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Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems

8th International Conference, CPAIOR 2011
Berlin, Germany, May 23-27, 2011
Proceedings

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Preface

The 8th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR 2011) was held in Berlin, Germany, May 23–27, 2011.

The conference is intended primarily as a forum to focus on the integration and hybridization of the approaches of constraint programming (CP), artificial intelligence (AI), and operations research (OR) technologies for solving large-scale and complex real-life combinatorial optimization problems. CPAIOR is focused on both theoretical and practical, application-oriented contributions.

Submissions for this year were 22 long papers and 13 short papers. Each paper received three independent peer reviews which formed the basis for the acceptance of 13 long papers and 7 short papers. These papers are published in full in the proceedings. Many thanks to the members of the Program Committee and the external reviewers, who reviewed all the submissions in detail and discussed conflicting papers deeply. In addition, the Program Chairs solicited late-breaking abstracts for presentation at the conference. The number of selected abstracts was not yet available at press time.

Thanks to the Department of Scientific Information of the Zuse Institute Berlin, video recordings of the presentations of CPAIOR 2011 were made. They can be found on the CPAIOR 2011 webpage at cpaior2011.zib.de. We would like to especially thank Wolfgang Dalitz and the Web Technology and Multimedia group for creating this valuable record of the conference.

This volume includes abstracts of the three invited talks of CPAIOR:

- Craig Boutilier, University of Toronto, Canada, on the use of AI and OR techniques for preference elicitation and learning in social choice
- Ian Gent, University of St. Andrews, UK, on constraint propagation in CP and SAT
- Andrea Lodi, University of Bologna, Italy, on bilevel programming and its impact in branching, cutting and complexity

CPAIOR 2011 also included a one-day Master Class and one day of workshops. The Master Class is intended for PhD students, researchers, and practitioners and was held on the theme of search in AI, OR, CP, and SAT. Four speakers addressed each of these topics individually and then participated in a panel discussion to highlight opportunities for cross-fertilization. The speakers were:

- John Chinneck, Carleton University, Canada, on search in mixed-integer programming
- Gilles Pesant, Ecole Polytechnique, Canada, on search in constraint programming

- Nathan Sturtevant, University of Denver, USA, on search in AI
- Marijn Heule, Delft University of Technology, The Netherlands, on search for satisfiability

The one-day workshop program consisted of four workshops:

- *Energy*
Organized by Armin Fügenschuh, Benjamin Hiller, Jesco Humpola, and Thorsten Koch, all from Zuse Institute Berlin, Germany
- *Hybrid Methods for Nonlinear Combinatorial Optimization Problems*
Organized by Stefano Gualandi, Università di Pavia, Italy, and Pietro Belotti, Clemson University, USA
- *Innovative Scheduling and Other Applications Using CP-AI-OR*
Organized by Armin Wolf, Fraunhofer-Institut für Rechnerarchitektur und Softwaretechnik, FIRST, Germany, and Petra Hofstedt, Brandenburgische Technische Universität Cottbus, Germany
- *Mathematical Optimization of Railway Systems*
Organized by Ralf Borndörfer, Zuse Institute Berlin/TU Darmstadt, Germany, Holger Flier, ETH Zürich, Switzerland, Martin Fuchsberger, ETH Zürich, Switzerland, and Thomas Schlechte, Zuse Institute Berlin, Germany

The staff at Zuse Institute Berlin did an outstanding job providing administrative support, making sure the money was in the right place at the right time, and in handling the registrations. In particular, we would like to thank Annerose Steinke, Sylke Arencibia, Sybille Mattrisch, and Bettina Kasse.

A special thanks goes to the Conference Chairs, Timo Berthold, Ambros Gleixner, Stefan Heinz, and Thorsten Koch, for the organization and substantial efforts on sponsorship, publicity, logistics, and all the other things that have to happen behind the scenes to make a conference work.

Finally, we would like to thank the sponsors who made it possible to organize this conference:

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