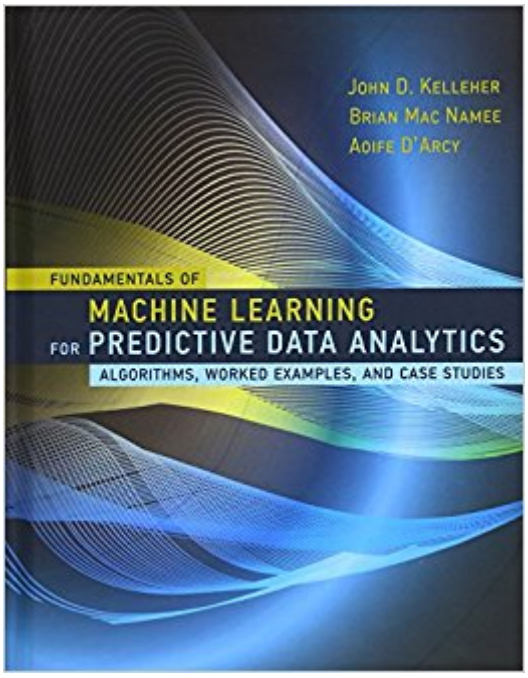
Fundamentals Of Machine Learning For Predictive Data Analytics: Algorithms, Worked Examples, And Case Studies (MIT Press)



Synopsis

Machine learning is often used to build predictive models by extracting patterns from large datasets. These models are used in predictive data analytics applications including price prediction, risk assessment, predicting customer behavior, and document classification. This introductory textbook offers a detailed and focused treatment of the most important machine learning approaches used in predictive data analytics, covering both theoretical concepts and practical applications. Technical and mathematical material is augmented with explanatory worked examples, and case studies illustrate the application of these models in the broader business context.After discussing the trajectory from data to insight to decision, the book describes four approaches to machine learning: information-based learning, similarity-based learning, probability-based learning, and error-based learning. Each of these approaches is introduced by a nontechnical explanation of the underlying concept, followed by mathematical models and algorithms illustrated by detailed worked examples. Finally, the book considers techniques for evaluating prediction models and offers two case studies that describe specific data analytics projects through each phase of development, from formulating the business problem to implementation of the analytics solution. The book, informed by the authors' many years of teaching machine learning, and working on predictive data analytics projects, is suitable for use by undergraduates in computer science, engineering, mathematics, or statistics; by graduate students in disciplines with applications for predictive data analytics; and as a reference for professionals.

Book Information

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Customer Reviews

Erudite yet real-world relevant. It’s true that predictive analytics and machine learning go hand-in-hand: To put it loosely, prediction depends on learning from past examples. And, while Fundamentals succeeds as a comprehensive university textbook covering exactly how that works, the authors also recognize that predictive analytics is today’s most booming commercial application of machine learning. So, in an unusual turn, this highly enriching opus brings the concepts to light with industry case studies and best practices, ensuring you’ll experience the real-world value and avoid getting lost in abstraction. (Eric Siegel, Ph.D., founder of Predictive Analytics World; author of Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die)This book provides excellent descriptions of the key methods used in predictive analytics. However, the unique value of this book is the insight it provides into the practical applications of these methods. The case studies and the sections on data preparation and data quality reflect the real-world challenges in the effective use of predictive analytics. (PÃƒÂ¡draig Cunningham, Professor of Knowledge and Data Engineering, School of Computer Science, University College Dublin; coeditor of Machine Learning Techniques for Multimedia)This is a wonderful self-contained book that touches upon the essential aspects of machine learning and presents them in a clear and intuitive light. With its incremental discussions ranging from anecdotal accounts underlying the ’big idea’ to more complex information theoretic, probabilistic, statistic, and optimization theoretic concepts, its emphasis on how to turn a business problem into an analytics solution, and its pertinent case studies and illustrations, this book makes for an easy and compelling read, which I recommend greatly to anyone interested in finding out more about machine learning and its applications to predictive analytics. (Nathalie Japkowicz, Professor of Computer Science, University of Ottawa; coauthor of Evaluating Learning Algorithms: A Classification Perspective)

John D. Kelleher is a Lecturer at the Dublin Institute of Technology, and a founding member of DIT’s Applied Intelligence Research Center. Brian Mac Namee is a Lecturer at University College Dublin. Aoife D’Arcy is CEO of The Analytics Store, a data analytics consultancy and training company.

Excellent content and very well written. I consider a must read book to who wants to learn about machine learning algorithms.

Supervised machine learning only. Basically a bunch of applications for an undergrad CS class. Light on theory. Very well structured though and excellent if you want to see some applications of machine learning in action. For deeper treatment see coursera courses by Geoff Hinton of Toronto and the Stanford ML class.

Fantastic book....absolutely nailed it. Read this before you jump into coding using Open source tools like python or use enterprise wide tools like SAS for machine learning.

I am ML specialist and instructor.There are many different types of books in Machine Learning. That cover various aspects of the field.Some books are base on theoretic side: Learning from the Data.Some books provide a gentle way for programming for Machine Learning in different languagesSome books combine theory and programmingThis book "Fundamentals of Machine Learning" a good written book for practitioner in machine learning. For people that want to know how machine learning experts work. That processes they use, and how them organize there work.In additional basic properties and ideas of general algorithms discussed.This book uses excellent plant English, many examples and real casesBut if you need mathematical background or programming background I think you need use another book.

Excellent book

Well written, well laid out and (best of all) an exceedingly useful treatment of machine learning and predictive data analytics. Highly recommended.

Amazing

This is one of the best books on any subject I have read. Every aspect of this book -- approach, flow, content, theory, example, explanation -- is great. Reading this book was an excellent learning opportunity for me. The authors are dealing with a complicated topic of machine learning with such an ease and are practically explaining every concept/equation and its implementation. This will be a permanent addition to my library and will serve as excellent reference whenever I need to check relevant information.

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and Case Studies (MIT Press) Analytics: Business Intelligence, Algorithms and Statistical Analysis (Predictive Analytics, Data Visualization, Data Analytics, Business Analytics, Decision Analysis, Big Data, Statistical Analysis) Analytics: Data Science, Data Analysis and Predictive Analytics for Business (Algorithms, Business Intelligence, Statistical Analysis, Decision Analysis, Business Analytics, Data Mining, Big Data) Data Analytics: What Every Business Must Know About Big Data And Data Science (Data Analytics for Business, Predictive Analysis, Big Data Book 1) Data Analytics and Python Programming: 2 Bundle Manuscript: Beginners Guide to Learn Data Analytics, Predictive Analytics and Data Science with Python Programming Data Analytics: Applicable Data Analysis to Advance Any Business Using the Power of Data Driven Analytics (Big Data Analytics, Data Science, Business Intelligence Book 6) Big Data For Business: Your Comprehensive Guide to Understand Data Science, Data Analytics and Data Mining to Boost More Growth and Improve Business - Data Analytics Book, Series 2 Analytics: Data Science, Data Analysis and Predictive Analytics for Business Survey of Big Data Analysis Using Predictive Analytics Algorithms and Its Use Data Analytics For Beginners: Your Ultimate Guide To Learn and Master Data Analysis. Get Your Business Intelligence Right Ã¢â ¬â œ Accelerate Growth and Close More Sales (Data Analytics Book Series) Cutting Edge Marketing Analytics: Real World Cases and Data Sets for Hands On Learning (FT Press Analytics) Machine Learning: For Beginners: Definitive Guide for Neural Networks, Algorithms, Random Forests and Decision Trees Made Simple (Machine Learning, Book 1) Fraud Analytics Using Descriptive, Predictive, and Social Network Techniques: A Guide to Data Science for Fraud Detection (Wiley and SAS Business Series) Bundle of Algorithms in C++, Parts 1-5: Fundamentals, Data Structures, Sorting, Searching, and Graph Algorithms (3rd Edition) (Pts. 1-5) Machine Learning for Hackers: Case Studies and Algorithms to Get You Started Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data R for Everyone: Advanced Analytics and Graphics (Addison-Wesley Data and Analytics) R for Everyone: Advanced Analytics and Graphics (2nd Edition) (Addison-Wesley Data & Analytics Series) The Analytics Revolution: How to Improve Your Business By Making Analytics Operational In The Big Data Era The Power of People: Learn How Successful Organizations Use Workforce Analytics To Improve Business Performance (FT Press Analytics)