DIPARTIMENTO DI INGEGNERIA ELETTRICA E TECNOLOGIE DELL'INFORMAZIONE

Seminars Announcement

September 12th, 2017
Sala Riunioni, IV Floor, Ed. 3/A DIETI - Via Claudio, 21 NAPOLI

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A shared memory parallel heuristic algorithm for the large-scale p-median problem

We develop a modified hybrid sequential Lagrangean heuristic for the p-median problem and its shared memory parallel implementation using the OpenMP interface.

The algorithm is based on finding the sequences of lower and upper bounds for the optimal value by use of a Lagrangean relaxation method with a subgradient column generation and a core selection approach in combination with a simulated annealing.

The parallel algorithm is implemented using the shared memory (OpenMP) technology. The algorithm is then tested and compared with the most effective modern methods on a set of test instances taken from the literature.

C.V.: Igor Vasilyev received the M.Sc. degree in mathematics from the Irkutsk State University, Irkutsk, Russia, in 1995, the Ph.D. degree in 1998. Since 1999, he has been with the Matrosov Institute for System Dynamics and Control Theory of the Siberian Branch of the Russian Academy of Sciences, Irkutsk, Russia. Now he is a Leading Researcher at the laboratory for Nonconvex Optimization and Associate Professor at the Irkutsk State University. His current research interests include all aspects of combinatorial optimization, integer programming, and their applications, particularly polyhedral combinatorics, cutting planes, parallel and distributed computing. Please refer to the homepage for more details: http://iv.icc.ru.

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DIPARTIMENTO DI INGEGNERIA ELETTRICA E TECNOLOGIE DELL'INFORMAZIONE

Seminars Cycle Announcement

September 14th, 2017
Sala Riunioni, IV Floor, Ed. 3/A DIETI - Via Claudio, 21 NAPOLI

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An exact knapsack separation procedure for structured Binary Integer Programming problems

We report computational results with an approach based on the generation of general cutting planes for several classes of Binary Integer Programming (BIP) Problems such as Generalized Assignment, Capacitated P-median and Capacitated Network Location.

These problems are characterized by a formulation including a great number of knapsack constraints, which, in general make these problems very hard to solve. The state of the art on these problems requires to use approaches based on Lagrangean Relaxation or decomposition approaches like Dantzig-Wolfe and Column Generation techniques.

In this seminar we present an approach based on the generation of general cutting planes of the polytope associated with each knapsack constraints. Computational experience on a wide set of benchamrk instances is carried out.

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