

# Machine Learning For Dummies

Build Machine Learning models with a sound statistical understanding. About This Book Learn about the statistics behind powerful predictive models with p-value, ANOVA, and F- statistics. Implement statistical computations programmatically for supervised and unsupervised learning through K-means clustering. Master the statistical aspect of Machine Learning with the help of this example-rich guide to R and Python. Who This Book Is For This book is intended for developers with little to no background in statistics, who want to implement Machine Learning in their systems. Some programming knowledge in R or Python will be useful. What You Will Learn Understand the Statistical and Machine Learning fundamentals necessary to build models Understand the major differences and parallels between the statistical way and the Machine Learning way to solve problems Learn how to prepare data and feed models by using the appropriate Machine Learning algorithms from the more-than-adequate R and Python packages Analyze the results and tune the model appropriately to your own predictive goals Understand the concepts of required statistics for Machine Learning Introduce yourself to necessary fundamentals required for building supervised & unsupervised deep learning models Learn reinforcement learning and its application in the field of artificial intelligence domain In Detail Complex statistics in Machine Learning worry a lot of developers. Knowing statistics helps you build strong Machine Learning models that are optimized for a given problem statement. This book will teach you all it takes to perform complex statistical computations required for Machine Learning. You will gain information on statistics behind supervised learning, unsupervised learning,

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reinforcement learning, and more. Understand the real-world examples that discuss the statistical side of Machine Learning and familiarize yourself with it. You will also design programs for performing tasks such as model, parameter fitting, regression, classification, density collection, and more. By the end of the book, you will have mastered the required statistics for Machine Learning and will be able to apply your new skills to any sort of industry problem. Style and approach This practical, step-by-step guide will give you an understanding of the Statistical and Machine Learning fundamentals you'll need to build models.

Can machine learning techniques solve our computer security problems and finally put an end to the cat-and-mouse game between attackers and defenders? Or is this hope merely hype? Now you can dive into the science and answer this question for yourself! With this practical guide, you'll explore ways to apply machine learning to security issues such as intrusion detection, malware classification, and network analysis. Machine learning and security specialists Clarence Chio and David Freeman provide a framework for discussing the marriage of these two fields, as well as a toolkit of machine-learning algorithms that you can apply to an array of security problems. This book is ideal for security engineers and data scientists alike. Learn how machine learning has contributed to the success of modern spam filters Quickly detect anomalies, including breaches, fraud, and impending system failure Conduct malware analysis by extracting useful information from computer binaries Uncover attackers within the network by finding patterns inside datasets Examine how attackers exploit consumer-facing websites and app functionality Translate your machine learning algorithms from the lab to production Understand the threat attackers pose to machine learning solutions

Maximize performance with better data Developing a

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successful workforce requires more than a gut check. Data can help guide your decisions on everything from where to seat a team to optimizing production processes to engaging with your employees in ways that ring true to them. People analytics is the study of your number one business asset—your people—and this book shows you how to collect data, analyze that data, and then apply your findings to create a happier and more engaged workforce. Start a people analytics project Work with qualitative data Collect data via communications Find the right tools and approach for analyzing data If your organization is ready to better understand why high performers leave, why one department has more personnel issues than another, and why employees violate, *People Analytics For Dummies* makes it easier. This volume constitutes the proceedings of the 18th Mexican Conference on Artificial Intelligence, MICAI 2019, held in Xalapa, Mexico, in October/November 2019. The 59 full papers presented in this volume were carefully reviewed and selected from 148 submissions. They cover topics such as: machine learning; optimization and planning; fuzzy systems, reasoning and intelligent applications; and vision and robotics.

"This book is a timely compendium of key elements that are crucial for the study of machine learning in chemoinformatics, giving an overview of current research in machine learning and their applications to chemoinformatics tasks"--Provided by publisher.

Modern humanity with some 5,000 years of recorded history has been experiencing growing pains, with no end in sight. It is high time for humanity to grow up and to transcend itself by embracing transhumanism. Transhumanism offers the most inclusive ideology for all ethnicities and races, the religious and the atheists, conservatives and liberals, the young and the old regardless of socioeconomic status, gender identity,

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or any other individual qualities. This book expounds on contemporary views and practical advice from more than 70 transhumanists. Astronaut Neil Armstrong said on the Apollo 11 moon landing in 1969, “One small step for a man, one giant leap for mankind.” Transhumanism is the next logical step in the evolution of humankind, and it is the existential solution to the long-term survival of the human race.

Imagine a world where you can make a computer program learn for itself? What if it could recognize who is in a picture or the exact websites that you want to look for when you type it into the program? What if you were able to create any kind of program that you wanted, even as a beginner programmer, without all of the convoluted codes and other information that makes your head spin? This is actually all possible. The programs that were mentioned before are all a part of machine learning. This is a breakthrough in the world of information technology, which allows the computer to learn how to behave, rather than asking the programmer to think of every single instance that may show up with their user ahead of time. It is taking over the world, and you may be using it now, without even realizing it. If you have used a search engine, worked with photo recognition, or done speech recognition devices on your phone, then you have worked with machine learning. And if you combine it with the Python programming language, it is faster, more powerful, and easier (even for beginners) to create your own programs today. Python is considered the ultimate coding language for beginners, but once you start to use it, you will never be able to tell. Many of the best programs out there use this language behind them, and if you are a beginner who is ready to learn, this is a great place to start. If you have a program in mind, or you just want to be able to get some programming knowledge and learn more about the power that comes behind it, then this is the guidebook for you. ??

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will discuss include?? ? The Fundamentals of Machine Learning, Deep learning, And Neural Networks ? How To Set Up Your Environment And Make Sure That Python, TensorFlow And Scikit-Learn Work Well For You ? How To Master Neural Network Implementation Using Different Libraries ? How Random Forest Algorithms Are Able To Help Out With Machine Learning ? How To Uncover Hidden Patterns And Structures With Clustering ? How Recurrent Neural Networks Work And When To Use ? The Importance Of Linear Classifiers And Why They Need To Be Used In Machine Learning ? And Much More! This guidebook is going to provide you with the information you need to get started with Python Machine Learning. If you have an idea for a great program, but you don't have the technical knowledge to make it happen, then this guidebook will help you get started. Machine learning has the capabilities, and Python has the ease, to help you, even as a beginner, create any product that you would like. If you want to learn more about how to make the best programs with Python Machine learning, buy the book today!

A handy reference guide for data analysts and data scientists to help to obtain value from big data analytics using Spark on Hadoop clusters About This Book This book is based on the latest 2.0 version of Apache Spark and 2.7 version of Hadoop integrated with most commonly used tools. Learn all Spark stack components including latest topics such as DataFrames, DataSets, GraphFrames, Structured Streaming, DataFrame based ML Pipelines and SparkR. Integrations with frameworks such as HDFS, YARN and tools such as Jupyter, Zeppelin, NiFi, Mahout, HBase Spark Connector, GraphFrames, H2O and Hivemall. Who This Book Is For Though this book is primarily aimed at data analysts and data scientists, it will also help architects, programmers, and practitioners. Knowledge of either Spark or Hadoop would be

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beneficial. It is assumed that you have basic programming background in Scala, Python, SQL, or R programming with basic Linux experience. Working experience within big data environments is not mandatory. What You Will Learn Find out and implement the tools and techniques of big data analytics using Spark on Hadoop clusters with wide variety of tools used with Spark and Hadoop Understand all the Hadoop and Spark ecosystem components Get to know all the Spark components: Spark Core, Spark SQL, DataFrames, DataSets, Conventional and Structured Streaming, MLLib, ML Pipelines and Graphx See batch and real-time data analytics using Spark Core, Spark SQL, and Conventional and Structured Streaming Get to grips with data science and machine learning using MLLib, ML Pipelines, H2O, Hivemall, Graphx, SparkR and Hivemall. In Detail Big Data Analytics book aims at providing the fundamentals of Apache Spark and Hadoop. All Spark components – Spark Core, Spark SQL, DataFrames, Data sets, Conventional Streaming, Structured Streaming, MLLib, Graphx and Hadoop core components – HDFS, MapReduce and Yarn are explored in greater depth with implementation examples on Spark + Hadoop clusters. It is moving away from MapReduce to Spark. So, advantages of Spark over MapReduce are explained at great depth to reap benefits of in-memory speeds. DataFrames API, Data Sources API and new Data set API are explained for building Big Data analytical applications. Real-time data analytics using Spark Streaming with Apache Kafka and HBase is covered to help building streaming applications. New Structured streaming concept is explained with an IOT (Internet of Things) use case. Machine learning techniques are covered using MLLib, ML Pipelines and SparkR and Graph Analytics are covered with GraphX and GraphFrames components of Spark. Readers will also get an opportunity to get started with web based notebooks

such as Jupyter, Apache Zeppelin and data flow tool Apache NiFi to analyze and visualize data. Style and approach This step-by-step pragmatic guide will make life easy no matter what your level of experience. You will deep dive into Apache Spark on Hadoop clusters through ample exciting real-life examples. Practical tutorial explains data science in simple terms to help programmers and data analysts get started with Data Science

Create your own natural language training corpus for machine learning. Whether you're working with English, Chinese, or any other natural language, this hands-on book guides you through a proven annotation development cycle—the process of adding metadata to your training corpus to help ML algorithms work more efficiently. You don't need any programming or linguistics experience to get started. Using detailed examples at every step, you'll learn how the MATTER Annotation Development Process helps you Model, Annotate, Train, Test, Evaluate, and Revise your training corpus. You also get a complete walkthrough of a real-world annotation project. Define a clear annotation goal before collecting your dataset (corpus) Learn tools for analyzing the linguistic content of your corpus Build a model and specification for your annotation project Examine the different annotation formats, from basic XML to the Linguistic Annotation Framework Create a gold standard corpus that can be used to train and test ML algorithms Select the ML algorithms that will process your annotated data Evaluate the test

results and revise your annotation task Learn how to use lightweight software for annotating texts and adjudicating the annotations This book is a perfect companion to O'Reilly's Natural Language Processing with Python.

From the Foreword: "While large-scale machine learning and data mining have greatly impacted a range of commercial applications, their use in the field of Earth sciences is still in the early stages. This book, edited by Ashok Srivastava, Ramakrishna Nemani, and Karsten Steinhäuser, serves as an outstanding resource for anyone interested in the opportunities and challenges for the machine learning community in analyzing these data sets to answer questions of urgent societal interest...I hope that this book will inspire more computer scientists to focus on environmental applications, and Earth scientists to seek collaborations with researchers in machine learning and data mining to advance the frontiers in Earth sciences." --Vipin Kumar, University of Minnesota Large-Scale Machine Learning in the Earth Sciences provides researchers and practitioners with a broad overview of some of the key challenges in the intersection of Earth science, computer science, statistics, and related fields. It explores a wide range of topics and provides a compilation of recent research in the application of machine learning in the field of Earth Science. Making predictions based on observational data is a

theme of the book, and the book includes chapters on the use of network science to understand and discover teleconnections in extreme climate and weather events, as well as using structured estimation in high dimensions. The use of ensemble machine learning models to combine predictions of global climate models using information from spatial and temporal patterns is also explored. The second part of the book features a discussion on statistical downscaling in climate with state-of-the-art scalable machine learning, as well as an overview of methods to understand and predict the proliferation of biological species due to changes in environmental conditions. The problem of using large-scale machine learning to study the formation of tornadoes is also explored in depth. The last part of the book covers the use of deep learning algorithms to classify images that have very high resolution, as well as the unmixing of spectral signals in remote sensing images of land cover. The authors also apply long-tail distributions to geoscience resources, in the final chapter of the book.

Introducing a handbook for gene regulatory network research using evolutionary computation, with applications for computer scientists, computational and system biologists This book is a step-by-step guideline for research in gene regulatory networks (GRN) using evolutionary computation (EC). The book is organized into four parts that deliver

materials in a way equally attractive for a reader with training in computation or biology. Each of these sections, authored by well-known researchers and experienced practitioners, provides the relevant materials for the interested readers. The first part of this book contains an introductory background to the field. The second part presents the EC approaches for analysis and reconstruction of GRN from gene expression data. The third part of this book covers the contemporary advancements in the automatic construction of gene regulatory and reaction networks and gives direction and guidelines for future research. Finally, the last part of this book focuses on applications of GRNs with EC in other fields, such as design, engineering and robotics. • Provides a reference for current and future research in gene regulatory networks (GRN) using evolutionary computation (EC) • Covers sub-domains of GRN research using EC, such as expression profile analysis, reverse engineering, GRN evolution, applications • Contains useful contents for courses in gene regulatory networks, systems biology, computational biology, and synthetic biology • Delivers state-of-the-art research in genetic algorithms, genetic programming, and swarm intelligence Evolutionary Computation in Gene Regulatory Network Research is a reference for researchers and professionals in computer science, systems biology, and bioinformatics, as well

as upper undergraduate, graduate, and postgraduate students. Hitoshi Iba is a Professor in the Department of Information and Communication Engineering, Graduate School of Information Science and Technology, at the University of Tokyo, Tokyo, Japan. He is an Associate Editor of the IEEE Transactions on Evolutionary Computation and the journal of Genetic Programming and Evolvable Machines. Nasimul Noman is a lecturer in the School of Electrical Engineering and Computer Science at the University of Newcastle, NSW, Australia. From 2002 to 2012 he was a faculty member at the University of Dhaka, Bangladesh. Noman is an Editor of the BioMed Research International journal. His research interests include computational biology, synthetic biology, and bioinformatics.

With big data analytics comes big insights into profitability. Big data is big business. But having the data and the computational power to process it isn't nearly enough to produce meaningful results. *Big Data, Data Mining, and Machine Learning: Value Creation for Business Leaders and Practitioners* is a complete resource for technology and marketing executives looking to cut through the hype and produce real results that hit the bottom line.

Providing an engaging, thorough overview of the current state of big data analytics and the growing trend toward high performance computing architectures, the book is a detail-driven look into

how big data analytics can be leveraged to foster positive change and drive efficiency. With continued exponential growth in data and ever more competitive markets, businesses must adapt quickly to gain every competitive advantage available. Big data analytics can serve as the linchpin for initiatives that drive business, but only if the underlying technology and analysis is fully understood and appreciated by engaged stakeholders. This book provides a view into the topic that executives, managers, and practitioners require, and includes: A complete overview of big data and its notable characteristics Details on high performance computing architectures for analytics, massively parallel processing (MPP), and in-memory databases Comprehensive coverage of data mining, text analytics, and machine learning algorithms A discussion of explanatory and predictive modeling, and how they can be applied to decision-making processes Big Data, Data Mining, and Machine Learning provides technology and marketing executives with the complete resource that has been notably absent from the veritable libraries of published books on the topic. Take control of your organization's big data analytics to produce real results with a resource that is comprehensive in scope and light on hyperbole.

Highly skilled 10x talent brings at least 10 times the value to your organization. By understanding how to

attract, manage, and retain these sought-after individuals, your business will become more agile and innovative and experience transformational growth. 10xers can tackle a company's thorniest problems, improve their strongest assets, and blaze a path to success. With the rapid digitization of every conceivable product and service, the environment has transformed so fast that every organization must be equipped with these phenomenally gifted employees to keep up. Game Changer provides proven strategies on how your company can create the right environment for top talent and breakthrough success by upending traditional business practices. It also reveals how individuals can evolve from good to great to 10x, and enjoy the many perks and rewards this status brings. With this book, you'll learn: How highly skilled talent is transforming companies of all sizes and industries through real world stories and first-hand testimonies from top executives and entrepreneurs. Ways managers can become coaches that empower their team to accomplish amazing results. The unconventional business environment 10xers need for massive productivity, including deep flow states, greater autonomy and ownership, and work time flexibility. How to see yourself as both talent and management and become comfortable switching these hats. For any reader who wants to make an impact at work, become a highly skilled, phenomenally gifted

employee, and experience the rewards and satisfaction of being 10x, *Game Changer* shows you how. “*Game Changer* is a must-read for leaders seeking actionable tools for empowering team members, unlocking their fullest potentials, and achieving 10x the results.” —Daniel Lubetsky, Founder and Executive Chairman of KIND Snacks

**Summary** Imagine predicting which customers are thinking about switching to a competitor or flagging potential process failures before they happen Think about the benefits of forecasting tedious business processes and back-office tasks Envision quickly gauging customer sentiment from social media content (even large volumes of it). Consider the competitive advantage of making decisions when you know the most likely future events Machine learning can deliver these and other advantages to your business, and it’s never been easier to get started! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

**About the technology** Machine learning can deliver huge benefits for everyday business tasks. With some guidance, you can get those big wins yourself without complex math or highly paid consultants! If you can crunch numbers in Excel, you can use modern ML services to efficiently direct marketing dollars, identify and keep your best customers, and optimize back office processes. This book shows you how. About the

book Machine Learning for Business teaches business-oriented machine learning techniques you can do yourself. Concentrating on practical topics like customer retention, forecasting, and back office processes, you'll work through six projects that help you form an ML-for-business mindset. To guarantee your success, you'll use the Amazon SageMaker ML service, which makes it a snap to turn your questions into results. What's inside

Identifying tasks suited to machine learning  
Automating back office processes  
Using open source and cloud-based tools  
Relevant case studies

About the reader For technically inclined business professionals or business application developers.

About the author Doug Hudgeon and Richard Nichol specialize in maximizing the value of business data through AI and machine learning for companies of any size.

Table of Contents:

PART 1 MACHINE LEARNING FOR BUSINESS 1 | How machine learning applies to your business

PART 2 SIX SCENARIOS: MACHINE LEARNING FOR BUSINESS 2 | Should you send a purchase order to a technical approver? 3 | Should you call a customer because they are at risk of churning? 4 | Should an incident be escalated to your support team? 5 | Should you question an invoice sent by a supplier? 6 | Forecasting your company's monthly power usage 7 | Improving your company's monthly power usage forecast

PART 3 MOVING MACHINE LEARNING INTO

PRODUCTION 8 | Serving predictions over the web  
9 | Case studies

### AN INTRODUCTION TO MACHINE LEARNING THAT INCLUDES THE FUNDAMENTAL TECHNIQUES, METHODS, AND APPLICATIONS

Machine Learning: a Concise Introduction offers a comprehensive introduction to the core concepts, approaches, and applications of machine learning. The author—an expert in the field—presents fundamental ideas, terminology, and techniques for solving applied problems in classification, regression, clustering, density estimation, and dimension reduction. The design principles behind the techniques are emphasized, including the bias-variance trade-off and its influence on the design of ensemble methods. Understanding these principles leads to more flexible and successful applications. Machine Learning: a Concise Introduction also includes methods for optimization, risk estimation, and model selection—essential elements of most applied projects. This important resource: Illustrates many classification methods with a single, running example, highlighting similarities and differences between methods Presents R source code which shows how to apply and interpret many of the techniques covered Includes many thoughtful exercises as an integral part of the text, with an appendix of selected solutions Contains useful information for effectively communicating with clients

A volume in the popular Wiley Series in Probability and Statistics, *Machine Learning: a Concise Introduction* offers the practical information needed for an understanding of the methods and application of machine learning. STEVEN W. KNOX holds a Ph.D. in Mathematics from the University of Illinois and an M.S. in Statistics from Carnegie Mellon University. He has over twenty years' experience in using Machine Learning, Statistics, and Mathematics to solve real-world problems. He currently serves as Technical Director of Mathematics Research and Senior Advocate for Data Science at the National Security Agency.

This book covers 3D printing activities by fused deposition modeling process. The two introductory chapters discuss the principle, types of machines and raw materials, process parameters, defects, design variations and simulation methods. Six chapters are devoted to experimental work related to process improvement, mechanical testing and characterization of the process, followed by three chapters on post-processing of 3D printed components and two chapters addressing sustainability concerns. Seven chapters discuss various applications including composites, external medical devices, drug delivery system, orthotic inserts, watertight components and 4D printing using FDM process. Finally, six chapters are dedicated to the study on modeling and optimization of FDM

process using computational models, evolutionary algorithms, machine learning, metaheuristic approaches and optimization of layout and tool path. This book constitutes the refereed proceedings of the First International Conference on Advanced Data Mining and Applications, ADMA 2005, held in Wuhan, China in July 2005. The conference was focused on sophisticated techniques and tools that can handle new fields of data mining, e.g. spatial data mining, biomedical data mining, and mining on high-speed and time-variant data streams; an expansion of data mining to new applications is also strived for. The 25 revised full papers and 75 revised short papers presented were carefully peer-reviewed and selected from over 600 submissions. The papers are organized in topical sections on association rules, classification, clustering, novel algorithms, text mining, multimedia mining, sequential data mining and time series mining, web mining, biomedical mining, advanced applications, security and privacy issues, spatial data mining, and streaming data mining.

With detailed notes, tables, and examples, this handy reference will help you navigate the basics of structured machine learning. Author Matt Harrison delivers a valuable guide that you can use for additional support during training and as a convenient resource when you dive into your next machine learning project. Ideal for programmers, data scientists, and AI engineers, this book includes an overview of the machine learning process and walks you through classification with structured data. You'll also learn methods for clustering, predicting a continuous value (regression), and reducing

dimensionality, among other topics. This pocket reference includes sections that cover: Classification, using the Titanic dataset Cleaning data and dealing with missing data Exploratory data analysis Common preprocessing steps using sample data Selecting features useful to the model Model selection Metrics and classification evaluation Regression examples using k-nearest neighbor, decision trees, boosting, and more Metrics for regression evaluation Clustering Dimensionality reduction Scikit-learn pipelines Providing a unique approach to machine learning, this text contains fresh and intuitive, yet rigorous, descriptions of all fundamental concepts necessary to conduct research, build products, tinker, and play. By prioritizing geometric intuition, algorithmic thinking, and practical real world applications in disciplines including computer vision, natural language processing, economics, neuroscience, recommender systems, physics, and biology, this text provides readers with both a lucid understanding of foundational material as well as the practical tools needed to solve real-world problems. With in-depth Python and MATLAB/OCTAVE-based computational exercises and a complete treatment of cutting edge numerical optimization techniques, this is an essential resource for students and an ideal reference for researchers and practitioners working in machine learning, computer science, electrical engineering, signal processing, and numerical optimization. Advances in Quantum Chemistry presents surveys of current topics in this rapidly developing field one that has emerged at the cross section of the historically

established areas of mathematics, physics, chemistry, and biology. It features detailed reviews written by leading international researchers. In this volume the readers are presented with an exciting combination of themes. Presents surveys of current topics in this rapidly-developing field that has emerged at the cross section of the historically established areas of mathematics, physics, chemistry and biology Features detailed reviews written by leading international researchers Topics include: New advances in Quantum Chemical Physics; Original theory and a contemporary overview of the field of Theoretical Chemical Physics; State-of-the-Art calculations in Theoretical Chemistry

??Have you come across the terms machine learning and neural networks in most articles you have recently read? Do you also want to learn how to build a machine learning model that will answer your questions within a blink of your eyes??? If you responded yes to any of the above questions, you have come to the right place. Machine learning is an incredibly dense topic. It's hard to imagine condensing it into an easily readable and digestible format. However, this book aims to do exactly that. Machine learning and artificial intelligence have been used in different machines and applications to improve the user's experience. One can also use machine learning to make data analysis and predicting the output for some data sets easy. All you need to do is choose the right algorithm, train the model and test the model before you apply it on any real-world tool. It is that simple isn't it? ??Apart from this, you will also learn more about?? ? The Different Types Of Learning Algorithm

That You Can Expect To Encounter ? The Numerous Applications Of Machine Learning And Deep Learning ? The Best Practices For Picking Up Neural Networks ? What Are The Best Languages And Libraries To Work With ? The Various Problems That You Can Solve With Machine Learning Algorithms ? And much more... Well, you can do it faster if you use Python. This language has made it easy for any user, even an amateur, to build a strong machine learning model since it has numerous directories and libraries that make it easy for one to build a model. Do you want to know how to build a machine learning model and a neural network? So, what are you waiting for? Grab a copy of this book now!

**WORKSHOP 1:** In this workshop, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to implement deep learning on recognizing traffic signs using GTSRB dataset, detecting brain tumor using Brain Image MRI dataset, classifying gender, and recognizing facial expression using FER2013 dataset In Chapter 1, you will learn to create GUI applications to display line graph using PyQt. You will also learn how to display image and its histogram. In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, Pandas, NumPy and other libraries to perform prediction on handwritten digits using MNIST dataset with PyQt. You will build a GUI application for this purpose. In Chapter 3, you will learn how to perform recognizing traffic signs using GTSRB dataset from Kaggle. There are several different types of traffic signs like speed limits, no entry, traffic signals, turn left or right, children crossing, no passing of heavy vehicles, etc.

Traffic signs classification is the process of identifying which class a traffic sign belongs to. In this Python project, you will build a deep neural network model that can classify traffic signs in image into different categories. With this model, you will be able to read and understand traffic signs which are a very important task for all autonomous vehicles. You will build a GUI application for this purpose. In Chapter 4, you will learn how to perform detecting brain tumor using Brain Image MRI dataset provided by Kaggle (<https://www.kaggle.com/navoneel/brain-mri-images-for-brain-tumor-detection>) using CNN model. You will build a GUI application for this purpose. In Chapter 5, you will learn how to perform classifying gender using dataset provided by Kaggle (<https://www.kaggle.com/cashutosh/gender-classification-dataset>) using MobileNetV2 and CNN models. You will build a GUI application for this purpose. In Chapter 6, you will learn how to perform recognizing facial expression using FER2013 dataset provided by Kaggle (<https://www.kaggle.com/nicolejyt/facialexpressionrecognition>) using CNN model. You will also build a GUI application for this purpose. **WORKSHOP 2:** In this workshop, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to implement deep learning on classifying fruits, classifying cats/dogs, detecting furnitures, and classifying fashion. In Chapter 1, you will learn to create GUI applications to display line graph using PyQt. You will also learn how to display image and its histogram. Then, you will learn how to use OpenCV, NumPy, and other libraries to perform feature extraction with Python

GUI (PyQt). The feature detection techniques used in this chapter are Harris Corner Detection, Shi-Tomasi Corner Detector, and Scale-Invariant Feature Transform (SIFT). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform classifying fruits using Fruits 360 dataset provided by Kaggle (<https://www.kaggle.com/moltean/fruits/code>) using Transfer Learning and CNN models. You will build a GUI application for this purpose. In Chapter 3, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform classifying cats/dogs using dataset provided by Kaggle (<https://www.kaggle.com/chetankv/dogs-cats-images>) using Using CNN with Data Generator. You will build a GUI application for this purpose. In Chapter 4, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting furnitures using Furniture Detector dataset provided by Kaggle (<https://www.kaggle.com/akkithetechie/furniture-detector>) using VGG16 model. You will build a GUI application for this purpose. In Chapter 5, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform classifying fashion using Fashion MNIST dataset provided by Kaggle (<https://www.kaggle.com/zalando-research/fashionmnist/code>) using CNN model. You will build a GUI application for this purpose. **WORKSHOP 3:** In this workshop, you will implement deep learning on detecting vehicle license plates, recognizing sign language, and detecting surface

crack using TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries. In Chapter 1, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting vehicle license plates using Car License Plate Detection dataset provided by Kaggle (<https://www.kaggle.com/andrewmvd/car-plate-detection/download>). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform sign language recognition using Sign Language Digits Dataset provided by Kaggle (<https://www.kaggle.com/ardamavi/sign-language-digits-dataset/download>). In Chapter 3, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting surface crack using Surface Crack Detection provided by Kaggle (<https://www.kaggle.com/arunrk7/surface-crack-detection/download>).

**WORKSHOP 4:** In this workshop, implement deep learning-based image classification on detecting face mask, classifying weather, and recognizing flower using TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries. In Chapter 1, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting face mask using Face Mask Detection Dataset provided by Kaggle (<https://www.kaggle.com/omkargurav/face-mask-dataset/download>). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform how to classify weather using Multi-class Weather Dataset provided by Kaggle (<https://www.kaggle.com/omkargurav/face-mask-dataset/download>).

[kaggle.com/pratik2901/multiclass-weather-dataset/download](https://www.kaggle.com/pratik2901/multiclass-weather-dataset/download)). **WORKSHOP 5:** In this workshop, implement deep learning-based image classification on classifying monkey species, recognizing rock, paper, and scissor, and classify airplane, car, and ship using TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries. In Chapter 1, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform how to classify monkey species using 10 Monkey Species dataset provided by Kaggle (<https://www.kaggle.com/slot hkong/10-monkey-species/download>). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform how to recognize rock, paper, and scissor using 10 Monkey Species dataset provided by Kaggle (<https://www.kaggle.com/sanikamal/rock-paper-scissors-dataset/download>). **WORKSHOP 6:** In this workshop, you will implement two data science projects using Scikit-Learn, Scipy, and other libraries with Python GUI. In Chapter 1, you will learn how to use Scikit-Learn, Scipy, and other libraries to perform how to predict traffic (number of vehicles) in four different junctions using Traffic Prediction Dataset provided by Kaggle (<https://www.kaggle.com/fedesoriano/traffic-prediction-dataset/download>). This dataset contains 48.1k (48120) observations of the number of vehicles each hour in four different junctions: 1) DateTime; 2) Junction; 3) Vehicles; and 4) ID. In Chapter 2, you will learn how to use Scikit-Learn, NumPy, Pandas, and other libraries to perform how to analyze and predict heart attack using Heart

Attack Analysis & Prediction Dataset provided by Kaggle (<https://www.kaggle.com/rashikrahmanpritom/heart-attack-analysis-prediction-dataset/download>).

**WORKSHOP 7:** In this workshop, you will implement two data science projects using Scikit-Learn, Scipy, and other libraries with Python GUI. In Project 1, you will learn how to use Scikit-Learn, NumPy, Pandas, Seaborn, and other libraries to perform how to predict early stage diabetes using Early Stage Diabetes Risk Prediction Dataset provided by Kaggle (<https://www.kaggle.com/ishandutta/early-stage-diabetes-risk-prediction-dataset/download>). This dataset contains the sign and symptom data of newly diabetic or would be diabetic patient. This has been collected using direct questionnaires from the patients of Sylhet Diabetes Hospital in Sylhet, Bangladesh and approved by a doctor. You will develop a GUI using PyQt5 to plot distribution of features, feature importance, cross validation score, and predicted values versus true values. The machine learning models used in this project are Adaboost, Random Forest, Gradient Boosting, Logistic Regression, and Support Vector Machine. In Project 2, you will learn how to use Scikit-Learn, NumPy, Pandas, and other libraries to perform how to analyze and predict breast cancer using Breast Cancer Prediction Dataset provided by Kaggle (<https://www.kaggle.com/merishnasuwal/breast-cancer-prediction-dataset/download>).

Worldwide, breast cancer is the most common type of cancer in women and the second highest in terms of mortality rates. Diagnosis of breast cancer is performed when an abnormal lump is found (from self-examination

or x-ray) or a tiny speck of calcium is seen (on an x-ray). After a suspicious lump is found, the doctor will conduct a diagnosis to determine whether it is cancerous and, if so, whether it has spread to other parts of the body. This breast cancer dataset was obtained from the University of Wisconsin Hospitals, Madison from Dr. William H. Wolberg. You will develop a GUI using PyQt5 to plot distribution of features, pairwise relationship, test scores, predicted values versus true values, confusion matrix, and decision boundary. The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, and Support Vector Machine. **WORKSHOP 8:** In this workshop, you will learn how to use Scikit-Learn, TensorFlow, Keras, NumPy, Pandas, Seaborn, and other libraries to implement brain tumor classification and detection with machine learning using Brain Tumor dataset provided by Kaggle. This dataset contains five first order features: Mean (the contribution of individual pixel intensity for the entire image), Variance (used to find how each pixel varies from the neighboring pixel 0, Standard Deviation (the deviation of measured Values or the data from its mean), Skewness (measures of symmetry), and Kurtosis (describes the peak of e.g. a frequency distribution). It also contains eight second order features: Contrast, Energy, ASM (Angular second moment), Entropy, Homogeneity, Dissimilarity, Correlation, and Coarseness. The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, and Support Vector Machine. The deep

learning models used in this project are MobileNet and ResNet50. In this project, you will develop a GUI using PyQt5 to plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, training loss, and training accuracy. **WORKSHOP 9:** In this workshop, you will learn how to use Scikit-Learn, Keras, TensorFlow, NumPy, Pandas, Seaborn, and other libraries to perform COVID-19 Epitope Prediction using COVID-19/SARS B-cell Epitope Prediction dataset provided in Kaggle. All of three datasets consists of information of protein and peptide: `parent_protein_id` : parent protein ID; `protein_seq` : parent protein sequence; `start_position` : start position of peptide; `end_position` : end position of peptide; `peptide_seq` : peptide sequence; `chou_fasman` : peptide feature; `emini` : peptide feature, relative surface accessibility; `kolaskar_tongaonkar` : peptide feature, antigenicity; `parker` : peptide feature, hydrophobicity; `isoelectric_point` : protein feature; `aromacity`: protein feature; `hydrophobicity` : protein feature; `stability` : protein feature; and `target` : antibody valence (target value). The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, Adaboost, Gradient Boosting, XGB classifier, and MLP classifier. Then, you will learn how to use sequential CNN and VGG16 models to detect and predict Covid-19 X-RAY using COVID-19 Xray Dataset (Train & Test Sets) provided in Kaggle. The folder itself consists of two subfolders: test and train. Finally, you will develop a GUI using PyQt5 to plot

boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, training loss, and training accuracy. **WORKSHOP 10:** In this workshop, you will learn how to use Scikit-Learn, Keras, TensorFlow, NumPy, Pandas, Seaborn, and other libraries to perform analyzing and predicting stroke using dataset provided in Kaggle. The dataset consists of attribute information: id: unique identifier; gender: "Male", "Female" or "Other"; age: age of the patient; hypertension: 0 if the patient doesn't have hypertension, 1 if the patient has hypertension; heart\_disease: 0 if the patient doesn't have any heart diseases, 1 if the patient has a heart disease; ever\_married: "No" or "Yes"; work\_type: "children", "Govt\_jov", "Never\_worked", "Private" or "Self-employed"; Residence\_type: "Rural" or "Urban"; avg\_glucose\_level: average glucose level in blood; bmi: body mass index; smoking\_status: "formerly smoked", "never smoked", "smokes" or "Unknown"; and stroke: 1 if the patient had a stroke or 0 if not. The models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, Adaboost, LGBM classifier, Gradient Boosting, XGB classifier, MLP classifier, and CNN 1D. Finally, you will develop a GUI using PyQt5 to plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy. **WORKSHOP 11:** In this workshop, you will

learn how to use Scikit-Learn, Keras, TensorFlow, NumPy, Pandas, Seaborn, and other libraries to perform classifying and predicting Hepatitis C using dataset provided by UCI Machine Learning Repository. All attributes in dataset except Category and Sex are numerical. Attributes 1 to 4 refer to the data of the patient: X (Patient ID/No.), Category (diagnosis) (values: '0=Blood Donor', '0s=suspect Blood Donor', '1=Hepatitis', '2=Fibrosis', '3=Cirrhosis'), Age (in years), Sex (f,m), ALB, ALP, ALT, AST, BIL, CHE, CHOL, CREA, GGT, and PROT. The target attribute for classification is Category (2): blood donors vs. Hepatitis C patients (including its progress ('just' Hepatitis C, Fibrosis, Cirrhosis). The models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, Adaboost, LGBM classifier, Gradient Boosting, XGB classifier, MLP classifier, and ANN 1D. Finally, you will develop a GUI using PyQt5 to plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy.

Practical Deep Learning teaches total beginners how to build the datasets and models needed to train neural networks for your own DL projects. If you've been curious about machine learning but didn't know where to start, this is the book you've been waiting for. Focusing on the subfield of machine learning known as deep learning, it explains core concepts and gives you the

foundation you need to start building your own models. Rather than simply outlining recipes for using existing toolkits, *Practical Deep Learning* teaches you the why of deep learning and will inspire you to explore further. All you need is basic familiarity with computer programming and high school math—the book will cover the rest. After an introduction to Python, you'll move through key topics like how to build a good training dataset, work with the scikit-learn and Keras libraries, and evaluate your models' performance. You'll also learn:

- How to use classic machine learning models like k-Nearest Neighbors, Random Forests, and Support Vector Machines
- How neural networks work and how they're trained
- How to use convolutional neural networks
- How to develop a successful deep learning model from scratch

You'll conduct experiments along the way, building to a final case study that incorporates everything you've learned. The perfect introduction to this dynamic, ever-expanding field, *Practical Deep Learning* will give you the skills and confidence to dive into your own machine learning projects.

Automatic Text Categorization and Clustering are becoming more and more important as the amount of text in electronic format grows and the access to it becomes more necessary and widespread. Well known applications are spam filtering and web search, but a large number of everyday uses exist (intelligent web search, data mining, law enforcement, etc.) Currently, researchers are employing many intelligent techniques for text categorization and clustering, ranging from support vector machines and neural networks to

Bayesian inference and algebraic methods, such as Latent Semantic Indexing. This volume offers a wide spectrum of research work developed for intelligent text categorization and clustering. In the following, we give a brief introduction of the chapters that are included in this book.

**Cognitive Computing for Human-Robot Interaction: Principles and Practices** explores the efforts that should ultimately enable society to take advantage of the often-heralded potential of robots to provide economical and sustainable computing applications. This book discusses each of these applications, presents working implementations, and combines coherent and original deliberative architecture for human–robot interactions (HRI). Supported by experimental results, it shows how explicit knowledge management promises to be instrumental in building richer and more natural HRI, by pushing for pervasive, human-level semantics within the robot's deliberative system for sustainable computing applications. This book will be of special interest to academics, postgraduate students, and researchers working in the area of artificial intelligence and machine learning. Key features: Introduces several new contributions to the representation and management of humans in autonomous robotic systems; Explores the potential of cognitive computing, robots, and HRI to generate a deeper understanding and to provide a better contribution

from robots to society; Engages with the potential repercussions of cognitive computing and HRI in the real world. Introduces several new contributions to the representation and management of humans in an autonomous robotic system Explores cognitive computing, robots and HRI, presenting a more in-depth understanding to make robots better for society Gives a challenging approach to those several repercussions of cognitive computing and HRI in the actual global scenario

Discover how data science can help you gain in-depth insight into your business - the easy way! Jobs in data science abound, but few people have the data science skills needed to fill these increasingly important roles. Data Science For Dummies is the perfect starting point for IT professionals and students who want a quick primer on all areas of the expansive data science space. With a focus on business cases, the book explores topics in big data, data science, and data engineering, and how these three areas are combined to produce tremendous value. If you want to pick-up the skills you need to begin a new career or initiate a new project, reading this book will help you understand what technologies, programming languages, and mathematical methods on which to focus. While this book serves as a wildly fantastic guide through the broad, sometimes intimidating field of big data and data science, it is not an instruction manual for

hands-on implementation. Here's what to expect: Provides a background in big data and data engineering before moving on to data science and how it's applied to generate value Includes coverage of big data frameworks like Hadoop, MapReduce, Spark, MPP platforms, and NoSQL Explains machine learning and many of its algorithms as well as artificial intelligence and the evolution of the Internet of Things Details data visualization techniques that can be used to showcase, summarize, and communicate the data insights you generate It's a big, big data world out there—let Data Science For Dummies help you harness its power and gain a competitive edge for your organization. Analytics and artificial intelligence (AI), what are they good for? The bandwagon keeps answering, absolutely everything! Analytics and artificial intelligence have captured the attention of everyone from top executives to the person in the street. While these disciplines have a relatively long history, within the last ten or so years they have exploded into corporate business and public consciousness. Organizations have rushed to embrace data-driven decision making. Companies everywhere are turning out products boasting that "artificial intelligence is included." We are indeed living in exciting times. The question we need to ask is, do we really know how to get business value from these exciting tools? Unfortunately, both the analytics and AI communities

have not done a great job in collaborating and communicating with each other to build the necessary synergies. This book bridges the gap between these two critical fields. The book begins by explaining the commonalities and differences in the fields of data science, artificial intelligence, and autonomy by giving a historical perspective for each of these fields, followed by exploration of common technologies and current trends in each field. The book also readers introduces to applications of deep learning in industry with an overview of deep learning and its key architectures, as well as a survey and discussion of the main applications of deep learning. The book also presents case studies to illustrate applications of AI and analytics. These include a case study from the healthcare industry and an investigation of a digital transformation enabled by AI and analytics transforming a product-oriented company into one delivering solutions and services. The book concludes with a proposed AI-informed data analytics life cycle to be applied to unstructured data.

This issue of Neuroimaging Clinics of North America focuses on Functional Connectivity, and is edited by Dr. Jay Pillai. Articles will include: Applications of rs-fMRI to presurgical mapping; sensorimotor mapping; Dynamic functional connectivity methods; Machine learning applications to rs-fMRI analysis; Frequency domain analysis of rs-fMRI; Applications of rs-fMRI

to epilepsy; Data-driven analysis methods for rs-fMRI; Applications of rs-fMRI to presurgical mapping: language mapping; Limitations of rs-fMRI in the setting of focal brain lesions; Applications of rs-fMRI to neuropsychiatric disease; Applications of rs-fMRI to Traumatic Brain Injury; Applications of rs-fMRI to neurodegenerative disease; Graph theoretic analysis of rs-fMRI; and more!

Discover how to survive and thrive in an increasingly digital world Digital strategy should consist of more than just updating your business' desktop computers and buying the newest smartphones for your employees. It requires the reimagining of existing business processes and the implementation of the latest technologies into current business activity to enable new capabilities for your firm. In *Decisively Digital: From Creating a Culture to Designing Strategy*, digital strategy advisor and author Alexander Loth leverages his extensive experience working with Microsoft, CERN, and SAP to deliver a robust and accessible exploration of what it takes for a company to unlock the potential of new digital technologies. You'll discover how to: Utilize new technologies to establish a digital culture and realize the benefits of modern work for your employees Unleash the abilities that come with processing big data and taking advantage of data democracy, analytics, and cloud computing Implement artificial intelligence, blockchain, process

automation, and IoT in a way that goes beyond the hype and delivers real business results Packed with interviews with industry leaders and real-world customer examples, Decisively Digital is ideal for CIOs, CDOs, and other executives and professionals who need to know how technology can improve their businesses and power results today and tomorrow. A comprehensive guide to the art and science of bioimaging data acquisition, processing and analysis Standard and Super-Resolution Bioimaging Data Analysis gets newcomers to bioimage data analysis quickly up to speed on the mathematics, statistics, computing hardware and acquisition technologies required to correctly process and document data. The past quarter century has seen remarkable progress in the field of light microscopy for biomedical science, with new imaging technologies coming on the market at an almost annual basis. Most of the data generated by these systems is image-based, and there is a significant increase in the content and throughput of these imaging systems. This, in turn, has resulted in a shift in the literature on biomedical research from descriptive to highly-quantitative. Standard and Super-Resolution Bioimaging Data Analysis satisfies the demand among students and research scientists for introductory guides to the tools for parsing and processing image data. Extremely well illustrated and including numerous examples, it clearly and

accessibly explains what image data is and how to process and document it, as well as the current resources and standards in the field. A comprehensive guide to the tools for parsing and processing image data and the resources and industry standards for the biological and biomedical sciences Takes a practical approach to image analysis to assist scientists in ensuring scientific data are robust and reliable Covers fundamental principles in such a way as to give beginners a sound scientific base upon which to build Ideally suited for advanced students having only limited knowledge of the mathematics, statistics and computing required for image data analysis An entry-level text written for students and practitioners in the bioscience community, Standard and Super-Resolution Bioimaging Data Analysis demythologises the vast array of image analysis modalities which have come online over the past decade while schooling beginners in bioimaging principles, mathematics, technologies and standards.

Your logical, linear guide to the fundamentals of data science programming Data science is exploding—in a good way—with a forecast of 1.7 megabytes of new information created every second for each human being on the planet by 2020 and 11.5 million job openings by 2026. It clearly pays dividends to be in the know. This friendly guide charts a path through

the fundamentals of data science and then delves into the actual work: linear regression, logical regression, machine learning, neural networks, recommender engines, and cross-validation of models. *Data Science Programming All-In-One For Dummies* is a compilation of the key data science, machine learning, and deep learning programming languages: Python and R. It helps you decide which programming languages are best for specific data science needs. It also gives you the guidelines to build your own projects to solve problems in real time. *Get grounded: the ideal start for new data professionals* *What lies ahead: learn about specific areas that data is transforming* *Be meaningful: find out how to tell your data story* *See clearly: pick up the art of visualization* Whether you're a beginning student or already mid-career, get your copy now and add even more meaning to your life—and everyone else's!

The two-volume set LNAI 13067 and 13068 constitutes the proceedings of the 20th Mexican International Conference on Artificial Intelligence, MICAI 2021, held in Mexico City, Mexico, in October 2021. The total of 58 papers presented in these two volumes was carefully reviewed and selected from 129 submissions. The first volume, *Advances in Computational Intelligence*, contains 30 papers structured into three sections: – Machine and Deep Learning – Image Processing and Pattern

Recognition – Evolutionary and Metaheuristic Algorithms The second volume, *Advances in Soft Computing*, contains 28 papers structured into two sections: – Natural Language Processing – Intelligent Applications and Robotics

Learn how to process and analysis data using Python Key Features a- The book has theories explained elaborately along with Python code and corresponding output to support the theoretical explanations. The Python codes are provided with step-by-step comments to explain each instruction of the code. a- The book is quite well balanced with programs and illustrative real-case problems. a- The book not only deals with the background mathematics alone or only the programs but also beautifully correlates the background mathematics to the theory and then finally translating it into the programs. a- A rich set of chapter-end exercises are provided, consisting of both short-answer questions and long-answer questions. Description This book introduces the fundamental concepts of Data Science, which has proved to be a major game-changer in business solving problems. Topics covered in the book include fundamentals of Data Science, data preprocessing, data plotting and visualization, statistical data analysis, machine learning for data analysis, time-series analysis, deep learning for Data Science, social media analytics, business analytics, and Big Data analytics. The

content of the book describes the fundamentals of each of the Data Science related topics together with illustrative examples as to how various data analysis techniques can be implemented using different tools and libraries of Python programming language. Each chapter contains numerous examples and illustrative output to explain the important basic concepts. An appropriate number of questions is presented at the end of each chapter for self-assessing the conceptual understanding. The references presented at the end of every chapter will help the readers to explore more on a given topic. What will you learn a- Understand what machine learning is and how learning can be incorporated into a program. a- Perform data processing to make it ready for visual plot to understand the pattern in data over time. a- Know how tools can be used to perform analysis on big data using python a- Perform social media analytics, business analytics, and data analytics on any data of a company or organization. Who this book is for The book is for readers with basic programming and mathematical skills. The book is for any engineering graduates that wish to apply data science in their projects or wish to build a career in this direction. The book can be read by anyone who has an interest in data analysis and would like to explore more out of interest or to apply it to certain real-life problems. Table of Contents 1. Fundamentals of Data Science 1 2. Data

Preprocessing 3. Data Plotting and Visualization 4. Statistical Data Analysis 5. Machine Learning for Data Science 6. Time-Series Analysis 7. Deep Learning for Data Science 8. Social Media Analytics 9. Business Analytics 10. Big Data Analytics About the Authors Dr. Gypsy Nandi is an Assistant Professor (Sr) in the Department of Computer Applications, Assam Don Bosco University, India. Her areas of interest include Data Science, Social Network Mining, and Machine Learning. She has completed her Ph.D. in the field of 'Social Network Analysis and Mining'. Her research scholars are currently working mainly in the field of Data Science. She has several research publications in reputed journals and book series. Dr. Rupam Kumar Sharma is an Assistant Professor in the Department of Computer Applications, Assam Don Bosco University, India. His area of interest includes Machine Learning, Data Analytics, Network, and Cyber Security. He has several research publications in reputed SCI and Scopus journals. He has also delivered lectures and trained hundreds of trainees and students across different institutes in the field of security and android app development. This book covers recent research on the COVID-19 pandemic. It includes the analysis, implementation, usage, and proposed ideas and models with architecture to handle the COVID-19 outbreak. Using advanced technologies such as artificial intelligence

(AI) and machine learning (ML), techniques for data analysis, this book will be helpful to mitigate exposure and ensure public health. We know prevention is better than cure, so by using several ML techniques, researchers can try to predict the disease in its early stage and develop more effective medications and treatments. Computational technologies in areas like AI, ML, Internet of Things (IoT), and drone technologies underlie a range of applications that can be developed and utilized for this purpose. Because in most cases there is no one solution to stop the spreading of pandemic diseases, and the integration of several tools and tactics are needed. Many successful applications of AI, ML, IoT, and drone technologies already exist, including systems that analyze past data to predict and conclude some useful information for controlling the spread of COVID-19 infections using minimum resources. The AI and ML approach can be helpful to design different models to give a predictive solution for mitigating infection and preventing larger outbreaks. This book: Examines the use of artificial intelligence (AI), machine learning (ML), Internet of Things (IoT), and drone technologies as a helpful predictive solution for controlling infection of COVID-19 Covers recent research related to the COVID-19 pandemic and includes the analysis, implementation, usage, and proposed ideas and models with architecture to handle a pandemic

outbreak Examines the performance, implementation, architecture, and techniques of different analytical and statistical models related to COVID-19 Includes different case studies on COVID-19 Dr. Chhabi Rani Panigrahi is Assistant Professor in the Department of Computer Science at Rama Devi Women's University, Bhubaneswar, India. Dr. Bibudhendu Pati is Associate Professor and Head of the Department of Computer Science at Rama Devi Women's University, Bhubaneswar, India. Dr. Mamata Rath is Assistant Professor in the School of Management (Information Technology) at Birla Global University, Bhubaneswar, India. Prof. Rajkumar Buyya is a Redmond Barry Distinguished Professor and Director of the Cloud Computing and Distributed Systems (CLOUDS) Laboratory at the University of Melbourne, Australia.

This book presents high-quality research on the concepts and developments in the field of information and communication technologies, and their applications. It features 134 rigorously selected papers (including 10 poster papers) from the Future of Information and Communication Conference 2020 (FICC 2020), held in San Francisco, USA, from March 5 to 6, 2020, addressing state-of-the-art intelligent methods and techniques for solving real-world problems along with a vision of future research. Discussing various aspects of communication, data science, ambient intelligence, networking,

computing, security and Internet of Things, the book offers researchers, scientists, industrial engineers and students valuable insights into the current research and next generation information science and communication technologies.

In the era of social connectedness, people are becoming increasingly enthusiastic about interacting, sharing, and collaborating through online collaborative media. However, conducting sentiment analysis on these platforms can be challenging, especially for business professionals who are using them to collect vital data. *Sentiment Analysis and Knowledge Discovery in Contemporary Business* is an essential reference source that discusses applications of sentiment analysis as well as data mining, machine learning algorithms, and big data streams in business environments. Featuring research on topics such as knowledge retrieval and knowledge updating, this book is ideally designed for business managers, academicians, business professionals, researchers, graduate-level students, and technology developers seeking current research on data collection and management to drive profit.

Your no-nonsense guide to making sense of machine learning Machine learning can be a mind-boggling concept for the masses, but those who are in the trenches of computer programming know just how invaluable it is. Without machine learning, fraud detection, web search results, real-time ads on web

pages, credit scoring, automation, and email spam filtering wouldn't be possible, and this is only showcasing just a few of its capabilities. Written by two data science experts, *Machine Learning For Dummies* offers a much-needed entry point for anyone looking to use machine learning to accomplish practical tasks. Covering the entry-level topics needed to get you familiar with the basic concepts of machine learning, this guide quickly helps you make sense of the programming languages and tools you need to turn machine learning-based tasks into a reality. Whether you're maddened by the math behind machine learning, apprehensive about AI, perplexed by preprocessing data—or anything in between—this guide makes it easier to understand and implement machine learning seamlessly. Grasp how day-to-day activities are powered by machine learning

Learn to 'speak' certain languages, such as Python and R, to teach machines to perform pattern-oriented tasks and data analysis

Learn to code in R using R Studio

Find out how to code in Python using Anaconda

Dive into this complete beginner's guide so you are armed with all you need to know about machine learning!

*Bioinformatics - Trends and Methodologies* is a collection of different views on most recent topics and basic concepts in bioinformatics. This book suits young researchers who seek basic fundamentals of bioinformatic skills such as data mining, data

integration, sequence analysis and gene expression analysis as well as scientists who are interested in current research in computational biology and bioinformatics including next generation sequencing, transcriptional analysis and drug design. Because of the rapid development of new technologies in molecular biology, new bioinformatic techniques emerge accordingly to keep the pace of in silico development of life science. This book focuses partly on such new techniques and their applications in biomedical science. These techniques maybe useful in identification of some diseases and cellular disorders and narrow down the number of experiments required for medical diagnostic.

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