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VEHICLE ROUTING WITH TRANSPORTABLE RESOURCES

Abstract: This talk presents some extensions of the Vehicle Routing Problem in which transportable resources (e.g., unmotorized workers or autonomous vehicles such as drones or robot) are synchronized with vehicles to deliver parcels or to provide on-site services. In the context of on-site services (e.g., home health care, household appliance repair), we evaluate the potential gain of carpooling to transport workers, with respect to the size of the employed vehicle fleet and fuel consumption. Similarly, in the context of parcels delivery, we evaluate the benefit (with respect to the total cost) of allowing unmanned aerial vehicle to transport parcels. We developed two insertion-based metaheuristics to find efficient solutions, namely a Variable Neighborhood Search and an Adaptive Large Neighborhood Search. The specificities of these two problems will be presented, and the gain compared to the classic VRP formulation is unveiled under some territory configurations and parameters. This is a joint work with Prof. Olivier Gallay (University of Lausanne) and Prof. Nicolas Zufferey (CIRRELT and University of Geneva).

Note: Marc-Antoine Coindreau received his BSc and MSc degrees in Mathematics at ENSTA ParisTech in 2012 and 2014, respectively. After working as an operations research scientist at Pers-EE (start-up in the field of the hydrogen supply chain) in Paris, he became in 2015 a PhD student at HEC Lausanne, in the department of Operations. His current research activities focus on the transportation aspects of Logistics, and range from Rich Vehicle Routing Problems to Cross-Dock Scheduling. He mainly works on dedicated metaheuristics to solve large real-life instances.

MERCREDI / WEDNESDAY

11 juillet 2018 /
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10h30

Salle / Room 5441
Pavillon André-Aisenstadt
Université de Montréal

Ouvert à tous / Open to all

Organisateur / Organizer
Nicolas Zufferey



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