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Sommario/riassunto	This book advances research on mobile robot localization in unknown environments by focusing on machine-learning-based natural scene recognition. The respective chapters highlight the latest developments in vision-based machine perception and machine learning research for localization applications, and cover such topics as: image-segmentation-based visual perceptual grouping for the efficient identification of objects composing unknown environments; classification-based rapid object recognition for the semantic analysis of natural scenes in unknown environments; the present understanding of the Prefrontal Cortex working memory mechanism and its biological processes for human-like localization; and the application of this present understanding to improve mobile robot localization. The book also features a perspective on bridging the gap between feature representations and decision-making using reinforcement learning, laying the groundwork for future advances in mobile robot navigation research.