1. Record Nr. UNINA9910298965403321

Autore	Chen Li M
Titolo	Mathematical Problems in Data Science : Theoretical and Practical Methods / / by Li M. Chen, Zhixun Su, Bo Jiang
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-25127-9
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (219 p.)
Disciplina	004
Soggetti	Computers Computer communication systems Computer science—Mathematics Information Systems and Communication Service Computer Communication Networks Mathematics of Computing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction: Data Science and BigData Computing -- Overview of Basic Methods for Data Science -- Relationship and Connectivity of Incomplete Data Collection -- Machine Learning for Data Science: Mathematical or Computational -- Images, Videos, and BigData -- Topological Data Analysis -- Monte Carlo Methods and their Applications in Big Data Analysis -- Feature Extraction via Vector Bundle Learning -- Curve Interpolation and Financial Curve Construction -- Advanced Methods in Variational Learning: Segmentation with Intensity Inhomogeneity -- An On-line Strategy of Groups Evacuation From a Convex Region in the Plane -- A New Computational Model of Bigdata.
Sommario/riassunto	This book describes current problems in data science and Big Data. Key topics are data classification, Graph Cut, the Laplacian Matrix, Google Page Rank, efficient algorithms, hardness of problems, different types of big data, geometric data structures, topological data processing, and various learning methods. For unsolved problems such as incomplete

data relation and reconstruction, the book includes possible solutions and both statistical and computational methods for data analysis. Initial chapters focus on exploring the properties of incomplete data sets and partial-connectedness among data points or data sets. Discussions also cover the completion problem of Netflix matrix; machine learning method on massive data sets; image segmentation and video search. This book introduces software tools for data science and Big Data such MapReduce, Hadoop, and Spark. This book contains three parts. The first part explores the fundamental tools of data science. It includes basic graph theoretical methods, statistical and AI methods for massive data sets. In second part, chapters focus on the procedural treatment of data science problems including machine learning methods, mathematical image and video processing, topological data analysis, and statistical methods. The final section provides case studies on special topics in variational learning, manifold learning, business and financial data rec overy, geometric search, and computing models. Mathematical Problems in Data Science is a valuable resource for researchers and professionals working in data science, information systems and networks. Advanced-level students studying computer science, electrical engineering and mathematics will also find the content helpful.