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Descrizione fisica	1 online resource (539 p.)
Collana	ISTE
Disciplina	511.3
Soggetti	Qualitative reasoning Spatial analysis (Statistics) Space and time - Mathematical models Logic, Symbolic and mathematical
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [471]-500) and index.
Nota di contenuto	Cover; Qualitative Spatial and Temporal Reasoning; Title Page; Copyright Page; Table of Contents; Introduction. Qualitative Reasoning; Chapter 1. Allen's Calculus; 1.1. Introduction; 1.1.1. ""The mystery of the dark room""; 1.1.2. Contributions of Allen's formalism; 1.2. Allen's interval relations; 1.2.1. Basic relations; 1.2.2. Disjunctive relations; 1.3. Constraint networks; 1.3.1. Definition; 1.3.2. Expressiveness; 1.3.3. Consistency; 1.4. Constraint propagation; 1.4.1. Operations: inversion and composition; 1.4.2. Composition table; 1.4.3. Allen's algebra; 1.4.4. Algebraic closure 1.4.5. Enforcing algebraic closure 1.5. Consistency tests; 1.5.1. The case of atomic networks; 1.5.2. Arbitrary networks; 1.5.3. Determining polynomial subsets; Chapter 2. Polynomial Subclasses of Allen's Algebra; 2.1. ""Show me a tractable relation!""; 2.2. Subclasses of Allen's algebra; 2.2.1. A geometrical representation of Allen's relations; 2.2.2. Interpretation in terms of granularity; 2.2.3. Convex and pre-convex relations; 2.2.4. The lattice of Allen's basic relations; 2.2.5. Tractability of convex relations; 2.2.6. Pre-convex relations; 2.2.7.

Polynomiality of pre-convex relations

2.2.8. ORD-Horn relations 2.3. Maximal tractable subclasses of Allen's algebra; 2.3.1. An alternative characterization of pre-convex relations; 2.3.2. The other maximal polynomial subclasses; 2.4. Using polynomial subclasses; 2.4.1. Ladkin and Reinefeld's algorithm; 2.4.2. Empirical study of the consistency problem; 2.5. Models of Allen's language; 2.5.1. Representations of Allen's algebra; 2.5.2. Representations of the time-point algebra; 2.5.3. 0-categoricity of Allen's algebra; 2.6. Historical note; Chapter 3. Generalized Intervals; 3.1. "When they built the bridge" 3.1.1. Towards generalized intervals 3.2. Entities and relations; 3.3. The lattice of basic (p, q)-relations; 3.4. Regions associated with basic (p, q)-relations; 3.4.1. Associated polytopes; 3.4.2. M-convexity of the basic relations; 3.5. Inversion and composition; 3.5.1. Inversion; 3.5.2. Composition; 3.5.3. The algebras of generalized intervals; 3.6. Subclasses of relations: convex and pre-convex relations; 3.6.1. (p, q)-relations; 3.6.2. Convex relations; 3.6.3. Pre-convex relations; 3.7. Constraint networks; 3.8. Tractability of strongly pre-convex relations; 3.8.1. ORD-Horn relations 3.9. Conclusions 3.10. Historical note; Chapter 4. Binary Qualitative Formalisms; 4.1. "Night driving"; 4.1.1. Parameters; 4.1.2. A panorama of the presented formalisms; 4.2. Directed points in dimension 1; 4.2.1. Operations; 4.2.2. Constraint networks; 4.2.3. Networks reducible to point networks; 4.2.4. Arbitrary directed point networks; 4.3. Directed intervals; 4.3.1. Operations; 4.3.2. Constraint networks and complexity; 4.4. The OPRA direction calculi; 4.5. Dipole calculi; 4.6. The Cardinal direction calculus; 4.6.1. Convex and pre-convex relations; 4.6.2. Complexity 4.7. The Rectangle calculus

Sommario/riassunto

Starting with an updated description of Allen's calculus, the book proceeds with a description of the main qualitative calculi which have been developed over the last two decades. It describes the connection of complexity issues to geometric properties. Models of the formalisms are described using the algebraic notion of weak representations of the associated algebras. The book also includes a presentation of fuzzy extensions of qualitative calculi, and a description of the study of complexity in terms of clones of operations.

2. Record Nr.	UNINA9910299989403321
Titolo	Automation, Communication and Cybernetics in Science and Engineering 2013/2014 // herausgegeben von Sabina Jeschke, Ingrid Isenhardt, Frank Hees, Klaus Henning
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-08816-5
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (918 p.)
Disciplina	004 006.3 302.2 507.1
Soggetti	Computer science - Mathematics Artificial intelligence Robotics Automation Science - Study and teaching Communication Management Industrial management Computational Science and Engineering Artificial Intelligence Robotics and Automation Science Education Communication Studies Innovation/Technology Management
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Foreword -- List of Contributors -- Part 1: Agile and Turbulence-Suitable Processes for Knowledge and Technology Intensive Organizations -- Part 2: Next-Generation Teaching and Learning

Concepts for Universities and the Economy -- Part 3: Cognitive IT-Supported Processes for Heterogeneous and Cooperative Systems -- Part 4: Target Group-Adapted User Models for Innovation and Technology Development Processes -- Part 5: Semantic Networks and Ontologies for Complex Value Chains and Virtual Environments -- Appendix: Monographs and Published Books from IMA/ZLW & IfU.

Sommario/riassunto

This book continues the tradition of its predecessors “Automation, Communication and Cybernetics in Science and Engineering 2009/2010 and 2011/2012” and includes a representative selection of scientific publications from researchers at the institute cluster IMA/ZLW & IfU. IMA - Institute of Information Management in Mechanical Engineering ZLW - Center for Learning and Knowledge Management IfU - Associated Institute for Management Cybernetics e.V. Faculty of Mechanical Engineering, RWTH Aachen University The book presents a range of innovative fields of application, including: cognitive systems, cyber-physical production systems, robotics, automation technology, machine learning, natural language processing, data mining, predictive data analytics, visual analytics, innovation and diversity management, demographic models, virtual and remote laboratories, virtual and augmented realities, multimedia learning environments, organizational development and management cybernetics. The contributions selected reflect the fundamental paradigm shift toward an increasingly interdisciplinary research world – which has always been both the basis and spirit of the institute cluster IMA/ZLW & IfU. .
