



Séminaire conjoint / Joint Seminar
CRI²GS (Centre sur l'intelligence² en gestion de systèmes complexes)
École des sciences de la gestion (ESG) - UQÀM

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APPLICATION OF OPERATIONS RESEARCH AND BIG DATA TO NEW MOBILITY CONCEPTS AND THE STOCHASTIC VRPTW

Abstract: This seminar is divided into two parts. We start with an overview over four projects on which we have been working on. All projects are related to the application of Operations Research and Big Data to new mobility concepts. In the second part, we propose a prescriptive analytics approach to the stochastic VRPTW.

First part: (i) performance analysis of a hybrid bike-sharing system, (ii) competitive rebalancing in one-way car-sharing, (iii) the car-request assignment problem for robot-taxis and (iv) truck platooning network design.

Second part: The Vehicle Routing Problem with Time-Windows finds use in many real-world applications, like parcel delivery or scheduling of on site-technicians. Since travel and service times are often uncertain in day-to-day life, deterministic VRPTW solutions may fail. Thus, several VRPTW formulations considering stochastic times have been proposed. All publications so far assume parametric models and use distributions that are estimated from historical observations. This estimations can be error-prone and neglect the availability of external data sources. We present a new approach that incorporates Big Data to solve the VRPTW under uncertainty. We suggest a non-parametric, distribution-free model that combines the optimization of routing and scheduling with the causal forecasting of the arrival times, which depend on the travel and service times.

Note : Szymon Albinski is a PhD student at the Logistics and Supply Chain Management Department of the School of Management. He is doing an internship at CIRRELT, under the supervision of Professor Teodor Gabriel Crainic.

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JEUDI / THURSDAY
18 octobre 2018 /
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15h30

Salle / Room 5441
Pavillon André-Aisenstadt
Université de Montréal

Ouvert à tous / Open to all

Organisateur / Organizer
Teodor Gabriel Crainic

