Séminaire conjoint CIRRELT-HEC Joint Seminar
Département de la gestion des opérations et de la logistique

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DECISION DIAGRAM BASED APPROACHES FOR DISCRETE BILEVEL PROGRAMMING

Abstract: Integer bilevel programming problems are known to be very challenging due to the lack of strong relaxations that can be efficiently computed. We propose single-level representations of integer bilevel programming problems that rely on network flow-based approximations of the follower's value function, using decision diagrams and primal-dual constraints. We then show how we can derive scalable relaxations from this representation by incorporating only a restricted set of the master problem solutions, yielding dual bounds. We experimentally compare our approach with state-of-the-art bilevel programming solvers and show that we can obtain competitive results for certain problem classes.

Leonardo Lozano is an associate professor in the Operations, Business Analytics & Information Systems Department at the University of Cincinnati. He received his B.Sc. degree from Universidad de los Andes, his M.Sc. degree from University of Florida, and his Ph.D. degree from Clemson University. His research focuses on exact algorithms for discrete optimization and has been published in Operations Research, Mathematical Programming, Transportation Science, Networks (Glover-Klingman 2020 best paper award), and INFORMS Journal on Computing, among others. His research has been funded by the Office of Naval Research, the Air Force Office of Scientific Research, and Google.

VENDREDI / FRIDAY

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April 26, 2024, 10:30

HEC, Édifice Sainte-Catherine
Salle / Room Port-au-Prince
1er étage, section verte
1st Floor , Green section

Ouvert à tous / Open to all

Responsable / Organizer

Jorge Mendoza