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Principles and Practice of Constraint Programming – CP 2007

13th International Conference, CP 2007
Providence, RI, USA, September 2007
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Christian Bessiere
LIRMM
CNRS/University of Montpellier
France
E-mail: bessiere@lirmm.fr

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Preface

The 13th International Conference on Principles and Practice of Constraint Programming (CP 2007) was held in Providence, RI, USA, September 23–27, 2007, in conjunction with the International Conference on Automated Planning and Scheduling (ICAPS). Held annually, the CP conference series is the premier international conference on constraint programming. The conference focuses on all aspects of computing with constraints. The CP conference series is organized by the Association for Constraint Programming (ACP). Information about the conferences in the series can be found on the Web at `http://www.cs.ualberta.ca/~ai/cp/`. Information about ACP can be found at `http://www.a4cp.org/`.

CP 2007 launched two calls for contributions: a call for research papers, describing novel contributions in the field, and a call for application papers, describing applications of constraint technology in the industrial world. The research track received 143 submissions and the application track received 22 submissions. Research papers were reviewed under a double-blind scheme. They received three reviews that the authors had the opportunity to see and to react to before the papers and their reviews were discussed extensively by the members of the Program Committee. Application papers were reviewed by a separate Application Committee. The Program Committee and the Application Committee then selected 43 research papers and 9 application papers to be published in full in the proceedings, and an additional 14 research papers to be published as short papers. The full papers were presented at the conference in two parallel tracks and the short papers were presented in a poster session. The paper "Solution Counting Algorithms for Constraint-Centered Search Heuristics," by Alessandro Zanarini and Gilles Pesant, was selected by a subcommittee—consisting of Javier Larrosa, Christophe Lecoutre, Christian Schulte and myself—to receive the best paper award. This subcommittee also selected the paper "Propagation = Lazy Clause Generation," by Olga Ohrimenko, Peter J. Stuckey and Michael Codish, to receive ACP's best student paper award.

The Program Committee invited two prominent researchers, Fahiem Bacchus and Matt Ginsberg, to give guest lectures. Their summary is included in the proceedings. The program also contained a talk by Rina Dechter, recipient of the "Award for Research Excellence in Constraint Programming." This award was given by the ACP during the conference. The tutorial chair selected four tutorials to be part of the program: "Ants and Constraint Programming," by Christine Solnon, "SAT solving," by Inês Lynce, "ECLIPSE by example," by Joachim Schimpf, and a final tutorial in which recent CP solvers were presented. The conference hosted a panel, organized by Barry O'Sullivan, where people from the industry discussed their use of CP technology and gave feedback on the strengths and weaknesses of current solvers. Lastly, I would like to emphasize

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the fact that all the sessions of the conference were held in parallel to ICAPS sessions and that CP and ICAPS participants could freely attend any session they wanted. In addition, there were joint CP-ICAPS sessions.

CP 2007 continued the tradition of the CP doctoral program, in which PhD students presented their work, listened to tutorials on career issues, and discussed their work with senior researchers via a mentoring scheme. This year, the doctoral program received 37 submissions and selected 30 of them for financial support.

The first day of the conference was devoted to satellite workshops tackling some of the important directions of research in constraint programming. This year, seven workshops were held, one of which was joined with ICAPS. The complete list of workshops is provided below. Each workshop printed its own proceedings.

In conclusion, I would like to thank all the people who, by their hard work, made this conference a great success. Thank you to Laurent Michel and Meinolf Sellmann, the Conference Chairs, who had the huge task of organizing, budgeting and planning the whole event. Thank you to Brahim Hnich and Kostas Stergiou, the Doctoral Program Chairs, for having set up a fantastic program for the students. Thank you to Pedro Meseguer, the Workshop and Tutorial Chair, for the energy he put into creating an excellent workshop and tutorial program. Thank you to Carmen Gervet, the Publicity Chair, who worked hard designing a logo and who was always mindful of the aesthetic quality of the conference Web site. Thank you to Guillaume Verger, who helped me in the final rush of collecting all the material for the proceedings. Thank you to Javier Larrosa, Christophe Lecoutre and Christian Schulte, the members of the Best Paper Committee, who accepted the intensive task of reading all candidate papers in a few days, in addition to their work as Program Committee members. Thank you to all the members of the Program Committee and Application Committee. Not only did they review all their assigned papers on time, but they participated intensively in online discussions for selecting the papers. The quality of the technical program is largely due to their terrific work. Thank you to Barry O'Sullivan and Helmut Simonis for their many ideas on the kind of event we could run to fill the gap between industrial applications and academic research. We implemented only a few of their great ideas. Thank you to Barry O'Sullivan, the Sponsor Chair and Conference Coordinator, who worked hard in close collaboration with the Conference Chairs to produce a balanced budget (thanks to the numerous sponsors they attracted). Thank you to all the institutions (listed below) that supported the conference. Thank you to Frdric Benhamou, Francesca Rossi and Peter van Beek for their helpful advice on how to deal with the stressful job of being Program Chair, and thank you to the Executive Committee of the ACP for having chosen me to carry out this exciting job!

September 2007 Christian Bessiere

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Caching in Backtracking Search

Fahiem Bacchus

University of Toronto
Canada
fbacchus@cs.toronto.edu

As backtracking search explores paths in its search tree it makes various inferences about the problem. The inferences search computes can be very computationally expensive to compute statically. However, in most backtracking CSP solvers this information is discarded when the search backtracks along the current path.

In this talk we will investigate the alternative—caching these inferences and using them to improve the efficiency of the rest of the search. Caching provides radical improvements to the theoretical power of backtracking, and can also yield significant improvements in practice. Sometimes, however, obtaining improvements in practice might not be so straightforward. We will examine CSP caching techniques for the problem of finding a single solution, counting the number of solutions, and finding an optimal solution. Time permitting we will also look at caching techniques that would be useful for QCSPs.

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