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Autore	Xiang Yang <1954->
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Descrizione fisica	1 online resource (xii, 294 pages) : digital, PDF file(s)
Disciplina	006.3
Soggetti	Distributed artificial intelligence Bayesian statistical decision theory - Data processing Multiagent systems
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Nota di contenuto	Intelligent Agents -- Reasoning about the Environment -- Why Uncertain Reasoning? -- Multiagent Systems -- Cooperative Multiagent Probabilistic Reasoning -- Application Domains -- Bayesian Networks -- Basics on Bayesian Probability Theory -- Belief Updating Using JPD -- Graphs -- Local Computation and Message Passing -- Message Passing over Multiple Networks -- Approximation with Massive Message Passing -- Belief Updating and Cluster Graphs -- Conventions for Message Passing in Cluster Graphs -- Relation with [lambda] -- [pi] Message Passing -- Message Passing in Nondegenerate Cycles -- Message Passing in Degenerate Cycles -- Junction Trees -- Junction Tree Representation -- Graphical Separation -- Sufficient Message and Independence -- Encoding Independence in Graphs -- Junction Trees

	and Chordal Graphs -- Triangulation by Elimination -- Junction Trees as I-maps -- Junction Tree Construction -- Belief Updating with Junction Trees -- Algebraic Properties of Potentials -- Potential Assignment in Junction Trees -- Passing Belief over Separators -- Passing Belief through a Junction Tree -- Processing Observations -- Multiply Sectioned Bayesian Networks -- The Task of Distributed Uncertain Reasoning -- Organization of Agents during Communication -- Agent Interface -- Multiagent Dependence Structure -- Linked Junction Forests -- Multiagent Distributed Compilation of MSBNs -- Multiagent Moralization of MSDAG -- Effective Communication Using Linkage Trees -- Linkage Trees as I-maps -- Multiagent Triangulation.
Sommario/riassunto	This 2002 book investigates the opportunities in building intelligent decision support systems offered by multi-agent distributed probabilistic reasoning. Probabilistic reasoning with graphical models, also known as Bayesian networks or belief networks, has become increasingly an active field of research and practice in artificial intelligence, operations research and statistics. The success of this technique in modeling intelligent decision support systems under the centralized and single-agent paradigm has been striking. Yang Xiang extends graphical dependence models to the distributed and multi-agent paradigm. He identifies the major technical challenges involved in such an endeavor and presents the results. The framework developed in the book allows distributed representation of uncertain knowledge on a large and complex environment embedded in multiple cooperative agents, and effective, exact and distributed probabilistic inference.