



UNIVERSITY
OF ALBERTA

CPA Speaker Series - Business Analytics

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Friday, March 22, 2024

9:30 AM - 11:00 AM

Location: BUS 4-06

The Value of Zoning in Managing Time - Sensitive and Co-Modal Logistics Services

ABSTRACT

Zoning (or partitioning) is a popular strategy for operating spatial service systems such as last-mile delivery. On the practical side, zoning helps service providers (e.g., drivers) develop tacit knowledge and improve their performance over time. Theoretically, zoning provides good performance for solving traveling salesman problems. In this talk, I present new ways to operationalize zoning in emerging logistics systems. In the first part of the talk, I will discuss a zoning policy to minimize the expected delivery time of customer orders in a stochastic and dynamic setting motivated by food delivery. We characterize the structure of the optimal zoning policy and show its expected on-time performance converges to that of the flexible dispatching policy in heavy traffic. In the second work, I will talk about how zoning can be leveraged to coordinate package delivery and ride-hailing jobs. Interestingly, zoning plays a unique role in balancing delivery efficiency and flexibility when responding to on-demand rides.

