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Nota di contenuto	Computational Discovery of Scientific Knowledge -- Computational Discovery of Scientific Knowledge -- I Equation Discovery and Dynamic Systems Identification -- Communicable Knowledge in Automated System Identification -- Incorporating Engineering Formalisms into Automated Model Builders -- Integrating Domain Knowledge in Equation Discovery -- Communicability Criteria of Law Equations Discovery -- Quantitative Revision of Scientific Models -- Discovering Communicable Models from Earth Science Data -- Structure Discovery from Massive Spatial Data Sets Using Intelligent Simulation Tools -- Computational Discovery in Pure Mathematics -- II Computational Scientific Discovery in Biomedicine -- Automatic Computational Discovery of Chemical Reaction Networks Using Genetic Programming -- Discovery of Genetic Networks Through Abduction and Qualitative Simulation -- Learning Qualitative Models of Physical and Biological Systems -- Logic and the Automatic Acquisition of Scientific Knowledge: An Application to Functional Genomics -- Drug Discovery as an Example of Literature-Based Discovery -- Literature Based Discovery Support System and Its Application to Disease Gene Identification.
Sommario/riassunto	Advances in technology have enabled the collection of data from scientific observations, simulations, and experiments at an ever-increasing pace. For the scientist and engineer to benefit from these

enhanced data collecting capabilities, it is becoming clear that semi-automated data analysis techniques must be applied to find the useful information in the data. Computational scientific discovery methods can be used to this end: they focus on applying computational methods to automate scientific activities, such as finding laws from observational data. In contrast to mining scientific data, which focuses on building highly predictive models, computational scientific discovery puts a strong emphasis on discovering knowledge represented in formalisms used by scientists and engineers, such as numeric equations and reaction pathways. This state-of-the-art survey provides an introduction to computational approaches to the discovery of scientific knowledge and gives an overview of recent advances in this area, including techniques and applications in environmental and life sciences. The 15 articles presented are partly inspired by the contributions of the International Symposium on Computational Discovery of Communicable Knowledge, held in Stanford, CA, USA in March 2001. More representative coverage of recent research in computational scientific discovery is achieved by a significant number of additional invited contributions.

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