



Joint Webinar CIRRELT, MobilOpt and Canada research chair in integrated logistics

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MobilOpt: Mobility Optimization



Canada research chair
in integrated logistics

THE DYNAMIC VEHICLE ROUTING PROBLEM WITH STOCHASTIC CUSTOMER REQUESTS AND MULTIPLE DELIVERY ROUTES

Abstract: We consider a dynamic vehicle routing problem with stochastic customers. In this problem, the customer requests arrive dynamically throughout the workday. Merchandise has to be picked up at the depot before being delivered by the fleet of vehicles. The fleet can perform multiple routes to serve as many requests as possible. In this talk, we present several approaches that use sampled scenarios of future events to plan the delivery routes. Our approaches try to answer several questions arising during planning such as when should the vehicle depart to perform its route? Should it wait for new requests or should it start delivering as soon as possible? Should we dynamically reroute the vehicles when new requests arrive? We also consider two variants: a first one in which the vehicle can interrupt an ongoing route to perform a preemptive return to the depot, and a second where an immediate decision must be taken whether a request is accepted and delivered or it is rejected. We perform extensive experiments to value the gain that can be obtained by different levels of optimization, numbers of scenarios, or different time horizon sizes when generating the scenarios. The computational experiments on a large variety of instances attest the superior performance of our approaches compared with the recent literature.

About the speaker: Jean-François Côté is an associate professor in the Department of Operations and Decision Systems at Laval University in Quebec City. He obtained his Ph.D. in Computer Science at the University of Montreal in 2014. During his studies, he worked in the private sector for many companies to solve many different types of operation research problems. His research interests are vast and include combinatorial optimization, stochastic programming, cutting, packing, vehicle routing and scheduling problems. His research has been published in top-tier journals like Operations Research, INFORMS Journal on Computing, Transportation Science and European Journal of Operational Research.

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MERCREDI / WEDNESDAY

3 mars / March 3rd

10h00

Ouvert à tous
Open to all

Responsables / Organizers

Maryam Darvish - Leandro Coelho