



Séminaire du CIRRELT Seminar

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AN OVERVIEW OF HEURISTICS BASED ON MATHEMATICAL PROGRAMMING FOR THE 0-1 MIXED INTEGER PROGRAMMING PROBLEM

Abstract: The 0–1 mixed integer programming problem is used for modeling many combinatorial problems, ranging from logical design to scheduling and routing as well as encompassing graph theory models for resource allocation and financial planning. This talk provides a survey of heuristics based on mathematical programming for solving 0 – 1 mixed integer programs (MIP). More precisely, we focus on the stand - alone heuristics for 0 – 1 MIP as well as those heuristics that use linear programming techniques or solve a series of linear programming models or reduced problems, deduced from the initial one, in order to produce a high quality solution of a considered problem. We review: heuristics that use pivot moves within the search for an optimal solution of the MIP in order to move from one extreme point to another; heuristics that use pseudo - cuts in order to cut-off portions of a solution space already examined in the previous solution process; the so-called pump heuristics which purpose is to create a first feasible solution of the considered MIP; and so-called proximity heuristics that seek a MIP feasible solution of a better quality in the proximity of the current incumbent solution. In addition, we provide a classification and summary of main components of MIP heuristics. In general, our emphasis is on how mathematical programming techniques can be used for approximate problem solving, rather than on comparing performances of heuristics.

http://www.univ-valenciennes.fr/LAMIH/fr/membre/hanafi_saïd

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15 novembre 2018 /
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Salle / Room 5441
Pavillon André-Aisenstadt
Université de Montréal

Ouvert à tous / Open to all

Organisateur / Organizer
Bernard Gendron

