passengers in on-demand ride-sourcing markets. *Role*: investigator. *Summary*: The project 1) develops a deep learning model for short-term supply-demand forecasting, 2) examines drivers' behaviors on working schedules and customer searching directions; 3) investigates subsidy/reward scheme for alleviate supply-demand mismatching and disequilibrium.
2. 2018-present, **General Research Fund of Research Grants Council in Hong Kong**. *Project Title*: Shareability, traffic congestion, and operational strategies in a ride-sourcing market. *Role*: investigator. *Summary*: The project develops theoretical models and conduct empirical studies to investigate supply-demand management of ride-sourcing markets. The models are used to discern platform designs with operating strategies to achieve a "win-win-win" situation, in which the platform, passengers, and drivers are all made better off.
3. 2016-2019, **General Research Fund of Research Grants Council in Hong Kong**. *Project Title*: How is e-hailing reshaping the taxi industry? *Role*: investigator. *Summary*: The project examines the pricing strategies of e-hailing platform operators under different market structures and looks into the desirable regulatory regimes for the taxi industry with e-hailing.

4. 2019-present, **NSFC/RGC Joint Research Scheme in Hong Kong**. *Project Title*: Passenger Mobility Analysis based on Car-hailing Platform Data and Artificial Intelligence Algorithms. *Role*: investigator. *Summary*: The project aims to develop novel deep learning and reinforcement learning algorithms and a combination of the two using data collected by DiDi Chuxing. It will use the algorithms to explore passenger demand estimation, traffic state forecasting, and how to optimize dynamic dispatching of ride-sourcing cars on a large scale.

TEACHING EXPERIENCE

1. Lecturer, The Hong Kong Polytechnic University of Science and Technology, Introduction to Business Analytic, 2020 Sep - present.
2. Teaching Assistant, Hong Kong University of Science and Technology, Infrastructure Systems Engineering and Management (CIVL2170), 2019 Feb - Jun.
3. Teaching Assistant, Hong Kong University of Science and Technology, Traffic and Transportation Engineering (CIVL 3610), 2018 Feb - Jun.
4. Teaching Assistant, Hong Kong University of Science and Technology, Infrastructure Systems Engineering and Management (CIVL2170), 2017 Feb - Jun.

PROFESSIONAL SERVICES

Referee for Academic Journals and Peer-reviewed Conferences

- ACM Transactions on Spatial Algorithms and Systems
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Knowledge and Data Engineering
- Transportation Research Part C: Emerging Technologies
- Transportation Research Part B: Methodological
- Transportation Research Part E: Logistics and Transportation Review
- Transportmetrica B: Transport Dynamics
- COTA International Conference of Transportation Professionals
- International Symposium on Transportation and Traffic Theory (ISTTT)

OTHERS

- Programmer using MATLAB, Python
- Professional in prevailing machine learning packages, e.g. Pytorch, tensorflow, keras
- Native speakers in Mandarin and Cantonese

REFERENCE

1. **Prof. Hai Yang**

Chair Professor in Hong Kong University of Science and Technology, Hong Kong, China

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2. **Prof. Yafeng Yin**

Professor and Associate Department Chair of Graduate Programs, Department of Civil and Environmental Engineering, University of Michigan

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3. **Prof. Xiqun Chen**

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