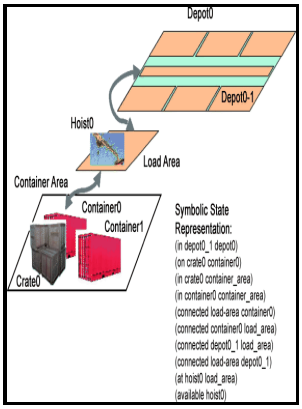
Generating abstraction hierarchies - an automated approach to reducing search in planning

Kluwer Academic Publisher - Generating Abstraction Hierarchies: An Automated Approach to Reducing Search in Planning by Craig A. Knoblock



Description: -
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Abstraction.
Computer science.
Artificial intelligence.
Machine learning.Generating abstraction hierarchies - an automated approach to reducing search in planning
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The Paul Anthony Brick lectures
SECS 214
The Kluwer international series in engineering and computer science
;Generating abstraction hierarchies - an automated approach to reducing search in planning
Notes: Includes bibliographical references (p. [155]-163) and index.
This edition was published in 1993

Filesize: 58.72 MB

Tags: #Craig #A. #Knoblock

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The list of bibliography 97 entries is also worth mentioning.

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The abstractions generated by ALPINE are tested in multiple domains on large problem sets and are shown to produce shorter solutions with significantly less search than problem solving without using abstraction. An abstraction hierarchy with this property allows a problem to be decomposed such that the solution in an abstract space can be held invariant while the remaining parts of a problem are solved.

Generating Abstraction Hierarchies

In: Abstraction, Reformulation and Approximation SARA 2007 , pp. . Generating Abstraction Hierarchies formally defines this hierarchical problem solving method, shows that under certain assumptions this method can reduce the size of a search space from exponential to linear in the solution size, and describes the implementation of this method in PRODIGY.

New methods for proving the impossibility to solve problems through reduction of problem spaces

For such cases, in this paper we explain a technique which provides a quick proof that finding a solution is actually impossible. The abstractions generated by ALPINE are tested in multiple domains on large problem sets and are shown to produce shorter solutions with significantly less search than problem solving without using abstraction. The abstractions are generated using a tractable, domain-independent algorithm whose only inputs are the definition of a problem space and the problem to be solved and whose output is an abstraction hierarchy that is tailored to the particular problem.

Automatically generating abstractions for planning

The abstractions are generated using a tractable, domain-independent algorithm whose only input is the definition of a problem to be solved and whose output is an abstraction hierarchy that is tailored to the particular problem. This book can be recommended not only to the specialists working in automatic problem solving; it would be useful for engineers who want to improve their understanding of themselves and the world around them.

Related Books

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