Séminaire conjoint CRI2GS et CIRRELT

DIEGO BRAVO

UNDERGRADUATE STUDENT

Universidad Católica del Norte

Consistent Vehicle Routing Problem with Simultaneous Delivery and Pick-up and Time Windows

Abstract

This work proposes a Mixed-Integer Linear Programming (MILP) formulation for the Consistent Vehicle Routing Problem with Simultaneous Delivery and Pick-up and Time Windows (ConVRPSDPTW) for multi-periods. Besides standard VRPTW constraints, ConVRPSDPTW determines an efficient set of routes, where each customer has both a delivery and a pick-up demand to be satisfied, simultaneously. Moreover, the routes are constrained by vehicle capacity, time windows, and service consistency, meaning assigning each set of customers just one driver to fulfill their orders during the whole planning horizon and making it impossible to decompose the model into several independent one-period problems. The model is employed to minimize operational costs: number of vehicles and total travel time. The computational experiments were executed utilizing benchmark instances constructed from Solomon's VRPTW instances and were solved by a commercial solver.

Diego is currently pursuing a Bachelor of Science in Industrial Engineering at Universidad Católica del Norte, with aspirations to further education through a Master's degree in Computer Science. Specializing in Operations Research and technological development, his goal is to leverage these disciplines to drive innovation and address complex challenges facing by industry and society.

Mardi / Tuesday

May 14th, **2024**

10h30 am

Salle / Room
DS-3650
Pavillon des sciences de la gestion
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