# The Fifth Symposium on Abstraction, Reformulation, and Approximation (SARA-2002)

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It has been recognized since the inception of AI that abstractions, problem reformulations, and approximations (AR&A) are central to human commonsense reasoning and problem solving and the ability of systems to reason effectively in complex domains. AR&A techniques have been used to solve a variety of tasks, including automatic programming, constraint satisfaction, design, diagnosis, machine learning, search, planning, reasoning, game playing, scheduling, and theorem proving. The primary purpose of AR&A techniques in such settings is to overcome computational intractability. In addition, AR&A techniques are useful for accelerating learning and summarizing sets of solutions.

The Fifth Symposium on Abstraction, Reformulation, and Approximation (SARA-2002) was held from 2 to 4 August 2002, directly after the Eighteenth National Conference on Artificial Intelligence (AAAI-2002). It was chaired by Sven Koenig from the Georgia Institute of Technology and Robert Holte from the University of Alberta (Canada) and held at Kananaskis Mountain Lodge, Kananaskis Village, Alberta (Canada) between Calgary and Banff in the Rocky Mountains. Its international program committee consisted of 28 established researchers in AR&A, and its

- The Fifth International Symposium on Abstraction, Reformulation, and Approximation (SARA-2002) was held from 2 to 4 August 2002 in Kananaskis, Alberta, Canada. This interdisciplinary conference brought together researchers from around the world to present recent progress on, and exchange ideas about, how abstraction, reformulation, and approximation techniques can be used in areas such as automatic programming, constraint satisfaction, design, diagnosis, machine learning, search, planning, reasoning, game playing, scheduling, and theorem proving.

proceedings have been published in the Lecture Notes in Artificial Intelligence series.

The SARA series is the continuation of two separate workshop threads: AAAI workshops in 1990 and 1992 and an ad hoc series beginning with the Knowledge Compilation Workshop in 1986 and the Change of Representation and Inductive Bias Workshop in 1988, with follow-up workshops in 1990 and 1992. The two workshop series merged in 1994 to form the first

SARA. Subsequent SARAs were held in 1995, 1998, and 2000.

SARA's aim is to provide a forum for intensive interaction among researchers in all areas of AI with an interest in the different aspects of AR&A techniques. The diverse backgrounds of its participants lead to a rich and lively exchange of ideas and a transfer of techniques and experience between researchers who might otherwise not be aware of each other's work. SARA-2002 was the most successful SARA yet. The three-day program featured 15 paper presentations and a lively poster program with both reviewed and late-breaking posters. Fifty-one researchers attended from countries around the globe, and 20 of the attendees were Ph.D. students.

SARA has a tradition of inviting distinguished researchers from diverse areas to give technical keynote talks of a survey nature. SARA-2002 had two keynote speakers from established SARA areas: Sridhar Mahadevan from the University of Massachusetts at Amherst spoke about abstraction and reinforcement learning (Spatiotemporal Abstraction of Stochastic Sequential Processes) and Derek Long from Durham University about reformulation in planning. SARA-2002 also had a keynote speaker from an area that had not been strongly represented at previous SARAs: Robert Kurshan from Cadence Design Systems surveyed the use of abstraction in model checking.

On the lighter side, SARA-2002 featured the first SARA badge contest, where the SARA participants had to create badges that communicated their name and research topic. The resulting badges can be found on the SARA-2002 web page.[1] A variety of other material about SARA-2002 can be found there as well, such as a list of participants together with the titles of their presentations and, where available, links to their slides.

## Acknowledgments

the attending graduate students. NASA Ames Research Center funded two of the invited speakers. Finally, the Pacific Institute for the Mathematical Sciences, the University of Alberta, and the Georgia Institute of Technology provided financial support or other assistance that greatly enhanced the richness of the SARA experience.

The next SARA is tentatively planned to colocate with the International Joint Conference on Artificial Intelligence in Scotland in 2005 and will be run by Jean-Daniel Zucker of the Université Paris VI (Pierre and Marie Curie) in Paris.

### Note

**Sven Koenig** is an assistant professor in the College of Computing at the Georgia Institute of Technology and the recipient of a National Science Foundation CAREER award and an IBM Faculty Partnership Award. He is currently on the editorial board of the *Journal of Artificial Intelligence Research* and will cochair the International Conference on Automated Planning and Scheduling in 2004. Koenig's research centers on techniques for decision making that enable situated agents to act intelligently in their environments and exhibit goal-directed behavior in real time. His e-mail address is skoenig@cc.gatech.edu.

**Robert Holte** is a well-known member of the international machine learning research community, editor in chief of the leading international journal *Machine Learning*, and codirector of the Alberta Ingenuity Centre for Machine Learning. His main scientific contributions are his seminal works on the problem of small disjuncts and the performance of very simple classification rules. His current machine learning research investigates cost-sensitive learning. In addition to machine learning, he undertakes research in single-agent search, in particular, the use of automatic abstraction techniques to speed up search. His e-mail address is holte@cs.ualberta.ca.