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	Nota di contenuto	ContentsPrefaceI Self Organization1 Introduction to Self Organization1.1 Understanding self organization1.2 Application scenarios for self organization2 System Management and Control A Historical Overview2.1 System architecture2.2 Management and control2.2.1 Centralized control2.2.2 Distributed systems2.2.3 Self organizing systems3 Self Organization Context and Capabilities3.1 Complex systems3.2 Self organization and emergence3.3 Systems lacking self organization3.3.1 External control3.3.2 Blueprints and templates3.4 Self X capabilities3.5 Consequences of emergent properties3.6 Operating self organizing systems3.6.1 Asimov's Laws of Robotics3.6.2 Attractors3.7 Limitations of self organization4 Natural Self Organization4.1 Development of understandings4.2 Examples in natural sciences4.2.1 Biology4.2.2 Chemistry4.3 Differentiation self organization and bio inspired4.3.1 Exploring bio inspired4.3.2 Bio inspired techniques4.3.3 Self

Sommario/riassunto

Self-Organization in Sensor and Actor Networks explores self-organization mechanisms and methodologies concerning the efficient coordination between intercommunicating autonomous systems.Self-organization is often referred to as the multitude of algorithms and methods that organise the global behaviour of a system based on inter-system communication. Studies of self-organization in natural systems first took off in the 1960s. In technology, such approaches have become a hot research topic over the last 4-5 years with emphasis upon management and control in communication networks, and especially in resource-constrained sensor and actor networks. In the area of ad hoc networks new solutions have been discovered that imitate the properties of self-organization. Some algorithms for on-demand communication and coordination, including data-centric networking, are well-known examples. Key features include: . Detailed treatment of self-organization, mobile sensor and actor networks, coordination between autonomous systems, and bio-inspired networking. . Overview of the basic methodologies for self-organization, a comparison to central and hierarchical control, and classification of algorithms and techniques in sensor and actor networks. . Explanation of medium access control, ad hoc routing, data-centric networking, synchronization, and task allocation issues. . Introduction to swarm intelligence, artificial immune system, molecular information exchange. . Numerous examples and application scenarios to illustrate the theory. Self-Organization in Sensor and Actor Networkswill prove essential reading for students of computer science and related fields; researchers working in the area of massively

distributed systems, sensor networks, self-organization, and bio-inspired networking will also find this reference useful.