



Seminaire conjoint / Joint Seminar
Chaire de recherche du Canada en logistique et en transport et
Chaire de recherche du Canada en distributique

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REDUCING VEHICLES EMISSIONS BY OPTIMIZING DEPARTURE TIMES AND TRAVEL SPEED

Abstract: This talk presents the Time-Dependent Pollution-Routing Problem (TDPRP), namely the problem of routing a fleet of vehicles in order to serve a set of customers and determining the speeds and the departure times on each leg of the routes. The objective is to minimize the total travel cost which includes emissions and driver costs, taking into account traffic congestion which, at peak periods, significantly restricts vehicle speeds and increases emissions. We describe an integer linear programming formulation of the TDPRP and provide illustrative examples to motivate the problem and give insights about the tradeoffs it involves. We also provide an analytical characterization of the optimal solutions for a single-arc version of the problem, identifying conditions under which it is optimal to wait idly at certain locations in order to avoid congestion and to reduce the cost of emissions. Building on these analytical results we describe a novel departure time and speed optimization algorithm for the cases when the route is fixed.

Note : Anna Franceschetti est étudiante de doctorat à TU/e, Technical University of Eindhoven, Pays-Bas, sous la supervision de Tom Van Woensel et Dorothee Honhon. Elle effectue présentement un stage au CIRRELT, sous la supervision de Gilbert Laporte. / Anna Franceschetti is a Ph.D. student at TU/e, Technical University of Eindhoven, the Netherlands, working under the supervision of Tom Van Woensel and Dorothee Honhon. She is doing an internship at CIRRELT, under the supervision of Gilbert Laporte.

MARDI / TUESDAY

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Salle / Room 5441
Pavillon André-Aisenstadt
Université de Montréal

Ouvert à tous / Open to all

Organisateur / Organizer
Gilbert Laporte

