

The Hong Kong University of Science and Technology
Dept of Information Systems, Business Statistics
and Operations Management
Frontiers in Operations Management Workshop



A Decentralized Carpool Matching Market

by

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Professor

**Innovation and Information Management
The University of Hong Kong Business School**

Date : **2 December 2022 (Friday)**
Time : **2:00 – 2:45 PM**
Venue : **Room G012, LSK Business Building, HKUST**



Abstract:

Decentralized two-sided matching markets serve millions of people every year across the world with the rise of the sharing economy. Prominent examples include the accommodation platform Airbnb and ride-sharing platforms such as DiDi, Grab and BlaBlaCar. These markets have several features: (1) participants enter and leave the market over time, (2) participants on one side publicize their willingness to be matched and wait for the other side to choose, and (3) participants have heterogeneous preferences for partners. Such a market may not operate efficiently due to participants' limited information and search frictions. This paper studies a decentralized carpool matching market by using data from a Chinese ride-sharing platform to estimate a model of search and matching between drivers and passengers. It measures the passengers' valuation of trips, the drivers' preferences and their search length, and the drivers' and the passengers' waiting costs. It assesses whether centralized algorithms that require different information sets can improve match rates and quality. An interesting finding is that a greedy algorithm can decrease the participants' waiting costs, increase match rates and the platform's revenue, but reduce the drivers' surplus.

Joint work with Tracy Xiao Liu, Tsinghua University, and Chenyu Yang, University of Maryland

Bio:

Prof Zhixi Wan is Professor in the area of Innovation and Information Management. His expertise includes supply chain management, value chain strategies, and marketplace economics and operations. His research on these topics has been published in top-tier research journals including *Management Science*, *Operations Research*, *Manufacturing and Service Operations Management*, *Strategic Management Journal*, and *Production & Operations Management*.

He received his Ph.D. in Operations and Management Science from the Ross School of Business at the University of Michigan, Ann Arbor. Before joining the University of Hong Kong, he was a tenured Associate Professor at the University of Oregon, and an Assistant Professor at HEC Paris and an Assistant Professor at the University of Illinois, Urbana-Champaign. He was on an academic leave and worked in Didichuxing, a leading ride-hailing platform firm, as DiDi Economist and the head of the company's research center of Innovation and Operations Management.

Prof Wan obtained his Bachelor of Engineering degree from the Tsinghua University, and studied in the area of Automation Engineering (1999-2003).

All interested are welcome!

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