Symposium on Abstraction, Reformulation and Approximation (SARA-98)
Asilomar Conference Center, Pacific Grove, California
May 9-12, 1998
Call for Papers

Program Co-Chairs

Thomas Ellman, Rutgers University
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From the inception of Artificial Intelligence (AI) research it has been recognized that abstractions, problem reformulations and approximations are central to human common-sense reasoning and problem solving and to the ability of systems to reason effectively in complex domains. Abstractions, reformulations and approximations (AR&A) have been used in a variety of problem-solving settings including automatic programming, constraint satisfaction, design, diagnosis, machine learning, planning, qualitative reasoning, scheduling and theorem proving. The primary use of AR&A in such settings has been to overcome computational intractability by decreasing the combinatorial costs associated with searching large spaces. In addition, AR&A techniques are also useful for knowledge acquisition and explanation generation in complex domains.

The considerable interest in AR&A has led to a series of successful workshops over the last few years. AAAI workshops in 1990 and 1992 focused on selecting, constructing and using abstractions and approximations, while a series of workshops in 1989, 1990 and 1992 focused on problem reformulations. There was considerable intersection in the set of attendees and topics of the two separate workshop series, and this lead to holding merged workshops in 1994 and 1995. The present symposium is the third in this new series. The aim of this symposium 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. The diverse backgrounds of participants of previous workshops has lead to a rich and lively exchange of ideas, allowed the comparison of goals, techniques and paradigms, and helped identify important research issues and engineering hurdles. We hope and expect that the upcoming symposium will include an equally diverse group of participants.

Submissions are requested in all aspects of abstraction, reformulation and approximation, including but not limited to the following:

- New techniques for automatically constructing and selecting appropriate AR&A.
- Methods for selecting which of several applicable AR&A techniques is best for a given problem.
- Frameworks that unify and classify AR&A techniques.
- Empirical and/or theoretical studies of the costs and benefits of AR&A.
- Applications of AR&A:
  - Search, constraint satisfaction, planning, theorem-proving, logic programming.
  - Distributed data and knowledge bases, internet search and navigation, context, knowledge-compilation, knowledge acquisition.
  - Simulation, design, diagnosis and control of physical systems.
  - Automatic programming, analogical-reasoning , case-based reasoning, machine learning and speedup learning.
- Fielded applications demonstrating the benefits of AR&A.

Attendance is limited and is by invitation only. Persons wishing to attend the workshop should submit three copies of a 1–2 page research summary including a list of relevant publications. Persons wishing to make presentations at the workshop should, in addition, submit three copies of an extended abstract, not exceeding 5000 words. Accepted participants will be invited to submit full papers for the workshop proceedings. The proceedings will be distributed to the workshop participants. Limited financial assistance may be available for students interested in attending.

All submissions should be received by February 17, 1998 at the address below. Submissions will also be accepted by electronic mail in PostScript format. Please include several ways of contacting the principal author: electronic mail addresses and telephone numbers are preferred, in that order. In case of multiple authors, please indicate which authors wish to participate. Notification of acceptance or rejection will be mailed to authors by March 31, 1998. Camera ready copies of papers accepted for inclusion in the proceedings will be due April 21, 1998.

Additional information may be obtained from the symposium home page on the World Wide Web: `http://www.cs.rutgers.edu/~ellman/sara98/sara98.html`.

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