Webinaire conjoint / Joint Webinar

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Profit Maximizing Hub Location Problems

To joint the Webinar/Pour participer au webinaire : https://uqam.zoom.us/j/85816688004

Abstract: Hub location problems constitute the basis of network design planning in transportation, logistics, and telecommunications. They are a challenging class of optimization problems that seek to find the optimal number and location of hubs, allocation of demand nodes to these hubs, and routes of the network flow to serve a given set of demands between origin-destination pairs. This talk first introduces profit-maximizing capacitated hub location problems. In this setting, the demand of commodities is segmented into different classes, where the available capacity at the hubs is allocated to these demand classes. The decision maker has to determine the proportion of each class of demand to serve between origin-destination pairs based on the profit that would be obtained by satisfying this demand. Next, a strong deterministic formulation of the problem is presented and is further extended by considering uncertainty associated with the demand to develop a two-stage stochastic program. Additionally, two exact algorithms based on a Benders reformulation are described to solve the large-size instances of the problem. Novel acceleration techniques are also presented to improve the convergence of the algorithms proposed for the stochastic version. Finally, a diverse range of large-scale datasets are used to demonstrate the efficiency and robustness of these algorithms.

Bio : Gita is currently a postdoctoral research fellow in CIRRELT and the ESG UQAM. Last year, she was a research associate and lecturer in Applied Operations Research in Management Sciences at the University of Waterloo - Faculty of Engineering, where she also received her PhD in April 2019. Her main research area is in supply chain management analytics, in particular developing both deterministic and stochastic models and solution algorithms for data-driven decision problems at strategic, tactical, and operational levels arising in transportation, logistics, and telecommunications. Her research has been published in top-tier refereed journals such as *Transportation Science*, *Omega*, and *Journal of Scheduling*. Her PhD dissertation has been granted the second best INFORMS SOLA Dissertation Award and INFORMS AAS Dissertation Award in fall 2020 and 2019, respectively. Furthermore, her paper on Benders decomposition for profit maximizing capacitated hub location problems has received the second best INFORMS SOLA Student Paper Award in fall 2019 and the Student Award from EURO Working Group on Locational Analysis in spring 2018.

Mardi / Tuesday

27 octobre 2020, 10h00
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Ouvert à tous
Open to all

Responsable / Organizer

Teodor Gabriel Crainic