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

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UNIVERSITÉ **LAVAL** | Faculty of Business Administration MobilOpt: Mobility Optimization

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LINEAR PROGRAMMING MODELS AND SOLUTION ALGORITHMS FOR A FACILITY LOCATION PROBLEM WITH COST AND FAIRNESS OBJECTIVES

Abstract: In this talk, we consider a location problem where a planner has to decide where to open a set of facilities, which have to be reached by a set of customers at their own cost. In this setting, a central issue regards the fairness among customers for the accessibility to the services provided. Indeed, every choice regarding the location of facilities corresponds to a distance distribution of customers to reach an open facility. We argue that fairness can be captured by an equity measure called conditional -mean -i.e., the average distance traveled by the 100 % of customers farthest from a facility.

We analyze a Fair Single-Source Capacitated Facility Location (F-SSCFL) problem, where the cost minimization objective is paired with the conditional -mean minimization objective. The resulting formulation is a bi-objective Mixed-Integer linear Program (MIP). We present a weighted sum method that generates a small representative set of efficient solutions to the F-SSCFL problem, and a Benders decomposition approach to handle large-scale instances. On small/medium-scale instances, we analyze the trade-off between cost and conditional -mean, and compare the quality of the solutions obtained with those obtained using alternative equity measures.

Bio: Dr. Gianfranco Guastaroba is currently a research assistant in Operations Research at the Department of Economics and Management, University of Brescia (Italy). He has been awarded the Ph.D. degree in "Computational Methods for Economical and Financial Forecasting and Decisions" from the University of Bergamo (Italy), and the "Master of Philosophy" (MPhil) degree in the area of "Mathematics Research" from the Brunel University, London (United Kingdom). He is author of several research papers appeared in international journal, including OMEGA, Transportation Science, European Journal of Operational Research, and Computers & Operations Research. His main research interests are in the design of mathematical models and heuristic solution methods for optimization problems arising in the areas of vehicle routing, facility location, and financial optimization.

Lien zoom: https://ulaval.zoom.us/j/88642101531?pwd=MHRuTEZGOGdDZGRmL1lVUkhPZGFPUT09
Meeting ID: 886 4210 1531 Passcode:499482

MERCREDI / WEDNESDAY

25 novembre 2020, 10h00
November 25th, 2020, 10:00

Ouvert à tous
Open to all

Responsable / Organizer

Leandro Coelho