

17th RCRA international workshop on “Experimental evaluation of algorithms for solving problems with combinatorial explosion”

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RCRA (Rappresentazione della Conoscenza e Ragionamento Automatico, rcra.aixia.it) is the interest group on knowledge representation and automated reasoning of the Italian Association for Artificial Intelligence (AI*IA). The annual workshop of the RCRA group is devoted to try to merge the different viewpoints in different communities that try to solve similar problems: those with a combinatorially wide search space. Although the different communities have their own conferences, it is rare to find an event that attracts high quality papers from so different areas as Boolean satisfiability, Answer Set Programming, Scheduling, Planning, using a variety of technology such as Constraint Programming, Lagrangian Relaxation, Local Search, Ant Colony Optimization, and Neural Networks.

The 2010 edition of the RCRA workshop was held in Bologna, in association with CP-AI-OR, the international conference on Integration of Artificial Intelligence and Operations Research techniques in Constraint Programming. At the workshop, 17 papers were presented, and the authors had the possibility to submit an extended version of their paper for possible publication in this special issue. After two rounds of reviews, the following nine papers were selected. Marques-Silva et al. [6] study Multi-Objective Combinatorial Optimization problems on the Boolean domain with a lexicographic optimization criterion. Cakmak et al. [3] address the problem of finding the best weighted solutions in Answer Set Programming. Oddi et al. [8] present a heuristic algorithm for solving a job-shop scheduling problem with sequence-dependent setup times and min/max separation constraints among the activities. Gerevini et al. [4] propose an approach to planning with derived predicates where the search space consists of “Rule-Action Graphs”. Biaoletti et al. [2] introduce

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the planner ACOPlan, based on the ant colony optimization framework. Mileo et al. [7] address the problem of indoor position estimation, a central task in home-based assisted living environments, and investigate how state-of-the-art localization and tracking methods can be combined with answer set programming. Pulina and Tacchella [9] present a tool for checking safety of Artificial Neural Networks. Alberti et al. [1] study the problem of reducing the number of observations in applications that require to detect the occurrence of an event in a system. Guimarans et al. [5] present a hybrid approach to solve the Capacitated Vehicle Routing Problem combining a Probabilistic Algorithm with Constraint Programming and Lagrangian Relaxation.

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