

Learning From Data Artificial Intelligence And Statistics V

Learning from Data Artificial Intelligence and Statistics V Springer Science & Business Media

The Era of Artificial Intelligence, Machine Learning and Data Science in the Pharmaceutical Industry examines the drug discovery process, assessing how new technologies have improved effectiveness. Artificial intelligence and machine learning are considered the future for a wide range of disciplines and industries, including the pharmaceutical industry. In an environment where producing a single approved drug costs millions and takes many years of rigorous testing prior to its approval, reducing costs and time is of high interest. This book follows the journey that a drug company takes when producing a therapeutic, from the very beginning to ultimately benefitting a patient's life. This comprehensive resource will be useful to those working in the pharmaceutical industry, but will also be of interest to anyone doing research in chemical biology, computational chemistry, medicinal chemistry and bioinformatics. Demonstrates how the prediction of toxic effects is performed, how to reduce costs in testing compounds, and its use in animal research Written by the industrial teams who are conducting the work, showcasing how the

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technology has improved and where it should be further improved. Targets materials for a better understanding of techniques from different disciplines, thus creating a complete guide. A hands-on approach to tasks and techniques in data stream mining and real-time analytics, with examples in MOA, a popular freely available open-source software framework. Today many information sources—including sensor networks, financial markets, social networks, and healthcare monitoring—are so-called data streams, arriving sequentially and at high speed. Analysis must take place in real time, with partial data and without the capacity to store the entire data set. This book presents algorithms and techniques used in data stream mining and real-time analytics. Taking a hands-on approach, the book demonstrates the techniques using MOA (Massive Online Analysis), a popular, freely available open-source software framework, allowing readers to try out the techniques after reading the explanations. The book first offers a brief introduction to the topic, covering big data mining, basic methodologies for mining data streams, and a simple example of MOA. More detailed discussions follow, with chapters on sketching techniques, change, classification, ensemble methods, regression, clustering, and frequent pattern mining. Most of these chapters include exercises, an MOA-based lab session, or

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both. Finally, the book discusses the MOA software, covering the MOA graphical user interface, the command line, use of its API, and the development of new methods within MOA. The book will be an essential reference for readers who want to use data stream mining as a tool, researchers in innovation or data stream mining, and programmers who want to create new algorithms for MOA.

Build next-generation Artificial Intelligence systems with Java Key Features Implement AI techniques to build smart applications using DeepLearning4j

Perform big data analytics to derive quality insights using Spark MLlib Create self-learning systems

using neural networks, NLP, and reinforcement learning Book Description

In this age of big data, companies have larger amount of consumer data than ever before, far more than what the current technologies can ever hope to keep up with.

However, Artificial Intelligence closes the gap by moving past human limitations in order to analyze data. With the help of Artificial Intelligence for big

data, you will learn to use Machine Learning algorithms such as k-means, SVM, RBF, and

regression to perform advanced data analysis. You will understand the current status of Machine and

Deep Learning techniques to work on Genetic and Neuro-Fuzzy algorithms. In addition, you will explore

how to develop Artificial Intelligence algorithms to learn from data, why they are necessary, and how

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they can help solve real-world problems. By the end of this book, you'll have learned how to implement various Artificial Intelligence algorithms for your big data systems and integrate them into your product offerings such as reinforcement learning, natural language processing, image recognition, genetic algorithms, and fuzzy logic systems. What you will learn

- Manage Artificial Intelligence techniques for big data with Java
- Build smart systems to analyze data for enhanced customer experience
- Learn to use Artificial Intelligence frameworks for big data
- Understand complex problems with algorithms and Neuro-Fuzzy systems
- Design stratagems to leverage data using Machine Learning process
- Apply Deep Learning techniques to prepare data for modeling
- Construct models that learn from data using open source tools
- Analyze big data problems using scalable Machine Learning algorithms

Who this book is for This book is for you if you are a data scientist, big data professional, or novice who has basic knowledge of big data and wish to get proficiency in Artificial Intelligence techniques for big data. Some competence in mathematics is an added advantage in the field of elementary linear algebra and calculus.

"The authors' clear visual style provides a comprehensive look at what's currently possible with artificial neural networks as well as a glimpse of the magic that's to come." –Tim Urban, author of

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Wait But Why Fully Practical, Insightful Guide to Modern Deep Learning Deep learning is transforming software, facilitating powerful new artificial intelligence capabilities, and driving unprecedented algorithm performance. Deep Learning Illustrated is uniquely intuitive and offers a complete introduction to the discipline's techniques. Packed with full-color figures and easy-to-follow code, it sweeps away the complexity of building deep learning models, making the subject approachable and fun to learn. World-class instructor and practitioner Jon Krohn—with visionary content from Grant Beyleveld and beautiful illustrations by Aglaé Bassens—presents straightforward analogies to explain what deep learning is, why it has become so popular, and how it relates to other machine learning approaches. Krohn has created a practical reference and tutorial for developers, data scientists, researchers, analysts, and students who want to start applying it. He illuminates theory with hands-on Python code in accompanying Jupyter notebooks. To help you progress quickly, he focuses on the versatile deep learning library Keras to nimbly construct efficient TensorFlow models; PyTorch, the leading alternative library, is also covered. You'll gain a pragmatic understanding of all major deep learning approaches and their uses in applications ranging from machine vision and natural language processing to image generation and game-playing

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algorithms. Discover what makes deep learning systems unique, and the implications for practitioners Explore new tools that make deep learning models easier to build, use, and improve Master essential theory: artificial neurons, training, optimization, convolutional nets, recurrent nets, generative adversarial networks (GANs), deep reinforcement learning, and more Walk through building interactive deep learning applications, and move forward with your own artificial intelligence projects Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details. An introduction to a broad range of topics in deep learning, covering mathematical and conceptual background, deep learning techniques used in industry, and research perspectives. “Written by three experts in the field, Deep Learning is the only comprehensive book on the subject.” —Elon Musk, cochair of OpenAI; cofounder and CEO of Tesla and SpaceX Deep learning is a form of machine learning that enables computers to learn from experience and understand the world in terms of a hierarchy of concepts. Because the computer gathers knowledge from experience, there is no need for a human computer operator to formally specify all the knowledge that the computer needs. The hierarchy of concepts allows the computer to learn complicated concepts by building them out of simpler

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ones; a graph of these hierarchies would be many layers deep. This book introduces a broad range of topics in deep learning. The text offers mathematical and conceptual background, covering relevant concepts in linear algebra, probability theory and information theory, numerical computation, and machine learning. It describes deep learning techniques used by practitioners in industry, including deep feedforward networks, regularization, optimization algorithms, convolutional networks, sequence modeling, and practical methodology; and it surveys such applications as natural language processing, speech recognition, computer vision, online recommendation systems, bioinformatics, and videogames. Finally, the book offers research perspectives, covering such theoretical topics as linear factor models, autoencoders, representation learning, structured probabilistic models, Monte Carlo methods, the partition function, approximate inference, and deep generative models. Deep Learning can be used by undergraduate or graduate students planning careers in either industry or research, and by software engineers who want to begin using deep learning in their products or platforms. A website offers supplementary material for both readers and instructors.

Create AI applications in Python and lay the foundations for your career in data science Key Features Practical examples that explain key

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machine learning algorithms Explore neural networks in detail with interesting examples Master core AI concepts with engaging activities Book Description Machine learning and neural networks are pillars on which you can build intelligent applications. Artificial Intelligence and Machine Learning Fundamentals begins by introducing you to Python and discussing AI search algorithms. You will cover in-depth mathematical topics, such as regression and classification, illustrated by Python examples. As you make your way through the book, you will progress to advanced AI techniques and concepts, and work on real-life datasets to form decision trees and clusters. You will be introduced to neural networks, a powerful tool based on Moore's law. By the end of this book, you will be confident when it comes to building your own AI applications with your newly acquired skills! What you will learn Understand the importance, principles, and fields of AI Implement basic artificial intelligence concepts with Python Apply regression and classification concepts to real-world problems Perform predictive analysis using decision trees and random forests Carry out clustering using the k-means and mean shift algorithms Understand the fundamentals of deep learning via practical examples Who this book is for Artificial Intelligence and Machine Learning Fundamentals is for software developers and data scientists who want to enrich their projects with

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machine learning. You do not need any prior experience in AI. However, it's recommended that you have knowledge of high school-level mathematics and at least one programming language (preferably Python).

This textbook introduces the mathematical concepts and methods that underlie statistics. The course is unified, in the sense that no prior knowledge of probability theory is assumed, being developed as needed. The book is committed to both a high level of mathematical seriousness and to an intimate connection with application. In its teaching style, the book is * mathematically complete * concrete * constructive * active. The text is aimed at the upper undergraduate or the beginning Masters program level. It assumes the usual two-year college mathematics sequence, including an introduction to multiple integrals, matrix algebra, and infinite series.

Artificial Intelligence and Machine Learning in Business Management The focus of this book is to introduce artificial intelligence (AI) and machine learning (ML) technologies into the context of business management. The book gives insights into the implementation and impact of AI and ML to business leaders, managers, technology developers, and implementers. With the maturing use of AI or ML in the field of business intelligence, this book examines several projects with innovative uses of AI beyond data organization and access. It follows the Predictive Modeling Toolkit for providing new insight on how to use improved AI tools in the field of business. It explores cultural heritage values and risk assessments for mitigation and conservation and discusses

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on-shore and off-shore technological capabilities with spatial tools for addressing marketing and retail strategies, and insurance and healthcare systems. Taking a multidisciplinary approach for using AI, this book provides a single comprehensive reference resource for undergraduate, graduate, business professionals, and related disciplines. Through a series of recent breakthroughs, deep learning has boosted the entire field of machine learning. Now, even programmers who know close to nothing about this technology can use simple, efficient tools to implement programs capable of learning from data. This practical book shows you how. By using concrete examples, minimal theory, and two production-ready Python frameworks—Scikit-Learn and TensorFlow—author Aurélien Géron helps you gain an intuitive understanding of the concepts and tools for building intelligent systems. You'll learn a range of techniques, starting with simple linear regression and progressing to deep neural networks. With exercises in each chapter to help you apply what you've learned, all you need is programming experience to get started. Explore the machine learning landscape, particularly neural nets Use Scikit-Learn to track an example machine-learning project end-to-end Explore several training models, including support vector machines, decision trees, random forests, and ensemble methods Use the TensorFlow library to build and train neural nets Dive into neural net architectures, including convolutional nets, recurrent nets, and deep reinforcement learning Learn techniques for training and scaling deep neural nets Ten years ago Bill Gale of AT&T Bell Laboratories was primary organizer of the first Workshop on Artificial Intelligence and Statistics. In the early days of the Workshop series it seemed clear that researchers in AI and statistics had common interests, though with different emphases, goals, and vocabularies. In learning and model selection, for

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example, a historical goal of AI to build autonomous agents probably contributed to a focus on parameter-free learning systems, which relied little on an external analyst's assumptions about the data. This seemed at odds with statistical strategy, which stemmed from a view that model selection methods were tools to augment, not replace, the abilities of a human analyst. Thus, statisticians have traditionally spent considerably more time exploiting prior information of the environment to model data and exploratory data analysis methods tailored to their assumptions. In statistics, special emphasis is placed on model checking, making extensive use of residual analysis, because all models are 'wrong', but some are better than others. It is increasingly recognized that AI researchers and/or AI programs can exploit the same kind of statistical strategies to good effect. Often AI researchers and statisticians emphasized different aspects of what in retrospect we might now regard as the same overriding tasks.

With the idea of “deep learning” having now become the key to this new generation of solutions, major technological players in the business intelligence sector have taken an interest in the application of Big Data. In this book, the author explores the recent technological advances associated with digitized data flows, which have recently opened up new horizons for AI. The reader will gain insight into some of the areas of application of Big Data in AI, including robotics, home automation, health, security, image recognition and natural language processing.

Covering all the main approaches in state-of-the-art machine learning research, this will set a new standard as an introductory textbook.

Focusing on students' presentations and discussions in laboratory seminars, this book presents case studies on evidence-based education using artificial intelligence (AI)

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technologies. It proposes a system to help users complete research activities, and a machine-learning method that makes the system suitable for long-term operation by performing data mining for discussions and automatically extracting essential tasks. By illustrating the complete process – proposal, implementation, and operation – of applying machine learning techniques to real-world situations, the book will inspire researchers and professionals to develop innovative new applications for education. The book is divided into six chapters, the first of which provides an overview of AI research and practice in education. In turn, Chapter 2 describes a mechanism for applying data analytics to student discussions and utilizing the results for knowledge creation activities such as research. Based on discussion data analytics, Chapter 3 describes a creative activity support system that effectively utilizes the analytical results of the discussion for subsequent activities. Chapter 4 discusses the incorporation of a gamification method to evaluate and improve discussion skills while maintaining the motivation to participate in the discussion. Chapters 5 and 6 describe an advanced learning environment for honing students' discussion and presentation skills. Two important systems proposed here are a presentation training system using virtual reality technologies, and an interactive presentation/discussion training system using a humanoid robot. In the former, the virtual space is constructed by measuring the three-dimensional shape of the actual auditorium, presentations are performed in the same way as in the real world, and the AI as audience automatically evaluates the presentation and provides feedback. In the latter, a humanoid robot makes some remarks on and asks questions about students' presentations, and the students practice responding to it.

Good data mining practice for business intelligence (the art of

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turning raw software into meaningful information) is demonstrated by the many new techniques and developments in the conversion of fresh scientific discovery into widely accessible software solutions. Written as an introduction to the main issues associated with the basics of machine learning and the algorithms used in data mining, this text is suitable for advanced undergraduates, postgraduates and tutors in a wide area of computer science and technology, as well as researchers looking to adapt various algorithms for particular data mining tasks. A valuable addition to libraries and bookshelves of the many companies who are using the principles of data mining to effectively deliver solid business and industry solutions.

The second edition of a comprehensive introduction to machine learning approaches used in predictive data analytics, covering both theory and practice. 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. This second edition covers recent developments in machine learning, especially in a new chapter on deep learning, and two new chapters that go beyond predictive analytics to cover unsupervised learning and reinforcement learning.

This work provides the data scientist with the tools and techniques required to excel with statistical learning

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methods in the areas of data access, data munging, exploratory data analysis, supervised machine learning, unsupervised machine learning and model evaluation. Have you always wondered how it is that a machine understands what you are saying? Did you wonder how Siri or Alexa always knows exactly what to show you when you ask them something? If you did, you have come to the right place. Machines are able to interpret and understand human beings and also interpret the data that is fed to them because of artificial intelligence. So, what is artificial intelligence? If you have been reading the basics, you will know that artificial intelligence is a human being's attempt to make a machine smart enough to handle processes that a human being would normally do. It is not easy to do this, since you will need to understand the system and also learn the required programming languages to instruct the computer to behave in the required manner.

This book provides a comprehensive, conceptual, and detailed overview of the wide range of applications of Artificial Intelligence, Machine Learning, and Data Science and how these technologies have an impact on various domains such as healthcare, business, industry, security, and how all countries around the world are feeling this impact. The book aims at low-cost solutions which could be implemented even in developing countries. It highlights the significant impact these technologies have on various industries and on us as humans. It provides a virtual picture of forthcoming better human life shadowed by the new technologies and their applications and discusses the impact Data Science has

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on business applications. The book will also include an overview of the different AI applications and their correlation between each other. The audience is graduate and postgraduate students, researchers, academicians, institutions, and professionals who are interested in exploring key technologies like Artificial Intelligence, Machine Learning, and Data Science.

Preface Statistics is seldom the most eagerly anticipated course of a business student. It typically has the reputation of being a boring, complicated, and confusing mix of mathematical formulas and computers. Our goal in writing this casebook and the companion volume (Basic Business Statistics) was to change that impression by showing how statistics gives insights and answers interesting business questions. Rather than dwell on underlying formulas, we show how to use statistics to answer questions. Each case study begins with a business question and concludes with an answer. Formulas appear only as needed to address the questions, and we focus on the insights into the problem provided by the mathematics. The mathematics serves a purpose. The material is organized into 12 "classes" of related case studies that develop a single, key idea of statistics. The analysis of data using statistics is seldom very straightforward, and each analysis has many nuances. Part of the appeal of statistics is this richness, this blending of substantive theories and mathematics. For a newcomer, however, this blend is too rich and they are easily overwhelmed and unable to sort out the important ideas from nuances. Although later cases in these notes suggest this complexity, we do not begin

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that way. Each class has one main idea, something big like standard error. We begin a class by discussing an application chosen to motivate this key concept, and introduce the necessary terminology.

Over the next few decades, machine learning and data science will transform the finance industry. With this practical book, analysts, traders, researchers, and developers will learn how to build machine learning algorithms crucial to the industry. You'll examine ML concepts and over 20 case studies in supervised, unsupervised, and reinforcement learning, along with natural language processing (NLP). Ideal for professionals working at hedge funds, investment and retail banks, and fintech firms, this book also delves deep into portfolio management, algorithmic trading, derivative pricing, fraud detection, asset price prediction, sentiment analysis, and chatbot development. You'll explore real-life problems faced by practitioners and learn scientifically sound solutions supported by code and examples. This book covers: Supervised learning regression-based models for trading strategies, derivative pricing, and portfolio management Supervised learning classification-based models for credit default risk prediction, fraud detection, and trading strategies Dimensionality reduction techniques with case studies in portfolio management, trading strategy, and yield curve construction Algorithms and clustering techniques for finding similar objects, with case studies in trading strategies and portfolio management Reinforcement learning models and techniques used for building trading strategies, derivatives hedging, and portfolio

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management NLP techniques using Python libraries such as NLTK and scikit-learn for transforming text into meaningful representations

Artificial intelligence (AI) may be the most beneficial technological development of the twenty-first century. Media hype and raised expectations for results, however, have clouded understanding of the true nature of AI—including its limitations and potential. AI at War provides a balanced and practical understanding of applying AI to national security and warfighting professionals as well as a wide array of other readers. Although the themes and findings of the chapters are relevant across the U.S. Department of Defense, to include all Services, the Joint Staff and defense agencies as well as allied and partner ministries of defense, this book is a case study of warfighting functions in the Naval Services—the U.S. Navy and U.S. Marine Corps. Sam J. Tangredi and George Galdorisi bring together over thirty experts, ranging from former DOD officials and retired flag officers to scientists and active duty junior officers. These contributors present views on a vast spectrum of subjects pertaining to the implementation of AI in modern warfare, including strategy, policy, doctrine, weapons, and ethical concerns.

Master the world of Machine Learning and Data Science with this comprehensive 2-in-1 bundle. If you want to learn more about Machine Learning and Data Science or how to master them with Python quickly and easily, then keep reading. Data Science and Machine Learning are the biggest buzzwords in the business world nowadays. Many businesses know the importance of collecting

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information, but as they can collect so much data in a short period, the real question is: "what is the next step?" Data Science includes all the different procedures that must be implemented when working with data: collecting and cleaning them, analyzing them, applying Machine Learning algorithms and models, and then presenting your findings from the analysis with some good data visualizations. Machines and automation represent a huge part of our daily life. They are becoming part of our experience, and existence. Artificial Intelligence is currently one of the most thriving fields any programmer would wish to delve into, and for a good reason: this is the future! Simply put, Machine Learning is about teaching machines to think and make decisions as we would. The difference between the way machines learn and the way we do is that while for the most part we learn from experiences, machines learn from data. In book one, PYTHON MACHINE LEARNING, you will learn: What is Machine Learning and how it is applied in real-world situations Understanding the differences between Machine Learning, Deep Learning, and Artificial Intelligence Machine learning training models, Regression techniques and Linear Regression in Python How to use Lists and Modules in Python The 12 essential libraries for Machine Learning in Python Artificial Neural Networks And Much More! In book two, PYTHON DATA SCIENCE, you will learn: What Data Science is all about and why so many companies are using it to give them a competitive edge. Why Python and how to use it to implement Data Science The main Data Structures & Object-Oriented Programming,

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Functions and Modules in Python with practical codes and exercises The 7 most important algorithms and models in Data Science Data Aggregation, Group Operations, Databases and Data in the Cloud 9 important Data Mining techniques in Data Science And So Much More! Where most books only focus on how collecting and cleaning the data, this book goes further, providing guidance on how to perform a proper analysis in order to extract precious information that may be vital for a business. Don't miss the opportunity to master the key points of Machine Learning technology and understand how researchers are breaking the boundaries of Data Science to mimic human intelligence in machines. Even if some concepts of Machine Learning algorithms can appear complex to most computer programming beginners, this book takes the time to explain them in a simple and concise way.

Understanding Machine Learning and Data Science is easier than it looks. You just need the right guidance. And this book provides all the knowledge you need in a simple and practical way. Regardless of your previous experience, you will learn, the techniques to manipulate and process datasets, the principles of Python programming, and its most important real-world applications. Would You Like To Know More? Scroll Up and Click on the BUY NOW Button to Get Your Copy! Master the approaches and principles of Artificial Intelligence (AI) algorithms, and apply them to Data Science projects with Python and Julia code. Aspiring and practicing Data Science and AI professionals, along with Python and Julia programmers, will practice

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numerous AI algorithms and develop a more holistic understanding of the field of AI, and will learn when to use each framework to tackle projects in our increasingly complex world. The first two chapters introduce the field, with Chapter 1 surveying Deep Learning models and Chapter 2 providing an overview of algorithms beyond Deep Learning, including Optimization, Fuzzy Logic, and Artificial Creativity. The next chapters focus on AI frameworks; they contain data and Python and Julia code in a provided Docker, so you can practice. Chapter 3 covers Apache's MXNet, Chapter 4 covers TensorFlow, and Chapter 5 investigates Keras. After covering these Deep Learning frameworks, we explore a series of optimization frameworks, with Chapter 6 covering Particle Swarm Optimization (PSO), Chapter 7 on Genetic Algorithms (GAs), and Chapter 8 discussing Simulated Annealing (SA). Chapter 9 begins our exploration of advanced AI methods, by covering Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs). Chapter 10 discusses optimization ensembles and how they can add value to the Data Science pipeline. Chapter 11 contains several alternative AI frameworks including Extreme Learning Machines (ELMs), Capsule Networks (CapsNets), and Fuzzy Inference Systems (FIS). Chapter 12 covers other considerations complementary to the AI topics covered, including Big Data concepts, Data Science specialization areas, and useful data resources to experiment on. A comprehensive glossary is included, as well as a series of appendices covering Transfer Learning, Reinforcement Learning, Autoencoder Systems, and

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Generative Adversarial Networks. There is also an appendix on the business aspects of AI in data science projects, and an appendix on how to use the Docker image to access the book's data and code. The field of AI is vast, and can be overwhelming for the newcomer to approach. This book will arm you with a solid understanding of the field, plus inspire you to explore further.

TODAY ONLY 55% OFF for Bookstores! Are you an aspiring entrepreneur? Are you an amateur software developer looking for a break in the world of machine learning? Then this is the book for you. Machine learning is the way of the future - and breaking into this highly lucrative and ever-evolving field is a great way for your career, or business, to prosper. Inside this guide, you'll find simple, easy-to-follow explanations of the fundamental concepts behind machine learning, from the mathematical and statistical concepts to the programming behind them. With a wide range of comprehensive advice including machine learning models, neural networks, statistics, and much more, this guide is a highly effective tool for mastering this incredible technology. Inside, you will: Learn the Fundamental Concepts of Machine Learning Algorithms, and Their Impact in Resolving Modern Day Business Problems Understand The Four Fundamental Types of Machine Learning Algorithm Master the Concept of "Statistical Learning", a Descriptive Statistics-Based

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Machine Learning Algorithm Dive into the Development and Application of Six of the Most Popular Supervised and Unsupervised Machine Learning Algorithms, With Details on Linear Regression, Logistic Regression And More Learn Everything You Need to Know about Neural Networks and Data Pipelines Master the Concept of "General Setting of Learning", a Fundamental of Machine Learning Development Overview The Basics, Importance, and Applications of Data Science With Details on the "Team Data Science Process" Lifecycle And a Free Bonus! Covering everything you need to know about machine learning, now you can master the mathematics and statistics behind this field and develop your very own neural networks! Whether you want to use machine learning to help your business, or you're a programmer looking to expand your skills, this book is a must-read for anyone interested in the world of machine learning. Buy Now to Discover How You Can Master Machine Learning Today!

Multistrategy learning is one of the newest and most promising research directions in the development of machine learning systems. The objectives of research in this area are to study trade-offs between different learning strategies and to develop learning systems that employ multiple types of inference or computational paradigms in a learning process. Multistrategy systems offer significant advantages

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over monostrategy systems. They are more flexible in the type of input they can learn from and the type of knowledge they can acquire. As a consequence, multistrategy systems have the potential to be applicable to a wide range of practical problems. This volume is the first book in this fast growing field. It contains a selection of contributions by leading researchers specializing in this area. See below for earlier volumes in the series.

Data analysis, machine learning and knowledge discovery are research areas at the intersection of computer science, artificial intelligence, mathematics and statistics. They cover general methods and techniques that can be applied to a vast set of applications such as web and text mining, marketing, medicine, bioinformatics and business intelligence. This volume contains the revised versions of selected papers in the field of data analysis, machine learning and knowledge discovery presented during the 36th annual conference of the German Classification Society (GfKI). The conference was held at the University of Hildesheim (Germany) in August 2012. ?

Analytics of Life provides the reader with a broad overview of the field of data analytics and artificial intelligence. It provides the layperson an understanding of the various stages of artificial intelligence, the risks and powerful benefits. And it provides a way to look at big data and machine

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learning that enables us to make the most of this exciting new realm of technology in our day-to-day jobs and our small businesses. Questions you can find answers* * What is artificial intelligence (AI)? * What is the difference between AI, machine learning and data analytics? * Which jobs AI will replace, which jobs are safe from data analytics revolution? * Why data analytics is the best career move? * How can I apply data analytics in my job or small business? Who is this book for? * Managers and business professionals * Marketers, product managers, and business strategists * Entrepreneurs, founders and startups team members * Consultants, advisors and educators * Almost anybody who has an interest in the future According to an article by Cade Metz in The New York Times, "Researchers say computer systems are learning from lots and lots of digitized books and news articles that could bake old attitudes into new technology." Oxford University professor Nick Bostrom argues that if machine brains surpassed human brains in general intelligence, then this new superintelligence could become extremely powerful - possibly beyond our control. MIT professor Max Tegmark describes and illuminates the recent, ground-breaking advances in Artificial Intelligence and how it might overtake human intelligence. As Oxford University economist Daniel Susskind points out, technological progress could bring about unprecedented prosperity, solving

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one of humanity's oldest problems: how to make sure that everyone has enough to live on.

Distinguished AI researcher and professor of computer science at UC Berkeley, Russell Stuart suggests that we can rebuild AI on a new foundation, according to which machines are designed to be inherently uncertain about the human preferences they are required to satisfy. Industry experts claim that AI will have a negative impact on blue-collar jobs, but Mert predicts that Americans and Europeans will experience a strong impact on white-collar jobs as well. And Mert also provides research results and a clear description of which jobs will be affected and how soon, which jobs could be enhanced with AI. Analytics of Life also provides solutions and insight into some of the most profound changes to come in human history.

Artificial Intelligence in Data Mining: Theories and Applications offers a comprehensive introduction to data mining theories, relevant AI techniques, and their many real-world applications. This book is written by experienced engineers for engineers, biomedical engineers, and researchers in neural networks, as well as computer scientists with an interest in the area. Provides coverage of the fundamentals of Artificial Intelligence as applied to data mining, including computational intelligence and unsupervised learning methods for data clustering Presents coverage of key topics such as heuristic

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methods for data clustering, deep learning methods for data classification, and neural networks Includes case studies and real-world applications of AI techniques in data mining, for improved outcomes in clinical diagnosis, satellite data extraction, agriculture, security and defense

The fundamental algorithms in data mining and machine learning form the basis of data science, utilizing automated methods to analyze patterns and models for all kinds of data in applications ranging from scientific discovery to business analytics. This textbook for senior undergraduate and graduate courses provides a comprehensive, in-depth overview of data mining, machine learning and statistics, offering solid guidance for students, researchers, and practitioners. The book lays the foundations of data analysis, pattern mining, clustering, classification and regression, with a focus on the algorithms and the underlying algebraic, geometric, and probabilistic concepts. New to this second edition is an entire part devoted to regression methods, including neural networks and deep learning.

Following significant advances in deep learning and related areas interest in artificial intelligence (AI) has rapidly grown. In particular, the application of AI in drug discovery provides an opportunity to tackle challenges that previously have been difficult to solve, such as predicting properties, designing

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molecules and optimising synthetic routes. Artificial Intelligence in Drug Discovery aims to introduce the reader to AI and machine learning tools and techniques, and to outline specific challenges including designing new molecular structures, synthesis planning and simulation. Providing a wealth of information from leading experts in the field this book is ideal for students, postgraduates and established researchers in both industry and academia.

One of Mark Cuban's top reads for better understanding A.I. (inc.com, 2021) Your comprehensive entry-level guide to machine learning While machine learning expertise doesn't quite mean you can create your own Turing Test-proof android—as in the movie Ex Machina—it is a form of artificial intelligence and one of the most exciting technological means of identifying opportunities and solving problems fast and on a large scale. Anyone who masters the principles of machine learning is mastering a big part of our tech future and opening up incredible new directions in careers that include fraud detection, optimizing search results, serving real-time ads, credit-scoring, building accurate and sophisticated pricing models—and way, way more. Unlike most machine learning books, the fully updated 2nd Edition of Machine Learning For Dummies doesn't assume you have years of experience using programming languages such as

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Python (R source is also included in a downloadable form with comments and explanations), but lets you in on the ground floor, covering the entry-level materials that will get you up and running building models you need to perform practical tasks. It takes a look at the underlying—and fascinating—math principles that power machine learning but also shows that you don't need to be a math whiz to build fun new tools and apply them to your work and study. Understand the history of AI and machine learning Work with Python 3.8 and TensorFlow 2.x (and R as a download) Build and test your own models Use the latest datasets, rather than the worn out data found in other books Apply machine learning to real problems Whether you want to learn for college or to enhance your business or career performance, this friendly beginner's guide is your best introduction to machine learning, allowing you to become quickly confident using this amazing and fast-developing technology that's impacting lives for the better all over the world.

Python Machine Learning for Beginners Machine Learning (ML) and Artificial Intelligence (AI) are here to stay. Yes, that's right. Based on a significant amount of data and evidence, it's obvious that ML and AI are here to stay. Consider any industry today. The practical applications of ML are really driving business results. Whether it's healthcare, e-commerce, government, transportation, social media sites, financial services, manufacturing, oil and gas, marketing and sales You name it. The list goes on. There's no

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doubt that ML is going to play a decisive role in every domain in the future. But what does a Machine Learning professional do? A Machine Learning specialist develops intelligent algorithms that learn from data and also adapt to the data quickly. Then, these high-end algorithms make accurate predictions. Python Machine Learning for Beginners presents you with a hands-on approach to learn ML fast. How Is This Book Different? AI Publishing strongly believes in learning by doing methodology. With this in mind, we have crafted this book with care. You will find that the emphasis on the theoretical aspects of machine learning is equal to the emphasis on the practical aspects of the subject matter. You'll learn about data analysis and visualization in great detail in the first half of the book. Then, in the second half, you'll learn about machine learning and statistical models for data science. Each chapter presents you with the theoretical framework behind the different data science and machine learning techniques, and practical examples illustrate the working of these techniques. When you buy this book, your learning journey becomes so much easier. The reason is you get instant access to all the related learning material presented with this book--references, PDFs, Python codes, and exercises--on the publisher's website. All this material is available to you at no extra cost. You can download the ML datasets used in this book at runtime, or you can access them via the Resources/Datasets folder. You'll also find the short course on Python programming in the second chapter immensely useful, especially if you are new to Python. Since this book gives you access to all the Python codes and datasets, you only need access to a computer with the internet to get started. The topics covered include:

- Introduction and Environment Setup
- Python Crash Course
- Python NumPy Library for Data Analysis
- Introduction to Pandas Library for Data Analysis
- Data Visualization via

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Matplotlib, Seaborn, and Pandas Libraries Solving Regression Problems in ML Using Sklearn Library Solving Classification Problems in ML Using Sklearn Library Data Clustering with ML Using Sklearn Library Deep Learning with Python TensorFlow 2.0 Dimensionality Reduction with PCA and LDA Using Sklearn Click the BUY NOW button to start your Machine Learning journey.

Artificial Intelligence (AI), when incorporated with machine learning and deep learning algorithms, has a wide variety of applications today. This book focuses on the implementation of various elementary and advanced approaches in AI that can be used in various domains to solve real-time decision-making problems. The book focuses on concepts and techniques used to run tasks in an automated manner. It discusses computational intelligence in the detection and diagnosis of clinical and biomedical images, covers the automation of a system through machine learning and deep learning approaches, presents data analytics and mining for decision-support applications, and includes case-based reasoning, natural language processing, computer vision, and AI approaches in real-time applications. Academic scientists, researchers, and students in the various domains of computer science engineering, electronics and communication engineering, and information technology, as well as industrial engineers, biomedical engineers, and management, will find this book useful. By the end of this book, you will understand the fundamentals of AI. Various case studies will develop your adaptive thinking to solve real-time AI problems. Features Includes AI-based decision-making approaches Discusses computational intelligence in the detection and diagnosis of clinical and biomedical images Covers automation of systems through machine learning and deep learning approaches and its implications to the real world Presents data analytics and mining for decision-support

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applications Offers case-based reasoning

This book covers a wide range of topics on the role of Artificial Intelligence, Machine Learning, and Big Data for healthcare applications and deals with the ethical issues and concerns associated with it. This book explores the applications in different areas of healthcare and highlights the current research. "Big Data and Artificial Intelligence for Healthcare Applications" covers healthcare big data analytics, mobile health and personalized medicine, clinical trial data management and presents how Artificial Intelligence can be used for early disease diagnosis prediction and prognosis. It also offers some case studies that describes the application of Artificial Intelligence and Machine Learning in healthcare. Researchers, healthcare professionals, data scientists, systems engineers, students, programmers, clinicians, and policymakers will find this book of interest.

Artificial Intelligence (AI) and Machine Learning are now mainstream business tools. They are being applied across many industries to increase profits, reduce costs, save lives and improve customer experiences. Organizations which understand these tools and know how to use them are benefiting at the expense of their rivals. Artificial Intelligence and Machine Learning for Business cuts through the hype and technical jargon that is often associated with these subjects. It delivers a simple and concise introduction for managers and business people. The focus is very much on practical application and how to work with technical specialists (data scientists) to maximize the benefits of these technologies. This third edition has been substantially revised and updated. It contains several new chapters and covers a broader set of topics than before, but retains the no-nonsense style of the original.

The idea behind this book is to simplify the journey of aspiring readers and researchers to understand Big Data, IoT and

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Machine Learning. It also includes various real-time/offline applications and case studies in the fields of engineering, computer science, information security and cloud computing using modern tools. This book consists of two sections: Section I contains the topics related to Applications of Machine Learning, and Section II addresses issues about Big Data, the Cloud and the Internet of Things. This brings all the related technologies into a single source so that undergraduate and postgraduate students, researchers, academicians and people in industry can easily understand them. Features Addresses the complete data science technologies workflow Explores basic and high-level concepts and services as a manual for those in the industry and at the same time can help beginners to understand both basic and advanced aspects of machine learning Covers data processing and security solutions in IoT and Big Data applications Offers adaptive, robust, scalable and reliable applications to develop solutions for day-to-day problems Presents security issues and data migration techniques of NoSQL databases

Practical Machine Learning for Data Analysis Using Python is a problem solver's guide for creating real-world intelligent systems. It provides a comprehensive approach with concepts, practices, hands-on examples, and sample code. The book teaches readers the vital skills required to understand and solve different problems with machine learning. It teaches machine learning techniques necessary to become a successful practitioner, through the presentation of real-world case studies in Python machine learning ecosystems. The book also focuses on building a foundation of machine learning knowledge to solve different real-world case studies across various fields, including biomedical signal analysis, healthcare, security, economics, and finance. Moreover, it covers a wide range of machine learning models,

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including regression, classification, and forecasting. The goal of the book is to help a broad range of readers, including IT professionals, analysts, developers, data scientists, engineers, and graduate students, to solve their own real-world problems. Offers a comprehensive overview of the application of machine learning tools in data analysis across a wide range of subject areas Teaches readers how to apply machine learning techniques to biomedical signals, financial data, and healthcare data Explores important classification and regression algorithms as well as other machine learning techniques Explains how to use Python to handle data extraction, manipulation, and exploration techniques, as well as how to visualize data spread across multiple dimensions and extract useful features

Build machine learning algorithms using graph data and efficiently exploit topological information within your models
Key Features Implement machine learning techniques and algorithms in graph data Identify the relationship between nodes in order to make better business decisions Apply graph-based machine learning methods to solve real-life problems
Book Description Graph Machine Learning provides a new set of tools for processing network data and leveraging the power of the relation between entities that can be used for predictive, modeling, and analytics tasks. You will start with a brief introduction to graph theory and graph machine learning, understanding their potential. As you proceed, you will become well versed with the main machine learning models for graph representation learning: their purpose, how they work, and how they can be implemented in a wide range of supervised and unsupervised learning applications. You'll then build a complete machine learning pipeline, including data processing, model training, and prediction in order to exploit the full potential of graph data. Moving ahead, you will cover real-world scenarios such as extracting data from social

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networks, text analytics, and natural language processing (NLP) using graphs and financial transaction systems on graphs. Finally, you will learn how to build and scale out data-driven applications for graph analytics to store, query, and process network information, before progressing to explore the latest trends on graphs. By the end of this machine learning book, you will have learned essential concepts of graph theory and all the algorithms and techniques used to build successful machine learning applications. What you will learn

- Write Python scripts to extract features from graphs
- Distinguish between the main graph representation learning techniques
- Become well-versed with extracting data from social networks, financial transaction systems, and more
- Implement the main unsupervised and supervised graph embedding techniques
- Get to grips with shallow embedding methods, graph neural networks, graph regularization methods, and more
- Deploy and scale out your application seamlessly

Who this book is for This book is for data analysts, graph developers, graph analysts, and graph professionals who want to leverage the information embedded in the connections and relations between data points to boost their analysis and model performance. The book will also be useful for data scientists and machine learning developers who want to build ML-driven graph databases. A beginner-level understanding of graph databases and graph data is required. Intermediate-level working knowledge of Python programming and machine learning is also expected to make the most out of this book.

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