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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Invited Talks -- Partial Completeness of Abstract Fixpoint Checking -- An Overview of MAXQ Hierarchical Reinforcement Learning -- Recent Progress in the Design and Analysis of Admissible Heuristic Functions -- Tutorial -- GIS Databases: From Multiscale to MultiRepresentation -- Full Papers -- An Abstraction Framework for Soft Constraints and Its Relationship with Constraint Propagation -- Abstractions for Knowledge Organization of Relational Descriptions -- Grid-Based Histogram Arithmetic for the Probabilistic Analysis of Functions -- Approximating Data in Constraint Databases -- Linearly Bounded Reformulations of Unary Databases -- A CSP Abstraction Framework -- Interactions of Abstractions in Programming -- Reformulation and Approximation in Model Checking -- The Lumberjack Algorithm for Learning Linked Decision Forests -- Reformulating Propositional

Satisfiability as Constraint Satisfaction -- Extended Abstracts -- Improving the Efficiency of Reasoning Through Structure-Based Reformulation -- Using Feature Hierarchies in Bayesian Network Learning -- On Reformulating Planning as Dynamic Constraint Satisfaction -- Experiments with Automatically Created Memory-Based Heuristics -- Abstraction and Phase Transitions in Relational Learning -- Posters -- An Agent-Based Approach to Robust Switching Between Abstraction Levels for Fault Diagnosis -- A Compositional Approach to Causality -- A Method for Finding Consistent Hypotheses Using Abstraction -- Research Summaries -- Program Synthesis and Transformation Techniques for Simulation, Optimization, and Constraint Satisfaction -- Using and Learning Abstraction Hierarchies for Planning -- Learning Probabilistic Relational Models -- Synergy between Compositional Modeling and Bayesian Networks -- A CSP Abstraction Framework -- Answering Queries with Database Restrictions -- Research Summary.

Sommario/riassunto

This volume contains the proceedings of SARA 2000, the fourth Symposium on Abstraction, Reformulations, and Approximation (SARA). The conference was held at Horseshoe Bay Resort and Conference Club, Lake LBJ, Texas, July 26– 29, 2000, just prior to the AAAI 2000 conference in Austin. Previous SARA conferences took place at Jackson Hole in Wyoming (1994), Ville d'Est´erel in Qu´ebec (1995), and Asilomar in California (1998). The symposium grew out of a series of workshops on abstraction, approximation, and reformulation that had taken place alongside AAAI since 1989. This year's symposium was actually scheduled to take place at Lago Vista Clubs & Resort on Lake Travis but, due to the resort's failure to pay taxes, the conference had to be moved late in the day. This mischance engendered eleventh-hour reformulations, abstractions, and resource re-allocations of its own. Such are the perils of organizing a conference. This is the first SARA for which the proceedings have been published in the LNAI series of Springer-Verlag. We hope that this is a reflection of the increased maturity of the field and that the increased visibility brought by the publication of this volume will help the discipline grow even further. Abstractions, reformulations, and approximations (AR&A) have found - plications in a variety of disciplines and problems including automatic programming, constraint satisfaction, design, diagnosis, machine learning, planning, qualitative reasoning, scheduling, resource allocation, and theorem proving. The - pers in this volume capture a cross-section of these application domains.