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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.
