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Nota di contenuto	Introduction -- Part 1:Background and Methodology -- Discrete Consensus Achievement in Artificial Systems -- Modular Design of Strategies for the Best-of-n Problem -- Part 2:Mathematical Modeling and Analysis -- Indirect Modulation of Majority-Based Decisions -- Direct Modulation of Voter-Based Decisions -- Direct Modulation of Majority-Based Decisions -- Part 3:Robot Experiments -- A Robot Experiment in Site Selection -- A Robot Experiment in Collective Perception -- Part 4:Discussion and Annexes -- Conclusions -- Background on Markov Chains.
Sommario/riassunto	This book focuses on the design and analysis of collective decision-making strategies for the best-of-n problem. After providing a formalization of the structure of the best-of-n problem supported by a comprehensive survey of the swarm robotics literature, it introduces the functioning of a collective decision-making strategy and identifies a set of mechanisms that are essential for a strategy to solve the best-of-n problem. The best-of-n problem is an abstraction that captures

the frequent requirement of a robot swarm to choose one option from a finite set when optimizing benefits and costs. The book leverages the identification of these mechanisms to develop a modular and model-driven methodology to design collective decision-making strategies and to analyze their performance at different levels of abstractions. Lastly, the author provides a series of case studies in which the proposed methodology is used to design different strategies, using robot experiments to show how the designed strategies can be applied to different application scenarios.
