The CP-04 Workshop on CSP Techniques
with Immediate Application (CSPIA)

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The CP-03 Workshop on Immediate Applications of Constraint Programming (Cork, Ireland) started a new tradition of application oriented meetings organized together with the conference on Principles and Practice of Constraint Programming (CP). These meetings are intended as a forum on sharing and exchanging information on applications of Constraint Programming and on techniques improving applicability of constraint satisfaction in solving real-life problems. In 2004, the CP-04 Workshop on CSP Techniques with Immediate Application (CSPIA) was held on August 27, 2004 in Toronto, Canada.

The all day CSPIA-04 workshop started with an invited talk by Mark Wallace (Monash University, Australia), continued by three technical sessions, and concluded by a panel discussion. Mark Wallace's invited talk entitled Three Research Collaborations with the Transportation Industry covered Mark's experience with developing real-life applications in IC-Parc. In particular, Mark talked about logistics with depots, patrol dispatcher, and flight schedule retimer. We include just one conclusion from Mark's talk – "applications are more than algorithms" meaning that technology must meet the requirements, no arbitrary simplifications.

The first technical session consisted of two papers. The first paper by Marius C. Silaghi, Markus Zanker, and Roman Barták proposed a new framework for modeling Distributed CSP with privacy of preferences and showed how this framework helps in solving desk-mates placing problems where the students have secret preferences among their classmates. The second paper by Mats Carlsson and Nicolas Beldiceanu introduced a multiplex dispensation order generation problem, a real-life combinatorial problem in the context of analyzing of large numbers of short to medium length DNA sequences. The authors proposed a constraint model for this optimization problem.

The second technical session included two papers on search techniques and one application paper. The paper by Barry O'Sullivan, Alex Ferguson, and Eugene C. Freuder described an approach that uses knowledge about known solutions to a problem to improve search. In particular, the authors proposed to use decision tree learning to capture a structure of the solution set. This decision tree is built from a small number of known solutions and it is used to give variable ordering as well as a source of additional constraints refining further the search phase. This research was motivated by solving configuration problems. The second paper by Venkata Praveen Guddeti and Berthe Y. Choueiry proposed an improved restart strategy for randomized backtrack search applied to course assignment problems. Their technique dynamically adapts the cutoff limit to the results of the search process. The third paper by Marco Cadoli and colleagues proposed a constraint-based approach to checking finiteness of UML class diagrams.

The last technical session was devoted to interactive configuration and two papers were presented there. The first paper by Sathiamoorthy Subbarayan and his colleagues compared two approaches to complete and backtrack-free interactive product configuration. The authors experimentally showed that the approach based on a symbolic representation using Binary Decision Diagrams outperforms the natural CSP encoding where all the solutions are pre-computed in advance. The second paper by Erik van der Meer and Henrik Reif Anderson proposed a modular language for modeling interactive configuration problems. The authors presented semantics of this language and showed how it can be compiled into an executable form.

The workshop has been concluded by a panel discussion on the market for applications with CSP chaired by Jean Charles Régin. One of the conclusions of this discussion was that the reason why CP is not as widespread as predicted a couple of years ago could be that the technology is becoming too complex to provide solutions for non-expert users. The gap between academic research and applications in CP seems to grow so the goal of next meetings could be bringing these areas back to be closer again.

Further information on the workshop including the proceedings is available on-line from the workshop web pages www.ifi.uni-klu.ac.at/Conferences/cp04cspia.

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