Abstraction, reformulation and approximation (ARA) are important techniques studied by researchers in artificial intelligence and employed in the systems they build. Indeed, ARA techniques are front and center throughout computer science — perhaps most notably in programming and in the design and processing of programming languages — and are employed in other disciplines as well.

Research in artificial intelligence grew enormously throughout the 1960s, 1970s, and 1980s and with this growth came diversity and the inception of many forums serving specialist subareas of the field. Consequently, the dissemination of research in ARA is dispersed across the specialist forums. The Symposium on Abstraction, Reformulation, and Approximation (SARA) was established in 1994 in order to provide a single forum for researchers of different backgrounds and disciplines to discuss their work on ARA. Subsequently, SARA has been held in 1995, 1998, 2000, 2002, 2005, 2007, 2009 and 2011.

This SARA, the tenth in the series, was held July 11–12, 2013 at the Sleeping Lady mountain resort in scenic Leavenworth, Washington, USA. The event was colocated with the Symposium on Combinatorial Search (SoCS) and cross-fertilization was facilitated by a joint session of the two symposia.

This volume contains the 18 peer-reviewed papers that were presented at SARA 2013 and extended abstracts of the SARA keynote address of Lorenza Saitta and the joint SARA-SoCS keynote address of J. Christopher Beck. The peer-reviewed papers comprise 14 full-length papers presenting novel, previously-unpublished research; 2 extended abstracts of papers that have been published or are under review elsewhere; and 2 research summaries that address issues of interest to the SARA community.

We are grateful to everyone who contributed to making SARA 2013 a success. This includes Mausam, (local chair); Wheeler Ruml (unofficial treasurer); the SARA Steering Committee; the SARA Program Committee; and Malte Helmert and Gabriele Röger (the symposium chairs of SoCS). We are especially grateful to Gabriele for handling the entire SARA registration process and to Robert Holte (general chair) for valuable advice and assistance from beginning to end.

– Alan M. Frisch and Peter Gregory