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ROBUST OPTIMIZATION FOR THE HIERARCHICAL MIXED CAPACITATED GENERAL ROUTING PROBLEM APPLIED TO WINTER ROAD MAINTENANCE

Abstract:

This project studies the Mixed Capacitated General Routing Problem (MCGRP) under demand uncertainty and service hierarchy using a robust optimization approach. The problem is motivated by an industrial problem: the winter road salt spreading with street hierarchy and demand variation due to the weather or traffic conditions. The street hierarchy or the street priority is modeled with time-dependent cost. We present a robust counterpart formulation with graph transformation to node routing in order to optimize the worst-case realization of the demands from the uncertainty set. We use CPLEX to solve small instances and we developed a variant of the Slack Induction by String Removals metaheuristic for large-scale instances called the Robust SISRs. In the computational analysis, we used a Monte Carlo simulation to study the robust approach on real-life case studies.

Zoom Link:

<https://umontreal.zoom.us/j/92341516371?pwd=a0NzcjZ6ZXl6ZmliNndOckhMZEZwdz09>

JEUDI / THURSDAY

6 Mai 2021, 14h00 – 15h00

**Ouvert à tous
Open to all**

**Responsables / Organizers
Peyman Kafaei**