



SEMINAR

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Department of Civil Engineering &
Institute of Transport Studies, The University of Hong Kong

Ride-Sourcing Systems & Multiple-Objective Online Ride Matching

Dr. Hai WANG
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Singapore

Date: 28 June 2022 (Tuesday)
Time: 11:30 a.m. - 12:30 p.m.
Venue: Room 632, 6/F, Haking Wong Building, The University of Hong Kong
Zoom: <https://hku.zoom.us/j/97369816828> (Meeting ID: 973 6981 6828)

ABSTRACT

We propose a general framework to study the on-demand shared ride-sourcing transportation systems and summarize the relevant research problems in four areas, namely, demand, supply, platform operation, and system problems. We then focus on the online matching problem, in which the platforms match passengers and drivers in real-time without observing future information, considering multiple objectives such as pick-up time, platform revenue, and service quality. Given stationary and non-stationary decision scenarios, we develop efficient online matching policies that adaptively balances the trade-offs between multiple objectives in a dynamic setting and provide theoretical performance guarantees for the policy. Through numerical experiments and industrial testing using real data from a ride-sourcing platform, we demonstrate that our approach can arrive at a delicate balance among multiple objectives and bring value to all the stakeholders in the ride-sourcing ecosystem.

ABOUT THE SPEAKER

Dr. Wang is an Associate Professor in the School of Computing and Information Systems at Singapore Management University and a visiting faculty at the Heinz College of Information Systems and Public Policy at Carnegie Mellon University. He received B.S. from Tsinghua University and Ph.D. in Operations Research from MIT. His research focuses on methodologies of analytics and optimization, data-driven decision-making models, machine learning algorithms, and their applications in smart cities, transportation and logistics systems. He has published in leading journals such as *Transportation Science*, *American Economic Review* P&P, *M&SOM*, and *Transportation Research Part B/C*. He has long term collaborations with leading companies such as DiDi, Meituan, Tencent, and Upwork. He serves as Associate Editor for *Transportation Science*, Special Issue Guest Editor for *Transportation Research Part B*, *Part C*, and *Service Science*, and Editorial Board Member for *Transportation Research Part E*. Dr. Wang was selected as Chan Wu & Yunying Rising Star Fellow in transportation and mobility, received Lee Kong Chian Research Excellence Award, was nominated for MIT's top graduate teaching award, and won the Excellent Teaching award for junior faculty at SMU. During his Ph.D. studies at MIT, he also served as the co-President of the MIT Chinese Students & Scholars Association and as Chair of the MIT-China Innovation and Entrepreneurship Forum.

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