

PREFACE

This volume contains the papers accepted for presentation at ICAPS 2008, the Eighteenth International Conference on Automated Planning and Scheduling, held in Sydney, Australia, September 14–18, 2008. The annual ICAPS conference series was formed in 2003 through the merger of two pre-existing biennial conferences, the International Conference on Artificial Intelligence Planning and Scheduling (AIPS) and the European Conference on Planning (ECP). ICAPS continues the traditional high standards of AIPS and ECP as an archival forum for new research in the field of automated planning and scheduling.

The 51 papers included in this volume were selected from a record of 151 submissions that were rigorously reviewed by an international program committee. The papers present the latest advances in the field of automated planning and scheduling, including theoretical analyses of planning and scheduling problems and processes, new algorithms for planning and scheduling under various constraints and assumptions, and empirical evaluation of planning and scheduling techniques for a range of practical applications. The various topics addressed in these papers reflect research trends in the field toward the use of search and constraint reasoning in planning and scheduling; probabilistic planning models and algorithms; integrated frameworks for planning, scheduling, and execution; use of learning methods; multi-agent approaches to planning and scheduling; and others, including application of these techniques to new real-world problems.

In addition to the presentation of these papers, the technical program of this year's ICAPS conference includes invited talks by three distinguished speakers: Jeffrey Rosenschein of the Hebrew University of Jerusalem, John Hooker of Carnegie Mellon University, and Ronen Brafman of Ben-Gurion University. John Hooker's invited talk is for a joint session of ICAPS and the International Conference on the Principles and Practice of Constraint Programming (CP-2008), and Ronen Brafman's invited talk is for a joint session of ICAPS and the International Conference on the Principles of Knowledge Representation and Reasoning (KR-2008). ICAPS is colocated with both of these conferences this year, as well as with the International Conference on Nonmonotonic Reasoning (NMR-2008). This colocation encourages communication between these communities, and allows researchers to build on existing collaborations and identify new opportunities for cross-fertilization of ideas.

Preceding the main technical program of ICAPS are two days of satellite events, including six workshops, four half-day tutorials, and a doctoral consortium. The workshop topics include: "Constraint Satisfaction Techniques for Planning and Scheduling," "Knowledge Engineering for Planning and Scheduling," "Scheduling and Planning Applications," "Multiagent Planning," "A Reality Check for Planning and Scheduling under Uncertainty," and "Oversubscribed Planning and Scheduling." The tutorials offer in-depth perspectives on the following topics: "Abstraction Heuristics for Planning: Pattern Databases and Beyond," "First-Order Planning Techniques," "Constraint Processing for Planning and Scheduling," and "External-Memory Graph Search." Continuing the tradition of the past several ICAPS conferences, this year's conference includes a doctoral consortium and mentoring program that gives Ph.D. students an opportunity to present their research and receive early feedback from experts in the field. This year's doctoral consortium includes a full-day workshop event and a poster session during the conference.

Also associated with this year's conference is the Sixth International Planning Competition, or IPC-6 for short. The goals of this biennial event include analyzing and advancing the state of the art in automated planning systems; providing new data sets to be used by the research community as benchmarks for evaluating different approaches to automated planning; emphasizing new research issues in planning; and promoting the acceptance and applicability of planning technology. The organization of this year's planning competition is divided into three tracks. The deterministic track considers fully deterministic and observable planning (previously called "classical" planning); the uncertainty track considers planning with nondeterministic and probabilistic actions in fully observable, partially observable or unobservable domains; and a new planning with learning track considers planning using domain-dependent knowledge that is automatically extracted during an offline training period. The variety of problems considered in these different tracks both reflects, and spurs, progress in the field. This year also sees the continuation of the system demonstrations event at ICAPS.

We would like to express our deep appreciation to all of the members of the Organizing Committee for their tireless efforts in organizing the events and activities of this conference, as well as for providing local arrangements and other support. Without their talent and dedication, and without the expertise and hard work of the Program Committee in reviewing the submitted papers, this conference would not have been possible. We also thank our many sponsors for their very generous support.

We hope that this volume maintains the tradition of past ICAPS proceedings and becomes a valuable reference for researchers and practitioners in the field of automated planning and scheduling.

*– Jussi Rintanen, Bernhard Nebel, Chris Beck, and Eric Hansen
Conference Chairs*