



Séminaire du CIRRELT

Rahma Lahyani

Stagiaire postdoctorale, Université Laval



RICH VEHICLE ROUTING PROBLEMS:

FROM A TAXONOMY TO A UNIFIED MATHEURISTIC

Abstract: This seminar sheds new light on a unified solution framework for Rich Vehicle Routing Problems (RVRPs). We first provide a comprehensive survey of the RVRP literature as well as a taxonomy. A cluster analysis based on two discriminating criteria is performed and leads to define RVRPs. Then, we solve a multi-depot multi-compartment multi-commodity vehicle routing problem with time windows (MDMCMCm-VRPTW). We propose a unified column generation heuristic cooperating with a variable neighborhood search (VNS) matheuristic. The VNS combines several removal and insertion routing heuristics as well as computationally efficient constraint checking. Two loading neighborhoods based on the solution of mathematical programs are proposed to intensify the search. The VNS based matheuristic is embedded in a column generation heuristic to solve the MDMCMCm-VRPTW. We propose an exact post-processing method to optimize the assignment of customers to vehicle routes. Last, we introduce, model and solve to optimality a RVRP arising in the olive oil collection process in Tunisia. We propose an exact branch-and-cut algorithm to solve the problem.

Bio: Rahma Lahyani is currently a Post-Doc fellow at Cirrelt, Laval University. She received her Master degree in Operations Research and Production Management from the University of Sfax (Tunisia) in 2010 and her PhD in Computer Engineering from École Centrale de Lille (France) in 2014. Her research interests are in the field of logistics. They encompass multi-attribute problems arising in the supply chain management from strategic to operational decisions, including mathematical modeling, developing metaheuristics and exact solution approaches to solve academic as well as rich practical problems. She has co-authored several papers in peer-reviewed international journals.

VENDREDI

8 mai 2015
10h

Local 3313
Pavillon Palasis-Prince
Université Laval

Ouvert à tous

La présentation sera en anglais

Organisateur
Leandro C. Coelho

