

# Model-based Reasoning In Scientific Discovery

## Architectural Design Thinking as a Form of Model-Based Reasoning

Pieter Pauwels and Rens Bod

**Abstract** Model-based reasoning can be considered central in very diverse domains of practice. Recently considered domains of practice are political discourse, social intercourse, language learning, archaeology, collaboration and conversation, and so forth. In this paper, we explore features of model-based reasoning in architectural design and construction. Additionally, an indication is given of some existing suggestions of how model-based reasoning systems may be simulated in an automated environment. We extend these lines of thought into our own simulated environment and give indications of how such a model-based reasoning system can not only give us better insights in the architectural design and construction practice, but also why it is so hard for such a system to eventually surpass human capabilities in this area of practice.

### 1 Introduction

Model-based reasoning strategies are typically considered central to scientific research practice and scientific discovery. In following a model-based reasoning strategy, reasoning agents continuously switch back and forth between their own mental models of particular parts of the world and the parts of the world that surround each of them. The reasoning agents use their models of a part of the world

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The volume is based on the papers that were presented at the International Conference Model-Based Reasoning in Scientific Discovery (MBR'98), held at the Library of Congress Cataloging-in-Publication Data. Contents. Model-based reasoning in scientific discovery/edited by Lorenzo Magnani, Nancy J. Nersessian. Download Citation on ResearchGate Model-Based Reasoning in Scientific Discovery An overview is provided of how the concept of a scientific model has. Request PDF on ResearchGate Model-Based Reasoning in Scientific Discovery The volume is based on the papers that were presented at the International. as Model-Based Reasoning. Ping Li and Dachao Li abstract. Recent work on model-based reasoning (MBR) in science has focused on scientific discoveries. The book Model-Based Reasoning in Scientific Discovery, aims to explain how specific modeling practices employed by scientists are productive methods of. The cognitive basis of model-based reasoning in science Nancy J. Nersessian Developmental Issues in Model-Based Reasoning During bodybuilding human growth hormone.comia H. Miller Model-Based Reasoning in Scientific Discovery. L. Magnani, N. J. I focus on three forms of model-based reasoning demonstrated in my previous work as generative of conceptual change in science: analogical modeling, visual. Magnani, L., Nersessian, N. J., & Thagard, P. (Eds.). (). Model-based reasoning in scientific discovery. Dordrecht, Netherlands: Kluwer Academic Publishers. Model-Based Reasoning in Science and Engineering. College Publications. pp. Epistemic Mediators and Model-Based Discovery in Science. Model-Based Reasoning In Science and Technology A Conference or similar with model-based reasoning in scientific discovery and conceptual change. The capacity to create and manipulate models is a fundamental form of human reasoning and plays an important role in scientific discovery and in the learning. It continues the topics and traditions of past conferences "Model-Based Reasoning in Scientific Discovery" MBR'98, "Model-Based Reasoning. Model-Based Reasoning in Science and Technology: Abduction, Logic, and Computational Discovery Some speakers addressed the problem of model-based reasoning in technology, and stressed the issue of science and technological. The volume is based on the papers that were presented at the International Conference Model-Based Reasoning in Scientific Discovery. processes underdetermining them, and on model-based science, but it is dispersed in Model-based reasoning in scientific discovery and conceptual changes. Some of the formal models of abductive reasoning are based on the theory of the epistemic state of an agent [7], where the epistemic state of an individual is. Buy Model-Based Reasoning in Scientific Discovery from Dymocks online BookStore. Find latest reader reviews and much more at Dymocks. Trove: Find and get Australian resources. Books, images, historic newspapers, maps, archives and more. Model-Based Reasoning in Science and Technology by Lorenzo Magnani, in Science and Technology: Abduction, Logic, and Computational Discovery.

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