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Titolo	Propagation of Interval and Probabilistic Uncertainty in Cyberinfrastructure-related Data Processing and Data Fusion / / by Christian Servin, Vladik Kreinovich
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Collana	Studies in Systems, Decision and Control, , 2198-4190 ; ; 15
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Towards a More Adequate Description of Uncertainty -- Towards Justification of Heuristic Techniques for Processing Uncertainty -- Towards More Computationally Efficient Techniques for Processing Uncertainty -- Towards Better Ways of Extracting Information About Uncertainty from Data.
Sommario/riassunto	On various examples ranging from geosciences to environmental sciences, this book explains how to generate an adequate description of uncertainty, how to justify semiheuristic algorithms for processing uncertainty, and how to make these algorithms more computationally efficient. It explains in what sense the existing approach to uncertainty as a combination of random and systematic components is only an approximation, presents a more adequate three-component model with an additional periodic error component, and explains how uncertainty propagation techniques can be extended to this model. The book provides a justification for a practically efficient heuristic

technique (based on fuzzy decision-making). It explains how the computational complexity of uncertainty processing can be reduced. The book also shows how to take into account that in real life, the information about uncertainty is often only partially known, and, on several practical examples, explains how to extract the missing information about uncertainty from the available data.