

Preface

This volume contains the papers accepted for presentation at SoCS 2013, the Sixth Annual Symposium on Combinatorial Search, held in Leavenworth, WA, USA on July 11–13, 2013. SoCS 2013 was held in cooperation with AAI and collocated with the Twenty-Seventh AAI Conference (AAI 2013) and the 10th Symposium on Abstraction, Reformulation, and Approximation (SARA 2013).

Heuristic search and other forms of combinatorial search are currently very active areas of research in artificial intelligence, planning, robotics, constraint programming, operations research, bioinformatics, and other areas of computer science. SoCS is meant to bring researchers from these areas together to exchange their ideas and cross-fertilize the field. To bring in new ideas, every year SoCS features a special scope on a related research area. Previous SoCS events have provided a special focus on automated planning (2010), search in robotics (2011), and grid-based path planning (2012). This year, SoCS specifically invited submissions from researchers in the algorithm engineering community and related areas that work on graph search problems and other combinatorial search problems. This special scope on graph search engineering has been a clear success, attracting a considerable number of strong submissions outside the traditional AI search communities.

Building on the positive experience of SoCS 2012, the SoCS 2013 call solicited not only submissions of original work but also invited poster presentations and extended abstracts of previously published papers in order to foster the exchange of ideas.

Original papers could be technical papers that are expected to convey substantial technical contributions to the field, or position papers discussing ideas and concepts related to search. Both could be submitted as full papers or research abstracts. All types of original submissions were reviewed using the same rigorous process with three reviewers per paper. Full original papers were evaluated according to the usual standards of relevance, significance, novelty, clarity, technical soundness and technical quality. For

position papers, we did not expect a novel technical contribution. Instead, they were evaluated with respect to their interest to the field and their potential of inciting a stimulating discussion. Research abstracts were reviewed based on the same criteria as full papers, but could also report on ongoing work that has already reached a certain level of maturity.

Previously published papers describe new research which has been reported in other venues in the last year. They could either be submitted for presentation only or with an original extended abstract for inclusion in these proceedings. These papers underwent a light reviewing process, handled by the chairs, to ensure that they are of interest to the SoCS community. The extended abstract was reviewed by an additional reviewer to ensure that it meets the required quality standards.

For SoCS 2013, we received 56 submissions of original papers and 14 submissions of previously published work. Eight of the papers addressed the special scope of graph search engineering. The papers were reviewed by a program committee made up of 51 members, assisted by 20 additional external reviewers. As a result of this evaluation, 40 papers were accepted: 23 full papers (47.9 percent) and 4 research abstracts (50 percent) of original work, and 13 (92.86 percent) previously published papers, of which 6 were submitted with an extended abstract included in these proceedings.

The program of the conference also featured two invited talks given by highly distinguished scientists: J. Christopher Beck gave a joint invited talk for SoCS and SARA on Modeling, Global Constraints, and Decomposition, and Gene Cooperman spoke on Applications of Graph Search in Group Theory and Proteomics.

Their invitation as well as the travel support for students has been made possible by the generous support of the *Artificial Intelligence Journal* (AIJ) and the US National Science Foundation (NSF).

We thank all members of the Program Committee, as well as our external reviewers, for their effort in

the reviewing process. We also thank those involved in the various aspects of the organization of SoCS 2013: Mausam for taking care of the local arrangement; the SoCS council and organizers of previous years for answering our many questions, sharing their opinion on various aspects of the organization, and providing us with statistics on previous SoCS symposia. Special thanks go to Wheeler Ruml, who handled those submissions where the chairs had a conflict of interest and wrote invitation letters and invoices, and to Nathan Sturtevant, who supported us

with the setup of the registration process. We also thank Richard Korf for organizing the NSF support, Rob Holte for the coordination with SARA, and Sandra Burri for her help with the venues and the PC invitations.

Finally and most importantly, we thank the combinatorial search community who supported this event by submitting their work and participating actively in it.

-- *Malte Helmert and Gabriele Röger*
Symposium Chairs