

Does Parking Matter? The Impact of Search Time for Parking on Last-Mile Delivery Optimization

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Talk will take place from 11:15AM - 12:05PM in Freeman Auditorium (and also through Zoom).

Abstract: Parking is a necessary component of traditional last-mile delivery practices, but finding parking can be difficult. Yet, the routing literature largely does not account for the need to find parking. In this paper, we address this challenge of finding parking through the Capacitated Delivery Problem with Parking (CDPP). Unlike other models in the literature, the CDPP accounts for the search time for parking in the objective and minimizes the completion time of the delivery tour. We determine when the search time for parking is large enough for the CDPP optimal solution to differ from the TSP solution. We also identify model improvements that allow reasonably-sized instances of the CDPP to be solved exactly. Computational experiments show that parking matters in last-mile delivery optimization. The CDPP outperforms industry practice and models in the literature showing the greatest advantage when the search time for parking is high. I will also present some of our initial work to extend our this initial deterministic model to consider stochastic availability of parking spots.

Bio: Ann Melissa Campbell is the Department Executive Officer of the Department of Business Analytics and Clement T. and Sylvia H. Hanson Family Chair in Manufacturing Productivity at the Henry B. Tippie College of Business at the University of Iowa. She joined the University of Iowa after receiving her Ph.D. from the School of Industrial and Systems Engineering at the Georgia Institute of Technology. Her research focuses on freight transportation, especially on problems related to new and emerging business models. She works on problems related to inventory routing, consumer direct delivery, route planning using stochastic information, and logistics planning for disaster relief. She publishes in journals such as Transportation Science

and Networks. She is a recipient of the NSF CAREER Award and serves as an Area Editor for Transportation Science. She led the department's efforts to win the 2021 INFORMS UPS George D. Smith Prize for excellence in analytics education.