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Sommario/riassunto	Dive into the fundamentals of artificial intelligence engines, covering deep learning and its mathematical underpinnings. Practical examples and tutorials help bridge the gap between theoretical AI concepts and applications.Key FeaturesComprehensive breakdown of foundational and advanced AI algorithms with practical insights.Clear explanations of deep learning architectures, including GANs, autoencoders, and CNNs.Step-by-step guidance on implementing mathematical concepts in real-world AI applications.Book DescriptionThis book is a comprehensive guide to the mathematics behind artificial intelligence engines, taking readers from foundational concepts to advanced applications. It begins with an introduction to artificial neural networks, exploring topics like perceptrons, linear associative networks, and gradient descent. Practical examples accompany each chapter, making complex mathematical principles accessible, even for those with limited prior knowledge. The book's detailed structure covers key algorithms like backpropagation, Hopfield networks, and Boltzmann machines, advancing to deep restricted Boltzmann machines, variational autoencoders, and convolutional neural networks. Modern topics such as generative adversarial networks, reinforcement learning, and capsule networks are explored in depth. Each section connects theory to real-

world AI applications, helping readers understand how these techniques are used in practice. Ideal for students, researchers, and AI enthusiasts, the book balances theoretical depth with practical insights. Basic mathematical knowledge or foundation is recommended, allowing readers to fully engage with the content. This book serves as an accessible yet thorough resource for anyone eager to dive deeper into artificial intelligence and machine learning.What you will learnMaster the fundamentals of artificial neural networks effectively.Apply gradient descent techniques for training neural networks.Design perceptrons to solve classification and logic problems.Explore the mechanics of backpropagation in learning processes.Analyze Boltzmann machines for generative model applications.Examine reinforcement learning for decision-making scenarios.Who this book is forStudents and professionals interested in artificial intelligence and machine learning will find this book an invaluable resource. A basic mathematical knowledge or foundation is recommended to follow the concepts effectively. Suitable for researchers, engineers, and AI enthusiasts aiming to strengthen their theoretical understanding while gaining practical implementation skills.