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UNIVERSITÉ LAVAL | Faculté des sciences de l'administration
Département d'opérations et systèmes de décision

Séminaire conjoint CIRRELT / Département OSD

PAULA METZKER, PhD in Operations Research

DISTRIBUTIONALLY ROBUST OPTIMIZATION FOR THE MULTI-PRODUCT LOT SIZING PROBLEM UNDER PRODUCTION YIELD UNCERTAINTY

Abstract: This research explores a distributionally robust optimization approach to the lot sizing problem, incorporating production delays and yield uncertainty using event-based ambiguity sets. The study compares different types of ambiguity sets—including moment-based, Wasserstein, and K-Means clustering—to model production yield distributions. Both static and static-dynamic decision strategies are considered. The presentation will assess the performance of these ambiguity sets in determining robust production plans capable of adapting to environmental changes. A numerical experiment will illustrate the model's tractability and the effectiveness of the resulting production strategies across varying decision-making contexts.

Biography: Paula Metzker holds a Ph.D. in Operations Research and specializes in decision support, optimization, and AI-driven solutions for manufacturing and supply chain challenges. She earned her doctorate in 2022 from IMT Atlantique in collaboration with HEC Montréal, under the supervision of Professors Alexandre Dolgui, Yossiri Adulyasak, and Simon Thevenin. In 2019, Paula graduated in Production Engineering from the engineering school affiliated with the Universidade Federal de Minas Gerais (Brazil). In 2018, she also earned a degree in Computer Engineering from ISIMA in France and completed a Master's in International Computer Science from Clermont Auvergne University, where she focused on Lagrangian relaxations, heuristics, and other solution methods for capacity and multi-product network design problems. From 2023 to 2024, she pursued postdoctoral research at GERAD and HEC Montréal, focusing on stochastic network expansion problems under the supervision of Professors Jean-François Cordeau and Raf Jans.

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Meeting ID: 631 4101 2409 - Passcode: 107667

VENDREDI
9 MAI 2025
13h30

ZOOM

Ouvert à tous

Responsable :
Jacques Renaud

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