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Nota di contenuto	1. Fundamentals of Supervised Learning -- 2. Data-dependent generalization bounds -- 3. Descent direction optimization algorithms -- 4. Deep Learning -- 5. Support Vector Machines -- 6. Boosting -- 7. Semi-supervised Learning -- 8. Learning-To-Rank -- Appendix: Probability reminders.
Sommario/riassunto	Machine learning is one of the leading areas of artificial intelligence. It concerns the study and development of quantitative models that enable a computer to carry out operations without having been expressly programmed to do so. In this situation, learning is about identifying complex shapes and making intelligent decisions. The challenge in completing this task, given all the available inputs, is that the set of

potential decisions is typically quite difficult to enumerate. Machine learning algorithms have been developed with the goal of learning about the problem to be handled based on a collection of limited data from this problem in order to get around this challenge. This textbook presents the scientific foundations of supervised learning theory, the most widespread algorithms developed according to this framework, as well as the semi-supervised and the learning-to-rank frameworks, at a level accessible to master's students. The aim of the book is to provide a coherent presentation linking the theory to the algorithms developed in this field. In addition, this study is not limited to the presentation of these foundations, but it also presents exercises, and is intended for readers who seek to understand the functioning of these models sometimes designated as black boxes.