



Heuristic Search, Memory-Based Heuristics and Their Applications

Papers from the AAAI Workshop

Technical Report WS-06-08



AAAI Press

American Association for Artificial Intelligence

AAAI Press

445 Burgess Drive
Menlo Park, California 94025

ISBN 978-1-57735-290-7 WS-06-08



978157735-2907

Heuristic Search, Memory-Based Heuristics and Their Applications

Papers from the AAI Workshop

*Ariel Felner, Robert C. Holte,
and Hector Geffner, Cochairs*

Technical Report WS-06-08

AAAI Press
Menlo Park, California

Copyright © 2006, AAAI Press

The American Association for Artificial Intelligence
445 Burgess Drive
Menlo Park, California 94025 USA

AAAI maintains compilation copyright for this technical report and retains the right of first refusal to any publication (including electronic distribution) arising from this AAAI event. Please do not make any inquiries or arrangements for hardcopy or electronic publication of all or part of the papers contained in these working notes without first exploring the options available through AAAI Press and *AI Magazine* (concurrent submission to AAAI and another publisher is not acceptable). A signed release of this right by AAAI is required before publication by a third party.

Distribution of this technical report by any means including electronic (including, but not limited to the posting of the papers on any Website) without permission is prohibited.

ISBN 978-1-57735-290-7 WS-06-08

Manufactured in the United States of America

Organizing Committee

Ariel Felner

Ben-Gurion University of the Negev, Beer-Sheva, Israel, 84105
E-mail: felner@bgu.ac.il

Robert C. Holte

Computing Science Department, University of Alberta, Edmonton, Canada, T6G 2E8
E-mail: holte@cs.ualberta.ca

Hector Geffner

UPF, Paseo de Circunvalacion 8,08003 Barcelona, SPAIN
E-mail: hector.geffner@upf.edu

Program Committee

Blai Bonet, Universidad Simón Bolívar, Venezuela

Stefan Edelkamp, Universität Dortmund, Germany

Ariel Felner (cochair), Ben-Gurion University, Israel

Jeremy Frank, NASA Ames Research Center, USA

David Furcy, University of Wisconsin (Oshkosh), USA

Hector Geffner (cochair), UPF, Paseo de Circunvalacion, Spain

Eric Hansen, Mississippi State University, USA

Patrik Haslum, Linköping University, Sweden

Robert Holte (cochair), University of Alberta, Edmonton, Canada

Richard Korf, University of California Los Angeles, USA

Jonathan Schaeffer, University of Alberta, Edmonton, Canada

Rong Zhou, Palo Alto Research Center, USA

Weixiong Zhang, Washington University, USA

This AAIL-06 Workshop was held July 17, 2006,
in Boston, Massachusetts USA

Contents

Preface / vii

Recent Progress in Heuristic Search: A Case Study
of the Four-Peg Towers of Hanoi Problem / 1
Richard E. Korf and Ariel Felner

Automated Pattern Database Design / 7
Stefan Edelkamp

Dual Search in Permutation State Spaces / 15
Uzi Zahavi, Ariel Felner, Robert C. Holte, and Jonathan Schaeffer

ITSA*: Iterative Tunneling Search with A* / 21
David A. Furcy

Domain-Independent Structured Duplicate Detection / 27
Rong Zhou and Eric A. Hansen

Parallel Breadth-First Heuristic Search on a
Shared-Memory Architecture / 33
Yang Zhang and Eric A. Hansen

Sequential and Parallel Algorithms for Frontier A*
with Delayed Duplicate Detection / 39
Robert Niewiadomski, José Nelson Amaral, and Robert C. Holte

A Memory-Based RASH Optimizer / 45
Mauro Brunato, Roberto Battiti, and Srinivas Pasupuleti

AND/OR Graph Search for Genetic Linkage Analysis / 52
Radu Marinescu and Rina Dechter

LAO*, RLAO*, or BLAO* / 59
Peng Dai and Judy Goldsmith

An Empirical Evaluation of Automated Knowledge
Discovery in a Complex Domain / 65
Jay H. Powell and John D. Hastings

Conflict Directed Backjumping for MAX-CSPs / 71
Roie Zivan and Amnon Meisels

Improving Relaxed Planning Graph Heuristics for Metric Optimization / 79
Raquel Fuentetaja, Daniel Borrajo, and Carlos Linares

Integrating Actions Preconditions Difficulty within the
Relaxed Plan Heuristic Measure / 87
Tomás de la Rosa and Raquel Fuentetaja

