

Homero Larrain

Pontificia Universidad Catolica de Chili, Santiago



A MIP-BASED MATHEURISTIC FOR AN INVENTORY-ROUTING PROBLEM FOR ATMs IN CHILE

Abstract: In this work we study a variant of the inventory-routing problem arising in the automated teller machine (ATM) industry, inspired by real-life data provided by an industrial partner. This variant of the IRP differs from the conventional model in four ways: stock outs are allowed (but penalized in proportion to the lost demand); replenishments are performed using containers called cassettes that come in a finite number of pre-defined sizes; each replenishment takes back all the remaining cash in the ATM; and some locations are not allowed to be visited during specific periods.

We develop an ad-hoc exact branch-and-cut algorithm for the IRP in which stock outs are allowed, to be capable of handle the case study proposed by our partner. In order to tackle instances of larger size, we propose a MIP-based matheuristic that outperforms the exact approach, improving the quality of the solutions and computation times.

Note : Homero Larrain is Assistant Professor at the Transport and Logistics Engineering Department at PUC Chile. In his PhD thesis, finished in 2014, he developed an algorithm for designing express services for BRT corridors and networks. He is currently working as postdoc fellow at Université Laval.

hlarrain@puc.cl et/and <http://www.ing.puc.cl/cuerpo-docente/larrain-izquierdo/>

MARDI / TUESDAY

23 juin 2015 /
June 23rd, 2015
10h30

Salle / Room 5441
Pavillon André-Aisenstadt
Université de Montréal

Ouvert à tous / Open to all

Organisateur / Organizer
Leandro Callegari Coelho