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Nota di contenuto	ContentsPreface1 Self Organization1.1 Introduction to 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 organization vs. bio inspired5 Self Organization in Technical Systems5.1 General applicability5.1.1 Autonomous systems5.1.2 Multi robot systems5.1.3 Autonomic networking5.1.4 Mobile Ad Hoc Networks5.1.5 Sensor and Actor Networks5.2 Operating Sensor and Actor Networks6 Methods and Techniques6.1 Basic methods6.1.1 Positive and negative feedback6.1.2 Interactions among individuals and with the environment6.1.3 Probabilistic techniques6.2 Design paradigms for self organization6.2.1 Design process6.2.2 Discussion of the design paradigms6.3 Developing nature inspired self organizing systems6.4 Modeling self organizing systems6.4.1 Overview to modeling techniques6.4.2 Differential equation models6.4.3 Monte Carlo simulations6.4.4 Choosing the right modeling technique7 Self Organization Further ReadingII Networking Aspects: Ad Hoc and Sensor Networks8 Mobile Ad Hoc and Sensor Networks8.1 Ad hoc networks8.1.1 Basic properties of ad hoc networks8.1.2 Mobile Ad Hoc Networks8.2 Wireless Sensor Networks8.2.1 Basic properties of sensor networks8.2.2 Composition of single sensor nodes8.2.3 Communication in sensor networks8.2.4 Energy aspects8.2.5 Coverage and deployment8.2.6 Comparison between MANETs and WSNs8.2.7 Application examples8.3 Challenges and research issues8.3.1 Required functionality and constraints8.3.2 Research objectives9 Self Organization in Sensor Networks 9.1 Properties and objectives9.2 Categorization in two dimensions9.2.1 Horizontal dimension9.2.2 Vertical dimension9.3 Methods and application examples9.3.1 Mapping with primary self organization methods9.3.2 Global state9.3.3 Location information9.3.4 Neighborhood information9.3.5 Local state9.3.6 Probabilistic techniques10 Medium Access Control10.1 Contention based protocols10.2 Sensor MAC10.2.1 Synchronized listen/sleep cycles10.2.2 Performance aspects10.2.3 Performance evaluation10.3 Power Control MAC protocol10.4 Conclusion11 Ad Hoc Routing11.1 Overview and categorization11.1.1 Address based routing vs. data centric forwarding11.1.2 Classification of ad hoc routi.

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 Networks* will 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.
