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   Disciplina   006.31

   Soggetti   Machine learning - Mathematics
                      Logic, Symbolic and mathematical
                      Artificial intelligence - Mathematics
                      R (Computer program language)

   Lingua di pubblicazione Inglese

   Formato   Materiale a stampa

   Livello bibliografico Monografia

   Note generali   Includes index.

   Nota di contenuto Chapter 1: Linear Algebra -- Chapter 2: Linear Regression -- Chapter
                      3: Classification -- Chapter 4: Resampling -- Chapter 5: Information
                      Criteria -- Chapter 6: Regularization -- Chapter 7: Nonlinear
                      Regression -- Chapter 8: Decision Trees -- Chapter 9: Support Vector
                      Machine -- Chapter 10: Unsupervised Learning.

   Sommario/riassunto The most crucial ability for machine learning and data science is
                      mathematical logic for grasping their essence rather than knowledge
                      and experience. This textbook approaches the essence of machine
                      learning and data science by considering math problems and building R
                      programs. As the preliminary part, Chapter 1 provides a concise
                      introduction to linear algebra, which will help novices read further to
                      the following main chapters. Those succeeding chapters present
                      essential topics in statistical learning: linear regression, classification,
                      resampling, information criteria, regularization, nonlinear regression,
                      decision trees, support vector machines, and unsupervised learning.
                      Each chapter mathematically formulates and solves machine learning
                      problems and builds the programs. The body of a chapter is
                      accompanied by proofs and programs in an appendix, with exercises at
                      the end of the chapter. Because the book is carefully organized to

provide the solutions to the exercises in each chapter, readers can solve the total of 100 exercises by simply following the contents of each chapter. This textbook is suitable for an undergraduate or graduate course consisting of about 12 lectures. Written in an easy-to-follow and self-contained style, this book will also be perfect material for independent learning.