Abstraction, reformulation, and approximation (ARA) techniques are deemed crucial in the ability of humans to reason about complex and uncertain real-life problems. Consequently, ARA techniques have been studied in various subfields in artificial intelligence and related disciplines and used in various settings including automated reasoning, cognitive modeling, constraint programming, design, diagnosis, machine learning, model-based reasoning, planning, reasoning, scheduling, search, theorem proving, and intelligent tutoring.

The considerable interest in ARA techniques and the great diversity of the researchers involved had led to work on ARA being presented at many different venues. Consequently, there was a need to have a single forum where researchers of different backgrounds and disciplines can discuss their work on ARA. As a result, the Symposium on Abstraction, Reformulation, and Approximation (SARA) was established in 1994 after a series of workshops in 1988, 1990, and 1992. The current SARA, held at Lake Arrowhead, California, USA July 7–10 2009, is the eighth in this series, following symposia in 1994, 1995, 1998, 2000, 2002, 2005, and 2007. As per SARA tradition, this symposium brought together researchers with different backgrounds and facilitated lively discussions during and after the talks. This volume combines papers that were presented at the symposium, including some copresented at the Symposium on Combinatorial Search (SoCS), which was colocated with SARA this year.

Overall, 37 papers were submitted to the symposium. After a full peer-review process, 23 full papers and 3 short papers appear in this proceedings. As in previous SARA symposia, the range of subject areas of the papers is substantial, covering areas such as search, constraint satisfaction, planning, databases, diagnosis, satisfiability, and biological networks.

We are grateful to all individuals involved in making this event a success and, in particular, to Wheeler Ruml, who effectively served as our local arrangements chair, Sven Koenig, Rong Zhou, William Yeoh, and Xiaoxun Sun. We were also glad to have Jeff Orkin of Massachusetts Institute of Technology, Michael Genesereth of Stanford University, and Robert Holte of the University of Alberta as our invited speakers.

Vadim Bulitko and J. Christopher Beck
SARA2009 Conference Chairs